

## Lesson Description

Students will compute real Gross Domestic Product (GDP) and GDP per capita for three fictional countries and will answer questions related to actual data on GDP and GDP per capita. The Index of Economic Freedom will be used to compare and contrast the relationship between the degree of a country's economic freedom and the total output of that country and its standard of living. Students will both map and rank a sample of countries using GDP, GDP per capita and freedom index data.

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## Concepts

Economic growth  
Gross Domestic Product (GDP)  
GDP per capita  
Nominal GDP  
Real GDP  
Real GDP per capita  
Standard of living

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## Objectives

Students will:

- Define economic growth.
- Define Gross Domestic Product (GDP).
- Distinguish between nominal and real GDP.
- Define GDP per capita.
- Explain how GDP per capita is related to standard of living.
- Compare real GDP and real GDP per capita data of various countries.
- Explain what the Index of Economic Freedom is.

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## Content Standards

### National Standards in Economics

- **Standard 15:** Investment in factories, machinery, new technology, and in the health, education and training of people can raise future standards of living.
  - Benchmark 1, Grade 12: Economic growth is a sustained rise in a nation's production of goods and services. It results from investments in human and physical capital, research and development, and technological change, and from improved institutional arrangements and incentives.

- Benchmark 2, Grade 12: Historically, economic growth has been the primary vehicle for alleviating poverty and raising standards of living.
- **Standard 18:** 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.
- Benchmark 1, Grade 8: Gross Domestic Product (GDP) is a basic measure of a nation's economic output and income. It is the total market value, measured in dollars, of all final goods and services produced in the economy in a year.
- Benchmark 2, Grade 8: Per capita GDP IS GDP divided by the number of people living in a country.

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### Time Required

60-120 minutes

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### Materials

- A copy of Handout 1.1, 1.2, 1.4, 1.5, 1.6, 1.7 and 1.8 for each student
- A copy of Handout 1.3 for each student (optional) and Handout 1.3: Answer Key for the teacher
- One copy of Handout 1.8: Answer Key for the teacher
- One copy of Visual 1.1
- A student atlas for each group of four to five students or a classroom world wall map
- A calculator for each student
- A pen for each student

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### Procedures

1. Distribute a copy of *Handout 1.1: Which Came First—Democracy or Growth?* and *Handout 1.2: Glossary of Terms* to each student. Have the students read the article and refer to the glossary as needed for clarification of terms. Use the discussion questions on the handout and the additional questions below to help students understand what they have read.
  - What are two factors necessary for economic growth? (*The article states that the accumulation of physical capital and human capital are the primary determinants of economic growth.*)
  - Define and give examples beyond those in the glossary of physical capital. (*Additional examples might include equipment used by businesses to produce their goods or services such as computers used in the production of numerous products and services, medical equipment such as x-ray machines, lawn mowers used in the production of lawn services, delivery trucks, robots etc.*)

- Define and give examples beyond those in the glossary of human capital. *(Additional examples might include the development of the skill and knowledge through formal education and/or on-the-job training of a medical doctor, a sheet metal worker, a shoe designer, an architect, a chef, a broadcast journalist, a pharmaceutical salesman, etc.)*
  - Why might you think democracy fosters economic growth? *(Investment in capital—both physical and human—is necessary for economic growth. One might assume that democracy fosters growth because democracy is associated with the protection of private property rights, which is an incentive for investment in capital, and protection against government seizure of resources, another important incentive for investment.)*
  - How would you feel about investing \$1 million in drilling an oil well if there were a good chance that the government might confiscate your rights to the oil you produced from the well? *(Comments will vary.)*
  - Which of the two viewpoints—that democracy fosters growth or that economic growth fosters democracy— would be likely to emphasize education as a key component for a growing economy? *(Answers will vary but might include the following viewpoints:*
    - *Democracy fosters growth because, as stated in the article, people in democracies are generally better educated than those in dictatorships, and democracies generally had more growth than dictatorships.*
    - *Growth fosters democracy because growth is fueled by education, and, as stated in the article, as education increased democracies were more common.)*
2. Tell students that one of the important measures of economic growth, the increase in the total output of an economy, is **Gross Domestic Product (GDP)**. Explain the following:
- Gross Domestic Product is defined as the total market value, expressed in dollars, of all final goods and services produced in an economy in a given year.
  - GDP is calculated by multiplying the price times the quantity for all final goods and services produced within the borders of a country annually.
  - Economists use GDP data to measure the economy's growth.
  - GDP has been called the single best measure of the economic well-being of a society.
3. Tell students that there are two types of GDP—**nominal GDP** and **real GDP**. Explain the following:
- Nominal GDP is GDP that is calculated by using the current year's price for goods and services; so, it is sometimes referred to as 'current-dollar GDP.'
  - Real GDP is calculated by using a base year's price for goods and services so that when multiplying price (P) by quantity (Q), only the quantity changes over time.

- Real GDP has been adjusted for price changes over time, i.e. inflation or deflation, and is sometimes referred to as “constant-dollar GDP.”
  - Real GDP is used to compare the growth of output of a country or countries over time.
4. Tell students that Jim’s height is 1.95 meters and Renaldo’s height is 6 feet. Discuss the following:
- Which student is taller, Jim or Renaldo? (*Do not supply an answer yet.*)
  - If you want to compare their height, what do you need to do? (*Convert each of their heights to a common measurement—either meters or feet.*)
  - What do you need to know in order to convert their heights to a common measurement? (*You need to know that 1 foot = .30 meters.*)
5. Show students how to convert both students’ height to feet by demonstrating the following:
- $1.95 / .30 = 6.5$  feet, so Jim is 6.5 feet tall, and Renaldo is 6 feet tall.
6. Explain that to compare GDP over time, i.e. from one year to a previous year, GDP has to be adjusted for price level changes (inflation or deflation). Since GDP is a price multiplied by quantity calculation, goods and services have to be measured in constant dollars in order to calculate real GDP.
- Note: See Handout 1.3: Get Real—What Does McDonald’s Have to Do with GDP? for additional explanation and examples. You may wish to use Handout 1.3 with your students.*
7. Distribute *Handout 1.4: Real GDP of Three Countries* to each student. Read these instructions to the students:
- To calculate GDP, multiply the quantity produced of each good or service by the price of each and write that amount in the GDP column.
  - Add the total for each good or service to calculate the total GDP for Country A. Tell students that the prices in Handout 1.4 for Country A, B and C are in constant dollars—that is, real GDP—so they are calculating real GDP.

8. Point out that Country A's real GDP is already calculated on Handout 1.4. Instruct students to calculate the real GDP of Country B and Country C using the information on Handout 1.4. Refer to the answer key below.

| COUNTRY B             | COUNTRY C             |
|-----------------------|-----------------------|
| \$16,000              | \$500                 |
| \$25,000              | \$1,500               |
| \$7,500               | \$1,250               |
| \$1,000               | \$5,000               |
| \$4,000               | \$5,625               |
| <b>GDP = \$53,500</b> | <b>GDP = \$13,875</b> |

9. Ask the students the following questions:
- Which country had the largest GDP in that given year? (*Country B*)
  - What can this tell us about that country? (*Country B produced more goods and services in that time period than Country A or Country C.*)
  - Which country had the lowest GDP in that given year? (*Country A*)
  - What can this tell us about this country? (*Country A produced fewer goods and services in that period than Countries B and C.*)
  - To determine whether or not a country produced more goods and services in one year compared to another year, should we use nominal GDP or real GDP? Why?

*(Compare the country's output by using real GDP for those two years because real GDP has been adjusted for price changes and, therefore, changes in GDP will reflect quantity {output} changes but will not reflect price changes.)*

10. Tell students that another way to think about GDP is **GDP per capita**, which is GDP divided by the total population of the country. Explain that **standard of living** refers to a measure of the goods and services available to each person in a country, i.e., a measure of economic well-being. Ask students why GDP per capita provides more information about a country's standard of living than total GDP. (*Answers may include that a country could have a large nominal or real GDP but if they also have a large population, the impressively large GDP number may not indicate that there are actually a large amount of goods and services available for each citizen—for example, in China. Conversely, a country like Australia may have a higher rank on the basis of GDP per capita when compared with some other countries because of its relatively small population.*)

*Note: You may want to explain to students that "per capita" is Latin for "per head" and is the generally accepted term used to mean "per person." In addition, the terms "GDP per capita" and "per capita GDP" are used interchangeably.*

11. Tell students that if a country's GDP per capita is increasing, it indicates that the standard of living, a measure of the goods and services available to each person in a country, is rising and that the population is benefiting from **economic growth**. Economic growth is a sustained rise over time in a nation's production of goods and services. This can result from investment in human and physical capital, increased research and development, and improvements in technology. Historically, economic growth has contributed to a rise in a country's standard of living provided the GDP of that country is growing at a greater rate than population.
12. Using the answers from Handout 1.4, calculate the GDP per capita of:
  - Country A if the population is 1000: (*answer:  $\$11,250/1000 = \$11.25$* )
  - Country B if the population is 5000: (*answer:  $\$53,500/5000 = \$10.70$* )
  - Country C if the population is 250: (*answer:  $\$13,875/250 = \$55.50$* )
13. Ask the students the following questions regarding their calculations above:
  - Which country had the largest GDP per capita in a given year? (*Country C*)
  - What can this tell us about that country? (*Country C produced more goods and services per person than Countries A and B in that time period. It also illustrates that Country C had a better standard of living than Countries A and B.*)
  - Which country had the lowest GDP per capita in a given year? (*Country B*)
  - What can this tell us about this country? (*Country B produced fewer goods and services per person than Countries A and C in that time period. It also illustrates that Country B had a lower standard of living than Countries A and C.*)
14. Distribute *Handout 1.5: A World View* to each student. Divide the students into pairs. Ask the students if they know where the following countries are located: Pakistan, United Kingdom, United States, Japan, Australia, China, North Korea, Libya, Brazil and Germany. (*Answers may vary, but many students may not know the location of all of these countries.*)
15. Display *Visual 1.1: Country Names*. Distribute a student atlas to each group or instruct groups to have a representative consult the classroom world map. Ask the students to locate the countries listed on the visual, to write the name of each country on Handout 1.5 and to outline each of these countries in ink. Have the groups check their work by asking their representatives to identify on the classroom world map the correct answers for the locations of the countries.
16. Distribute a copy of *Handout 1.6: GDP/GDP per capita* to each student. Review the data listed on the first table labeled "GDP." Tell the students that each column represents real GDP in millions of U.S. dollars for that country during the year listed above the column. Discuss the following:
  - How do you know whether these data are nominal or real GDP? (*The last row in the table indicates constant dollars, so data are real.*)

- Which country had the largest GDP in 2004? (*United States*)
  - Which country had the largest GDP in 2007? (*United States*)
  - Which country had the lowest GDP in 2004? (*Libya*)
  - Which country had the lowest GDP in 2007? (*Libya*)
  - Which two countries had the closest GDP for 2007? (*Germany and China*)
  - What can this tell us about these two countries? (*These countries are somewhat similar in how much they produced. It does not tell us, however, if the standard of living in these two countries is at a similar level because per capita numbers are not given.*)
  - Which two countries had the largest GDP difference in 2007? (*United States and Libya*)
  - What can this tell about these two countries? (*These countries are very dissimilar in how much they produced.*)
17. Review the data listed on the second table on Handout 1.6 labeled “GDP per capita.” Tell the students that each column represents real GDP per capita (or per person) for that country during the year listed above the column. Discuss the following:
- Which country had the largest GDP per capita in 2004? (*Japan*)
  - Which country had the largest GDP per capita in 2007? (*Japan*)
  - Which country had the lowest GDP per capita in 2004? (*Pakistan*)
  - Which country had the lowest GDP per capita in 2007? (*Pakistan*)
  - Which two countries have the closest GDP per capita in 2007? (*Japan and United States*)
  - What can this tell us about these two countries? (*These two countries were the closest on the list in terms of standard of living.*)
  - Which two countries had the largest GDP per capita difference in 2007? (*Pakistan and Japan*)
  - What can this tell us about these two countries? (*Of those on the list, these two countries had the greatest difference in standard of living for 2007.*)
18. Distribute *Handout 1.7: Index of Economic Freedom* to each student. Introduce the *Index of Economic Freedom* by discussing the following:
- In 1995 the Heritage Foundation and the *Wall Street Journal* created the *Index of Economic Freedom*—commonly referred to as the Freedom Index—based on economic theories like Adam Smith’s *The Wealth of Nations*, explaining that “basic institutions that protect the liberty of individuals to pursue their own economic interests result in greater prosperity for the larger society.”
  - Most democratic forms of government include varying degrees of freedom, some of which are certainly economic in nature, such as the right to buy and sell, to produce, to own property, etc.

- The Index scores are based on ten specific freedoms such as trade, business, investment and property rights.
- Scores and rankings are provided for each country, along with detailed data and background analysis. The Index seeks to provide a clearer picture of economic freedom by using data which allow countries to be graded between 0 and 100 percent. The lower the percentage score, the smaller the degree of economic freedom in a country. In addition, the table ranks the countries, with one being the ranking for the country with the highest degree of freedom, and so on.

*Note: For more information on the ten economic freedoms, go to [www.heritage.org/research/features/index/chapters/pdf/index2008\\_execsum.pdf](http://www.heritage.org/research/features/index/chapters/pdf/index2008_execsum.pdf).*

19. Instruct students to circle the top ten ranked countries in terms of freedom on Handout 1.7. Remind students that Handout 1.7 lists the countries alphabetically, but that they are looking for the countries ranked #1-#10 (bold print number). Ask students to share their answers of the top ten with the class. (*top ten: 1-Hong Kong; 2-Singapore; 3-Ireland; 4-Australia; 5-United States; 6-New Zealand; 7-Canada; 8-Chile; 9-Switzerland; 10-United Kingdom*)
20. Ask the students the following questions regarding Handout 1.7:
  - Which country received the lowest score in the 2008 Index? (*North Korea, which ranked #179 out of 179 countries and received a score of 2 percent out of 100 percent.*)
  - What factors might contribute to the low score? (*Answers may vary but may include that because this is a communist country, economic freedom, as well as political freedom, is extremely limited.*)
  - What country received the highest score in the 2008 Index? (*Hong Kong, which received a rank of #1 and a score of 90.0 percent.*)
  - What factors might contribute to the high score? (*Answers may vary but may include that this country has very few rules protecting workers so employers have a high degree of freedom in what they pay workers, how many hours they require employees to work, relatively few business rules and regulations, relatively few barriers to entering into business in Hong Kong, etc.*)
  - What did the United States score? (*80.6 percent*)
  - What factors do you think contributed to the United States score? (*Answers may vary but may include that the United States gives a high degree of freedom to individual consumers and producers, that the United States is a market economy with limited government intervention, etc.*)

## Closure

21. Review the key points of the lesson by discussing the following:
  - What is economic growth? (*an increase in the total output of an economy*)
  - What is GDP? (*the total market value, expressed in dollars, of all final goods and services produced in an economy in a given year*)
  - What is GDP per capita? (*Gross Domestic Product divided by population*)
  - What is the standard of living? (*a measure of the goods and services available to each person in an economy*)
  - What is the difference in nominal and real GDP? (*Nominal GDP measures output in current dollars for the year being measured; real GDP measures output in constant dollars for a series of years so that price level changes, i.e. inflation or deflation, do not affect the measurement.*)
  - Which should be used, nominal or real GDP, to compare GDP over a series of years? Why? (*Use real GDP for comparing GDP over time since it is adjusted for inflation or deflation.*)
  - What is the Freedom Index? (*a ranking of countries based on a series of 10 economic measurements created to measure the degree of economic freedom in the world's nations*)

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## Assessment

22. Distribute *Handout 1.8: What Do the Numbers Tell Us?* to each student. Instruct students to complete the chart by following instructions for section A. Have the students review their responses to the questions in Handout 1.1 before they complete section B.

## Visual 1.1: Country Names

Australia

Brazil

China

Germany

Japan

Libya

Pakistan

North Korea

United Kingdom

United States

## Handout 1.1: Which Came First—Democracy or Growth?

# Which Came First—Democracy or Growth?

In today's world, most rich countries are democratic and most dictatorships are poor. In the United States, democracy goes hand in hand with political institutions that promote economic freedom.

However, democratic governments, even in rich countries, often enact redistributive policies that reduce economic freedom and that are harmful to economic growth. Therefore, although most economists agree that economic freedom promotes growth, it is not clear that more political freedom (that is, more democracy or political rights) improves economic performance.

### What Factors Create Economic Growth?

Economic growth is primarily a result of the accumulation of both physical capital and human capital. The accumulation of capital is affected by public policies, which, in turn, depend on the political institutions that are in place. In a classic study, Robert Barro explained that because citizens express their approval or disapproval when they vote, democratic institutions provide checks on government power that impose limits on politicians' ability to amass wealth and enact unpopular policies. These constraints, he noted, help improve economic freedom. On the other hand, authoritarian governments may also improve economic freedom as a matter of policy, without the need of institutional limits such as those provided by a democracy.

In a study of about 100 countries from 1960 to 1990, Barro found that at low levels of political freedom, an increase in political rights might enhance economic growth by imposing limits on government. But he noted that in countries that have already achieved medium levels of democracy, further increases in political rights might slow growth because of growing concerns about income redistribution. Barro's conclusion that the overall effect of democracy on growth is slightly negative continues to be challenged by alternate views.

One alternate view suggests that the adoption of democracy—or, more generally, of political institutions that impose checks and balances on the government—promotes investment in physical and human capital and, therefore, growth. In contrast,

a second view suggests that reaching a certain level of economic development is what allows countries to adopt better institutions.

### Do Political Institutions Promote Growth?

A study that supports the view that political institutions promote economic performance found a strong relationship between a measure of protection against government expropriation (as a measure of political institutions) and economic performance (measured by real income per capita) across a large sample of countries. The study looked at two types of colonization strategies that led to different types of political institutions.

The first strategy was the creation of extractive states. In these colonies, the main goal was to transfer much of the resources of the colony to the European power. Institutions created in these colonies did not provide much protection of private property and did not impose checks against government expropriation. Examples of this were the Spanish colonies in Mexico and Latin America, and the Belgian colonization of the Congo.

In the second colonization strategy, European settlers migrated in large numbers and created institutions that replicated those in their home country. These institutions emphasized the protection of private property and checks against government expropriation. Examples of these were Australia, New Zealand, Canada and the United States. The types of institutions adopted in the early stages of either colonization strategy lasted even after the colonies became independent.

### Or Does Economic Growth Stimulate Democracy?

The second view is that it is economic growth which stimulates democracy or the adoption of better institutions. Supporters of this view make the point that the accumulation of human capital is a more important determinant of economic growth than political institutions. Supporters of this belief



## Handout 1.2: Glossary or Terms

**Dictatorship**—government ruled by an absolute authority

**Democracy**—government by all the people, direct or representative

**Political institutions**—established governmental customs, laws or practices

**Economic freedom**—an environment characterized by the protection of private property and the ability of individuals to engage in voluntary exchange of goods and services

**Redistributive policies**—actions to reduce unequal distribution of income typically carried out by taxing citizens with higher incomes and transferring that wealth to citizens with lower incomes

**Economic growth**—an increase in a country’s production of goods and services

**Political freedom**—freedom of individuals in a society that is not obstructed by government coercion and that enables individuals to determine who their rulers shall be

**Physical capital**—resources such as machinery and equipment used to produce goods and services

**Human capital**— the education, skills and abilities of workers

**Government expropriation**—the transfer of a citizen’s property to the state

**Real income per capita**—income per person (adjusted for inflation)

**Extractive states**—governments that depend on extracting natural resources, often by force, for sale or trade

**Autocracies**—governments in which one person has unlimited authority, such as the power of absolute monarchs

### Handout 1.3: Get Real—What Does McDonald’s Have to Do with GDP?

Ray Krok opened his first restaurant in Des Plaines, Ill. in 1955. Hamburgers were 15 cents, and his first day’s revenue was \$366.12. A McDonald’s hamburger today is 260 calories and 9 grams of fat and is the same size it was when introduced in 1955.

Suppose McDonald’s hamburgers and milkshakes were the only good/service produced in the United States in 1955, and suppose the total number of hamburgers produced for the year was 500,000 and the total number of milkshakes was 200,000. Calculate GDP for 1955 by multiplying the price by the quantity of hamburgers and milkshakes and adding the two for total GDP.

| Good/Service | Price  | Quantity | GDP |
|--------------|--------|----------|-----|
| Hamburger    | \$ .15 | 500,000  | \$  |
| Milkshake    | \$ .25 | 200,000  | \$  |
| Total GDP    |        |          | \$  |

Fast forward to 2008. Suppose a McDonald’s hamburger is \$1.05 and they produced 1,000,000, and milkshakes were \$1.25 and they produced 300,000. Calculate GDP for 2008.

| Good/Service | Price  | Quantity  | GDP |
|--------------|--------|-----------|-----|
| Hamburger    | \$1.05 | 1,000,000 | \$  |
| Milkshake    | \$1.25 | 300,000   | \$  |
| Total GDP    |        |           | \$  |

Why would comparing a 2008 GDP of \$1,050,000 with a 1955 GDP of \$75,000 be misleading?

### Handout 1.3: Get Real—What Does McDonald’s Have to Do with GDP?—cont.

GDP measured in current year’s prices and not adjusted for changes in price levels is called \_\_\_\_\_ or \_\_\_\_\_ GDP. The examples above indicate nominal GDP.

To compare GDP over time, you must adjust GDP to account for changes in price levels. GDP that has been adjusted for changes in prices is called \_\_\_\_\_ or \_\_\_\_\_ GDP. To compare GDP over time using the numbers above, use \$ .15 as the price for hamburgers for both years and \$ .25 as the price for milkshakes for both years so that changes in GDP will reflect changes in quantity produced but will not reflect price changes. Calculate GDP for 2008 below.

| Good/Service | Price | Quantity  | GDP |
|--------------|-------|-----------|-----|
| Hamburger    | \$.15 | 1,000,000 | \$  |
| Milkshake    | \$.25 | 300,000   | \$  |
| Total GDP    |       |           | \$  |

How does real GDP give a more accurate picture of total output for an economy when comparing GDP in various years?

### Handout 1.3: Get Real—What Does McDonald’s Have to Do with GDP?—Answer Key

Ray Krok opened his first restaurant in Des Plaines, Illinois, in 1955. Hamburgers were 15 cents, and his first day’s revenue was \$366.12. A McDonald’s hamburger today is 260 calories and 9 grams of fat and is the same size it was when introduced in 1955.

*Note: This information is from [www.mcdonalds.com](http://www.mcdonalds.com).*

Suppose McDonald’s hamburgers and milkshakes were the only good/service produced in the United States in 1955, and suppose the total number of hamburgers produced for the year was 500,000 and the total number of milkshakes was 200,000. Calculate GDP for 1955 by multiplying the price by the quantity of hamburgers and milkshakes and adding the two for total GDP.

| Good/Service | Price | Quantity | GDP       |
|--------------|-------|----------|-----------|
| Hamburger    | \$.15 | 500,000  | \$75,000  |
| Milkshake    | \$.25 | 200,000  | \$50,000  |
| Total GDP    |       |          | \$125,000 |

Fast forward to 2008. Suppose a McDonald’s hamburger is \$1.05 and they produced 1,000,000, and milkshakes were \$1.25 and they produced 300,000. Calculate GDP for 2008.

| Good/Service | Price  | Quantity  | GDP         |
|--------------|--------|-----------|-------------|
| Hamburger    | \$1.05 | 1,000,000 | \$1,050,000 |
| Milkshake    | \$1.25 | 300,000   | \$375,000   |
| Total GDP    |        |           | \$1,425,000 |

Why would comparing a 2008 GDP of \$1,050,000 with a 1955 GDP of \$75,000 be misleading?

*Because GDP is a price multiplied by quantity figure, GDP will include both changes in the quantity of output and the level of prices. It is the quantity of goods produced—not price levels—that you want to determine by measuring GDP.*

### Handout 1.3: Get Real—What Does McDonald’s Have to Do with GDP?—Answer Key cont.

GDP measured in current year’s prices and not adjusted for changes in price levels is called \_\_\_\_\_ *current dollar* \_\_\_\_\_ or \_\_\_\_\_ *nominal* \_\_\_\_\_ GDP. The examples above indicate nominal GDP.

To compare GDP over time, you must adjust GDP to account for changes in price levels. GDP that has been adjusted for changes in prices is called \_\_\_\_\_ *constant dollar* \_\_\_\_\_ or \_\_\_\_\_ *real* \_\_\_\_\_ GDP. To compare GDP over time using the numbers above, use \$.15 as the price for hamburgers for both years and \$.25 as the price for milkshakes for both years so that changes in GDP will reflect changes in quantity produced but will not reflect price changes. Calculate GDP for 2008 below.

| Good/Service | Price | Quantity  | GDP       |
|--------------|-------|-----------|-----------|
| Hamburger    | \$.15 | 1,000,000 | \$150,000 |
| Milkshake    | \$.25 | 300,000   | \$ 75,000 |
| Total GDP    |       |           | \$225,000 |

How does real GDP give a more accurate picture of total output for an economy when comparing GDP in various years?

*Real GDP eliminates price changes so that output changes can be compared.*

## Handout 1.4: Real GDP of Three Countries

Country A

| Good/Service | Price | Quantity | GDP             |
|--------------|-------|----------|-----------------|
| Jeans        | \$20  | 150      | \$3,000         |
| Shirts       | \$10  | 200      | \$2,000         |
| Chairs       | \$25  | 50       | \$1,250         |
| Stereos      | \$200 | 20       | \$4,000         |
| Haircuts     | \$10  | 100      | \$1,000         |
| <b>GDP</b>   |       |          | <b>\$11,250</b> |

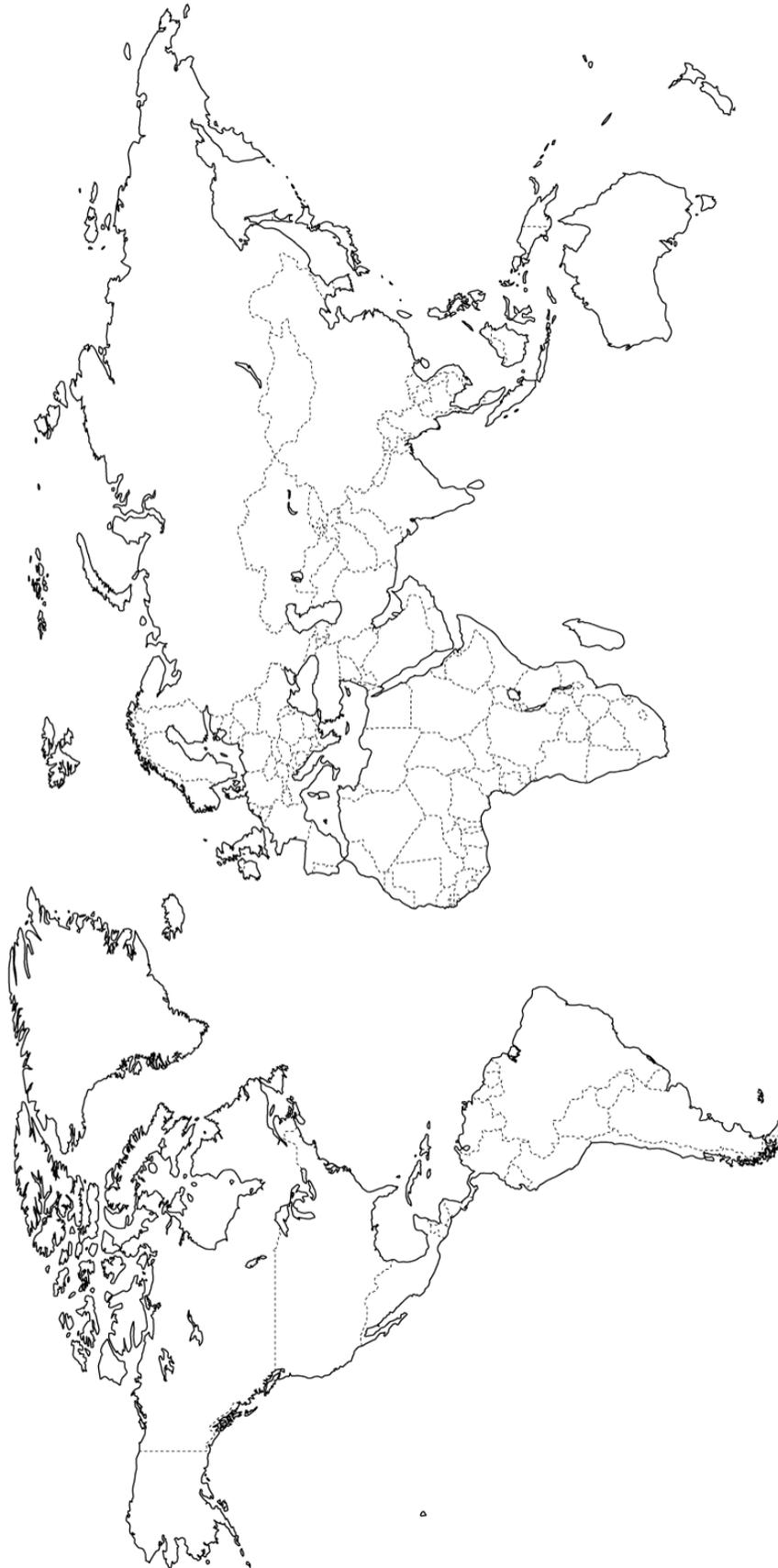
Country B

| Good/Service | Price | Quantity | Price x Quantity |
|--------------|-------|----------|------------------|
| Tires        | \$40  | 400      |                  |
| Cars         | \$100 | 250      |                  |
| Televisions  | \$75  | 100      |                  |
| Shirts       | \$10  | 100      |                  |
| Jeans        | \$20  | 200      |                  |
| <b>GDP</b>   |       |          |                  |

Country C

| Good/Service | Price | Quantity | Price x Quantity |
|--------------|-------|----------|------------------|
| Calculators  | \$5   | 100      |                  |
| Books        | \$20  | 75       |                  |
| Lamps        | \$50  | 25       |                  |
| Toys         | \$50  | 100      |                  |
| Sweaters     | \$75  | 75       |                  |
| <b>GDP</b>   |       |          |                  |

**Handout 1.5: A World View**



## Handout 1.6: GDP/GDP per capita

### GDP

| Country Name                                    | YR2003     | YR2004     | YR2005     | YR2006     | YR2007     |
|---|------------|------------|------------|------------|------------|
| Australia                                       | 442,060    | 459,975    | 472,286    | 485,550    | 507,400    |
| Brazil  | 678,545    | 717,346    | 738,166    | 765,611    | 807,080    |
| China   | 1,557,675  | 1,715,000  | 1,893,360  | 2,112,990  | 2,364,436  |
| Germany   | 1,920,177  | 1,944,113  | 1,961,793  | 2,016,132  | 2,066,538  |
| Japan   | 4,754,592  | 4,885,70   | 4,978,245  | 5,087,769  | 5,194,612  |
| North Korea                                     | 585,922    | 613,634    | 639,392    | 672,218    | 705,646    |
| Libya   | 36,204     | 38,014     | 40,409     | 42,511     | 45,401     |
| Pakistan  | 81,570     | 87,581     | 94,296     | 100,822    | 107,255    |
| United Kingdom                                  | 1,546,800  | 1,597,276  | 1,628,128  | 1,673,112  | 1,723,301  |
| United States                                   | 10,249,800 | 10,651,700 | 10,995,800 | 11,314,700 | 11,563,600 |
| in constant 2000 US \$ (in millions of dollars) |            |            |            |            |            |

### GDP per capita

| Country Name                                    | YR2003 | YR2004 | YR2005 | YR2006 | YR2007 |
|---|--------|--------|--------|--------|--------|
| Australia                                       | 22,216 | 22,847 | 23,151 | 23,454 | 24,142 |
| Brazil  | 3,732  | 3,891  | 3,950  | 4,043  | 4,212  |
| China   | 1,208  | 1,323  | 1,451  | 1,610  | 1,791  |
| Germany   | 23,263 | 23,560 | 23,788 | 24,474 | 25,119 |
| Japan   | 37,227 | 38,236 | 38,961 | 39,824 | 40,655 |
| North Korea                                     | 12,245 | 12,762 | 13,239 | 13,883 | 14,540 |
| Libya   | 6,371  | 6,554  | 6,827  | 7,039  | 7,374  |
| Pakistan  | 549    | 575    | 605    | 634    | 660    |
| United Kingdom                                  | 25,966 | 26,674 | 27,033 | 27,611 | 28,234 |
| United States                                   | 35,247 | 36,274 | 37,084 | 37,791 | 38,338 |
| in constant 2000 US \$ (in millions of dollars) |        |        |        |        |        |

SOURCE: <http://www.worldbank.org>

## Handout 1.7: Index of Economic Freedom—Countries

### Distribution of Global Economic Freedom

|               |                 |               |               |
|---------------|-----------------|---------------|---------------|
| 80-100 .....  | Free            | 50-59.9 ..... | Mostly Unfree |
| 70-79.9 ..... | Mostly Free     | 0-49.9 .....  | Repressed     |
| 60-69.9 ..... | Moderately Free |               |               |

| Country        | 2008 Overall | Rank |
|----------------|--------------|------|
| Afghanistan    | -            | N/R  |
| Iraq           | -            | N/R  |
| Liechtenstein  | -            | N/R  |
| Sudan          | -            | N/R  |
| Hong Kong      | 90.0         | 1    |
| Singapore      | 87.1         | 2    |
| Australia      | 82.6         | 3    |
| Ireland        | 82.2         | 4    |
| New Zealand    | 82.0         | 5    |
| United States  | 80.7         | 6    |
| Canada         | 80.5         | 7    |
| Denmark        | 79.6         | 8    |
| Switzerland    | 79.4         | 9    |
| United Kingdom | 79.0         | 10   |
| Chile          | 78.3         | 11   |
| Netherlands    | 77.0         | 12   |
| Estonia        | 76.4         | 13   |
| Iceland        | 75.9         | 14   |
| Luxembourg     | 75.2         | 15   |
| Bahrain        | 74.8         | 16   |
| Finland        | 74.5         | 17   |
| Mauritius      | 74.3         | 18   |
| Japan          | 72.8         | 19   |
| Belgium        | 72.1         | 20   |
| Macau          | 72.0         | 21   |
| Barbados       | 71.5         | 22   |
| Austria        | 71.2         | 23   |
| Cyprus         | 70.8         | 24   |
| Germany        | 70.5         | 25   |
| Sweden         | 70.5         | 26   |
| Bahamas, The   | 70.3         | 27   |

| Country              | 2008 Overall | Rank |
|----------------------|--------------|------|
| Norway               | 70.2         | 28   |
| Spain                | 70.1         | 29   |
| Lithuania            | 70.0         | 30   |
| Armenia              | 69.9         | 31   |
| Georgia              | 69.8         | 32   |
| El Salvador          | 69.8         | 33   |
| Botswana             | 69.7         | 34   |
| Taiwan               | 69.5         | 35   |
| Slovak Republic      | 69.4         | 36   |
| Czech Republic       | 69.4         | 37   |
| Uruguay              | 69.1         | 38   |
| Saint Lucia          | 68.8         | 39   |
| Korea, South         | 68.1         | 40   |
| Trinidad and Tobago  | 68.0         | 41   |
| Israel               | 67.6         | 42   |
| Oman                 | 67.0         | 43   |
| Hungary              | 66.8         | 44   |
| Latvia               | 66.6         | 45   |
| Costa Rica           | 66.4         | 46   |
| Malta                | 66.1         | 47   |
| Qatar                | 65.8         | 48   |
| Mexico               | 65.8         | 49   |
| Kuwait               | 65.6         | 50   |
| Jordan               | 65.4         | 51   |
| Jamaica              | 65.2         | 52   |
| Portugal             | 64.9         | 53   |
| United Arab Emirates | 64.7         | 54   |
| Panama               | 64.7         | 55   |
| Bulgaria             | 64.6         | 56   |
| Peru                 | 64.6         | 57   |
| Malaysia             | 64.6         | 58   |

| Country                          | 2008 Overall | Rank |
|----------------------------------|--------------|------|
| Saudi Arabia                     | 64.3         | 59   |
| Saint Vincent and the Grenadines | 64.3         | 60   |
| South Africa                     | 63.8         | 61   |
| Albania                          | 63.7         | 62   |
| Uganda                           | 63.5         | 63   |
| France                           | 63.3         | 64   |
| Romania                          | 63.2         | 65   |
| Belize                           | 63.0         | 66   |
| Thailand                         | 63.0         | 67   |
| Slovenia                         | 62.9         | 68   |
| Mongolia                         | 62.8         | 69   |
| Dominica                         | 62.6         | 70   |
| Namibia                          | 62.4         | 71   |
| Colombia                         | 62.3         | 72   |
| Madagascar                       | 62.2         | 73   |
| Kyrgyz Republic                  | 61.8         | 74   |
| Turkey                           | 61.6         | 75   |
| Italy                            | 61.4         | 76   |
| Cape Verde                       | 61.3         | 77   |
| Macedonia                        | 61.2         | 78   |
| Paraguay                         | 61.0         | 79   |
| Fiji                             | 61.0         | 80   |
| Greece                           | 60.8         | 81   |
| Poland                           | 60.3         | 82   |
| Kazakhstan                       | 60.1         | 83   |
| Nicaragua                        | 59.8         | 84   |
| Burkina Faso                     | 59.5         | 85   |
| Samoa                            | 59.5         | 86   |
| Guatemala                        | 59.4         | 87   |
| Dominican Republic               | 59.2         | 88   |
| Swaziland                        | 59.1         | 89   |
| Kenya                            | 58.7         | 90   |
| Honduras                         | 58.7         | 91   |
| Vanuatu                          | 58.4         | 92   |
| Tanzania                         | 58.3         | 93   |
| Montenegro, Republic of          | 58.2         | 94   |

| Country          | 2008 Overall | Rank |
|------------------|--------------|------|
| Lebanon          | 58.1         | 95   |
| Ghana            | 58.1         | 96   |
| Egypt            | 58.0         | 97   |
| Tunisia          | 58.0         | 98   |
| Azerbaijan       | 58.0         | 99   |
| Bhutan           | 57.7         | 100  |
| Morocco          | 57.7         | 101  |
| Pakistan         | 57.0         | 102  |
| Yemen            | 56.9         | 103  |
| Philippines      | 56.8         | 104  |
| Brazil           | 56.7         | 105  |
| Cambodia         | 56.6         | 106  |
| Algeria          | 56.6         | 107  |
| Zambia           | 56.6         | 108  |
| Serbia           | 56.6         | 109  |
| Senegal          | 56.3         | 110  |
| Sri Lanka        | 56.0         | 111  |
| Gambia, The      | 55.8         | 112  |
| Mozambique       | 55.7         | 113  |
| Mali             | 55.6         | 114  |
| Benin            | 55.4         | 115  |
| Croatia          | 55.1         | 116  |
| Nigeria          | 55.1         | 117  |
| Gabon            | 55.0         | 118  |
| Côte d'Ivoire    | 55.0         | 119  |
| Moldova          | 54.9         | 120  |
| Papua New Guinea | 54.8         | 121  |
| Tajikistan       | 54.6         | 122  |
| India            | 54.4         | 123  |
| Rwanda           | 54.2         | 124  |
| Suriname         | 54.1         | 125  |
| Tonga            | 54.1         | 126  |
| Mauritania       | 53.9         | 127  |
| Niger            | 53.8         | 128  |
| Malawi           | 53.7         | 129  |
| Bolivia          | 53.6         | 130  |
| Indonesia        | 53.4         | 131  |
| China            | 53.2         | 132  |

| Country                  | 2008 Overall | Rank |
|--------------------------|--------------|------|
| Nepal                    | 53.2         | 133  |
| Bosnia and Herzegovina   | 53.1         | 134  |
| Ethiopia                 | 53.0         | 135  |
| Cameroon                 | 53.0         | 136  |
| Ecuador                  | 52.5         | 137  |
| Argentina                | 52.3         | 138  |
| Micronesia, Fed St.      | 51.7         | 139  |
| Djibouti                 | 51.3         | 140  |
| Syrian Arab Republic     | 51.3         | 141  |
| Equatorial Guinea        | 51.3         | 142  |
| Maldives                 | 51.3         | 143  |
| Guinea                   | 51.0         | 144  |
| Vietnam                  | 51.0         | 145  |
| Russia                   | 50.8         | 146  |
| Haiti                    | 50.5         | 147  |
| Uzbekistan               | 50.5         | 148  |
| Timor-Leste              | 50.5         | 149  |
| Laos                     | 50.4         | 150  |
| Lesotho                  | 49.7         | 151  |
| Ukraine                  | 48.8         | 152  |
| Burundi                  | 48.8         | 153  |
| Togo                     | 48.7         | 154  |
| Guyana                   | 48.4         | 155  |
| Central African Republic | 48.3         | 156  |

| Country                       | 2008 Overall | Rank |
|-------------------------------|--------------|------|
| Liberia                       | 48.1         | 157  |
| Sierra Leone                  | 47.8         | 158  |
| Seychelles                    | 47.8         | 159  |
| Bangladesh                    | 47.5         | 160  |
| Chad                          | 47.5         | 161  |
| Angola                        | 47.0         | 162  |
| Solomon Islands               | 46.0         | 163  |
| Kiribati                      | 45.7         | 164  |
| Guinea-Bissau                 | 45.4         | 165  |
| Congo, Republic of            | 45.4         | 166  |
| Belarus                       | 45.0         | 167  |
| Iran                          | 44.6         | 168  |
| Turkmenistan                  | 44.2         | 169  |
| São Tomé and Príncipe         | 43.8         | 170  |
| Libya                         | 43.5         | 171  |
| Comoros                       | 43.3         | 172  |
| Congo, Democratic Republic of | 42.8         | 173  |
| Venezuela                     | 39.9         | 174  |
| Eritrea                       | 38.5         | 175  |
| Burma                         | 37.7         | 176  |
| Cuba                          | 27.9         | 177  |
| Zimbabwe                      | 22.7         | 178  |
| Korea, North                  | 2.0          | 179  |

SOURCES: <http://www.heritage.org/Index/> and <http://www.heritage.org/research/features/index/countries.cfm?sortBy=country>

**Handout 1.8: What Do the Numbers Tell Us?**

1. Use data for the ten countries listed on Handout 1.6 to rank Real GDP and Real GDP per capita from highest (1) to lowest (10). Use data from Handout 1.7 to rank those ten countries based on the *Freedom Index* from highest (1) to lowest (10). For each of the categories below, write the names of the ten countries with the associated rank for Real GDP, Real GDP per capita and the freedom index score. Some answers for the table are provided.

| Rank | Real GDP 2007  | Real GDP Per Capita 2007 | Freedom Index 2008 |
|------|----------------|--------------------------|--------------------|
| 1    |                |                          |                    |
| 2    |                |                          |                    |
| 3    |                |                          |                    |
| 4    |                | Germany                  | Japan              |
| 5    | United Kingdom |                          |                    |
| 6    |                |                          | Pakistan           |
| 7    |                | Libya                    |                    |
| 8    | Australia      |                          |                    |
| 9    |                |                          |                    |
| 10   |                |                          |                    |

2. Make at least three observations about the relationship between the data above. Write in complete sentences.

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## Handout 1.8: What Do the Numbers Tell Us?—Answer Key

- Use data for the ten countries listed on Handout 1.6 to rank Real GDP and Real GDP per capita from highest (1) to lowest (10). Use data from Handout 1.7 to rank those ten countries based on the *Freedom Index* from highest (1) to lowest (10). For each of the categories below, write the names of the ten countries with the associated rank for Real GDP, Real GDP per capita and the freedom index score. Some answers for the table are provided.

| Rank | Real GDP 2007         | Real GDP Per Capita 2007 | Freedom Index 2008    |
|------|-----------------------|--------------------------|-----------------------|
| 1    | <i>United States</i>  | <i>Japan</i>             | <i>Australia</i>      |
| 2    | <i>Japan</i>          | <i>United States</i>     | <i>United States</i>  |
| 3    | <i>China</i>          | <i>United Kingdom</i>    | <i>United Kingdom</i> |
| 4    | <i>Germany</i>        | <i>Germany</i>           | <i>Japan</i>          |
| 5    | <i>United Kingdom</i> | <i>Australia</i>         | <i>Germany</i>        |
| 6    | <i>Brazil</i>         | <i>North Korea</i>       | <i>Pakistan</i>       |
| 7    | <i>North Korea</i>    | <i>Libya</i>             | <i>Brazil</i>         |
| 8    | <i>Australia</i>      | <i>Brazil</i>            | <i>China</i>          |
| 9    | <i>Pakistan</i>       | <i>China</i>             | <i>Libya</i>          |
| 10   | <i>Libya</i>          | <i>Pakistan</i>          | <i>North Korea</i>    |

- Make at least three observations about the relationship between the data above. Write in complete sentences.

*Answers may vary, but some possible answers are included below:*

- *Countries which rank high for Real GDP and/or Real GDP per capita (United States, United Kingdom, Japan, Germany) tend to have higher Freedom Index rankings, which seems to indicate a positive relationship between the amount of goods and services produced and the level of economic freedom that exists in that country.*
- *Countries with lower Real GDP and/or Real GDP per capita (North Korea, Pakistan, Libya) tend to have lower Freedom Index rankings, which suggests a negative relationship between the amount of goods and services produced and the level of economic freedom that exists in that country.*
- *The top five countries in the sample above that have the highest freedom index also have the highest Real GDP per capita. This suggests that a high degree of freedom and a high standard of living are positively related.*
- *The five countries with the lowest ranking of freedom are also in the bottom five in terms of standard of living.*