

# Gross Domestic Product & Growth



# What Is Gross Domestic Product?

- Economists monitor the macroeconomy using national income accounting, a system that collects statistics on production, income, investment, and savings.
- Gross domestic product (GDP) is the dollar value of all final goods and services produced within a country's borders in a given year.
- GDP does not include the value of intermediate goods. Intermediate goods are goods used in the production of final goods and services.

# Calculating GDP

## The Expenditure Approach

- The expenditure approach totals annual expenditures on four categories of final goods or services.
  1. consumer goods and services
  2. business goods and services
  3. government goods and services
  4. net exports or imports of goods or services.

## The Income Approach

- The income approach calculates GDP by adding up all the incomes in the economy.
  - **Most accurate approach**
  - **Takes longer to calculate**

Consumer goods include **durable goods**, goods that last for a relatively long time like refrigerators, and **nondurable goods**, or goods that last a short period of time, like food and light bulbs.

# Real and Nominal GDP

- Nominal GDP is GDP measured in current prices. It does not account for price level increases from year to year.
- Real GDP is GDP expressed in constant, or unchanging, dollars.

Nominal and Real GDP		
Year 1 Nominal GDP	Year 2 Nominal GDP	Year 3 Real GDP
<p><b>1</b> Suppose an economy's entire output is cars and trucks.</p> <p><b>2</b> This year the economy produces:</p> <p>10 cars at \$15,000 each = \$150,000            + 10 trucks at \$20,000 each = \$200,000  <hr/>           Total = \$350,000</p> <p><b>3</b> Since we have used the current year's prices to express the current year's output, the result is a nominal GDP of \$350,000.</p>	<p><b>1</b> In the second year, the economy's output does not increase, but the prices of the cars and trucks do:</p> <p>10 cars at \$16,000 each = \$160,000            + 10 trucks at \$21,000 each = \$210,000  <hr/>           Total = \$370,000</p> <p><b>2</b> This new GDP figure of \$370,000 is misleading. GDP rises because of an increase in prices. Economists prefer to have a measure of GDP that is not affected by changes in prices. So they calculate real GDP.</p>	<p><b>1</b> To correct for an increase in prices, economists establish a set of constant prices by choosing one year as a base year. When they calculate real GDP for other years, they use the prices from the base year. So we calculate the real GDP for Year 2 using the prices from Year 1:</p> <p>10 cars at \$15,000 each = \$150,000            + 10 trucks at \$20,000 each = \$200,000  <hr/>           Total = \$350,000</p> <p><b>2</b> Real GDP for Year 2, therefore, is \$350,000</p>

# Limitations of GDP

GDP does not take into account certain economic activities, such as:

## **Nonmarket Activities**

GDP does not measure goods and services that people make or do themselves, such as caring for children, mowing lawns, or cooking dinner.

## **Negative Externalities**

Unintended economic side effects, such as pollution, have a monetary value that is often not reflected in GDP.

## **The Underground Economy**

There is much economic activity which, although income is generated, never reported to the government. Examples include black market transactions and "under the table" wages.

## **Quality of Life**

Although GDP is often used as a quality of life measurement, there are factors not covered by it. These include leisure time, pleasant surroundings, and personal safety.

# Other Income and Output Measures

## **Gross National Product (GNP)**

- GNP is a measure of the market value of all goods and services produced by Americans in one year.

## **Net National Product (NNP)**

- NNP is a measure of the output made by Americans in one year minus adjustments for depreciation.

**Depreciation** is the loss of value of capital equipment that results from normal wear and tear.

## **National Income (NI)**

- NI is equal to NNP minus sales and excise taxes.

## **Personal Income (PI)**

- PI is the total pre-tax income paid to U.S. households.

## **Disposable Personal Income (DPI)**

- DPI is equal to personal income minus individual income taxes.

# Key Macroeconomic Measurements

## Measurements of the Macroeconomy

Gross Domestic Product

+

income earned outside U.S. by U.S. firms and citizens

-

income earned by foreign firms and foreign citizens located in the U.S.

=

Gross National Product

Gross National Product

-

depreciation of capital equipment

=

Net National Product

Net National Product

-

sales and excise taxes

=

National Income

National Income

-

- firms' reinvested profits
- firms' income taxes
- social security

+

other household income

=

Personal Income

Personal Income

-

individual income taxes

=

Disposable Personal Income

# Factors Influencing GDP

## Aggregate Supply

- Aggregate supply is the total amount of goods and services in the economy available at all possible price levels.
- As price levels rise, aggregate supply rises and real GDP increases.

## Aggregate Demand

- Aggregate demand is the amount of goods and services that will be purchased at all possible price levels.
- Lower price levels will increase aggregate demand as consumers' purchasing power increases.

## Aggregate Supply/Aggregate Demand Equilibrium

- By combining aggregate supply curves and aggregate demand curves, equilibrium for the macroeconomy can be determined.

# What Is a Business Cycle?

A **business cycle** is a macroeconomic period of expansion followed by a period of contraction.

- A modern industrial economy experiences cycles of good times, then bad times, then good times again.
- Business cycles are of major interest to macroeconomists, who study their causes and effects.
- There are four main phases of the business cycle: expansion, peak, contraction, and trough.

# Phases of the Business Cycle

## Expansion

- An expansion is a period of economic growth as measured by a rise in real GDP. Economic growth is a steady, long-term rise in real GDP.

## Peak

- When real GDP stops rising, the economy has reached its peak, the height of its economic expansion.

## Contraction

- Following its peak, the economy enters a period of contraction, an economic decline marked by a fall in real GDP. A recession is a prolonged economic contraction. An especially long or severe recession may be called a depression.

## Trough

- The trough is the lowest point of economic decline, when real GDP stops falling.

# What Keeps the Business Cycle Going?

Business cycles are affected by four main economic variables:

## **Business Investment**

When an economy is expanding, firms expect sales and profits to keep rising, and therefore they invest in new plants and equipment. This investment creates new jobs and furthers expansion. In a recession, the opposite occurs.

## **Consumer Expectations**

Forecasts of a expanding economy often fuel more spending, while fears of recession tighten consumers' spending.

## **Interest Rates and Credit**

When interest rates are low, companies make new investments, often adding jobs to the economy. When interest rates climb, investment dries up, as does job growth.

## **External Shocks**

External shocks, such as disruptions of the oil supply, wars, or natural disasters, greatly influence the output of an economy.

# Forecasting Business Cycles

- Economists try to forecast, or predict, changes in the business cycle.
- Leading indicators are key economic variables economists use to predict a new phase of a business cycle.
- Examples of leading indicators are stock market performance, interest rates, and new home sales.

# Business Cycle Fluctuations

## The Great Depression

- The Great Depression was the most severe downturn in the nation's history.
- Between 1929 and 1933, GDP fell by almost one third, and unemployment rose to about 25 percent.

## Later Recessions

- In the 1970s, an OPEC embargo caused oil prices to quadruple. This led to a recession that lasted through the 1970s into the early 1980s.

## U.S. Business Cycles in the 1990s

- Following a brief recession in 1991, the U.S. economy grew steadily during the 1990s, with real GDP rising each year.

# Measuring Economic Growth

The basic measure of a nation's economic growth rate is the percentage change of real GDP over a given period of time.

## GDP and Population Growth

- In order to account for population increases in an economy, economists use a measurement of real GDP per capita. It is a measure of real GDP divided by the total population.
- Real GDP per capita is considered the best measure of a nation's standard of living.

## GDP and Quality of Life

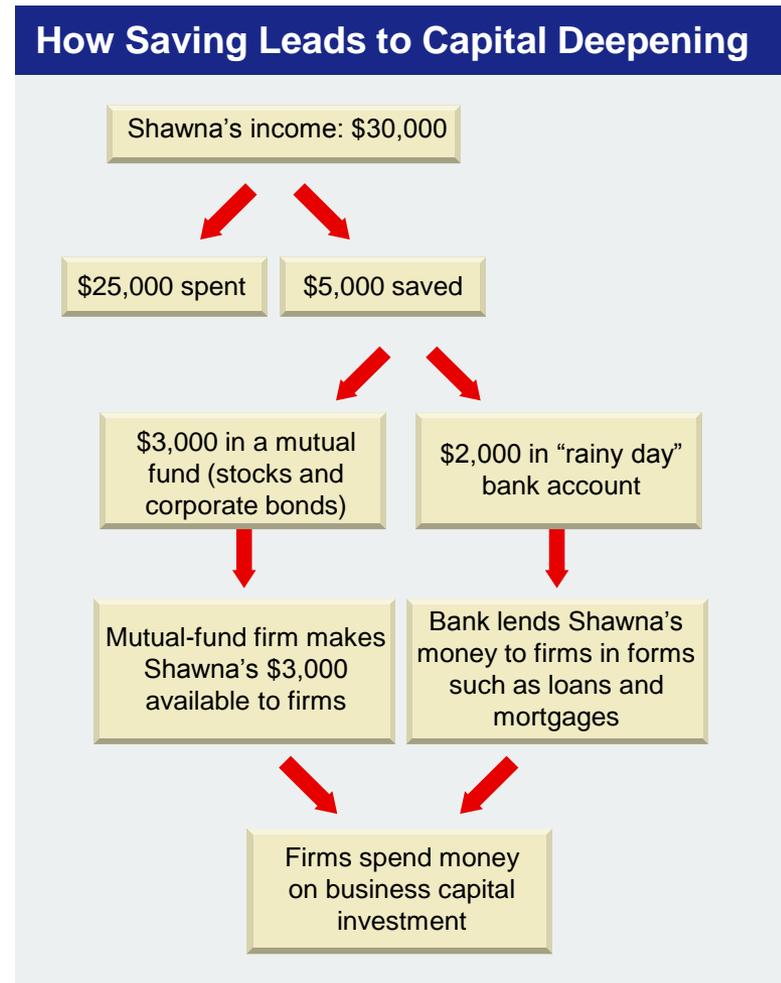
- Like measurements of GDP itself, the measurement of real GDP per capita excludes many factors that affect the quality of life.

# Capital Deepening

- The process of increasing the amount of capital per worker is called capital deepening. Capital deepening is one of the most important sources of growth in modern economies.
- Firms increase physical capital by purchasing more equipment. Firms and employees increase human capital through additional training and education.

# The Effects of Savings and Investing

- The proportion of disposable income spent to income saved is called the savings rate.
- When consumers save or invest, money in banks, their money becomes available for firms to borrow or use. This allows firms to deepen capital.
- In the long run, more savings will lead to higher output and income for the population, raising GDP and living standards.



# The Effects of Technological Progress

- Besides capital deepening, the other key source of economic growth is technological progress.
- Technological progress is an increase in efficiency gained by producing more output without using more inputs.
- A variety of factors contribute to technological progress:
  - Innovation* When new products and ideas are successfully brought to market, output goes up, boosting GDP and business profits.
  - Scale of the Market* Larger markets provide more incentives for innovation since the potential profits are greater.
  - Education and Experience* Increased human capital makes workers more productive. Educated workers may also have the necessary skills needed to use new technology.

# Other Factors Affecting Growth

## Population Growth

- If population grows while the supply of capital remains constant, the amount of capital per worker will actually shrink.

## Government

- Government can affect the process of economic growth by raising or lowering taxes. Government use of tax revenues also affects growth: funds spent on public goods increase investment, while funds spent on consumption decrease net investment.

## Foreign Trade

- Trade deficits, the result of importing more goods than exporting goods, can sometimes increase investment and capital deepening if the imports consist of investment goods rather than consumer goods.