

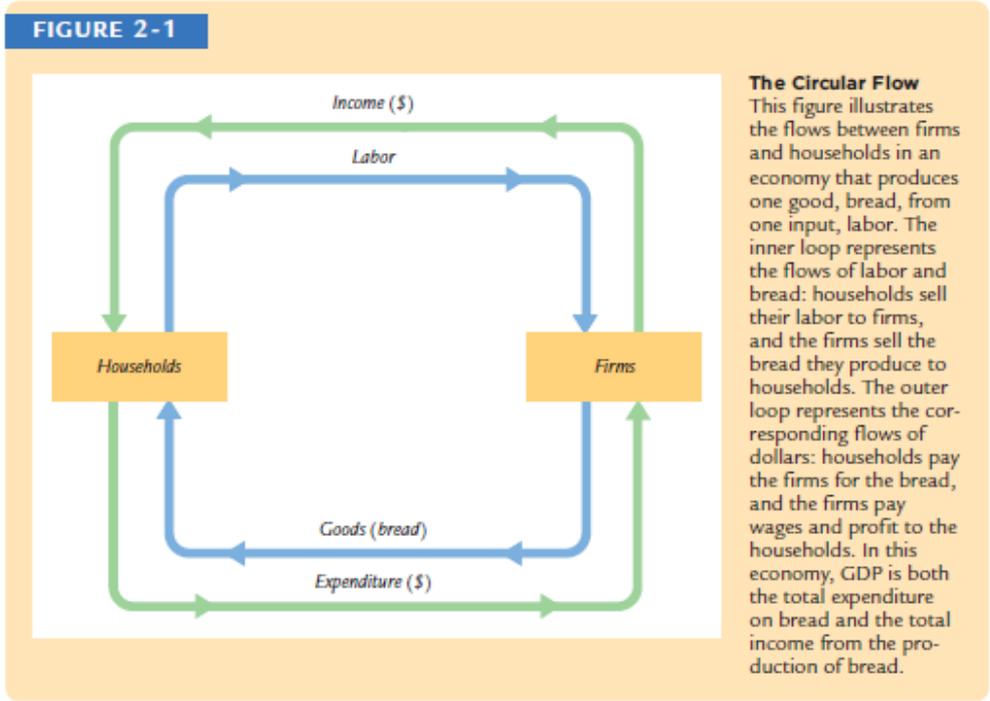
Gross domestic product, or GDP, is often considered the best measure of how well the economy is performing. One way to view GDP is as *the total income of everyone in the economy*. Another way to view GDP is as *the total expenditure on the economy's output of goods and services*. From either viewpoint, it is clear why GDP is a gauge of economic performance. How can GDP measure both the economy's income and its expenditure on output? The reason is that these two quantities are really the same: for the economy as a whole, income must equal expenditure. That fact, in turn, follows from an even more fundamental one: because every transaction has a buyer and a seller, every dollar of expenditure by a buyer must become a dollar of income to a seller. When Joe paints Jane's house for \$1,000, that \$1,000 is income to Joe and expenditure by Jane. The transaction contributes \$1,000 to GDP, regardless of whether we are adding up all income or all expenditure.

$$\begin{aligned}\text{GDP} &= (\text{Price of Apples} \times \text{Quantity of Apples}) \\ &+ (\text{Price of Oranges} \times \text{Quantity of Oranges}) \\ &= (\$0.50 \times 4) + (\$1.00 \times 3) \\ &= \$5.00.\end{aligned}$$

Economists call the value of goods and services measured at current prices **nominal GDP**. A better measure of economic well-being would tally the economy's output of goods and services without being influenced by changes in prices. For this purpose, economists use **real GDP**, which is the value of goods and services measured using a constant set of prices. That is, real GDP shows what would have happened to expenditure on output if quantities had changed but prices had not.

$$\begin{aligned}\text{Real GDP for year 2009} &= (2009 \text{ Price of Apples} \times 2009 \text{ Quantity of Apples}) \\ &+ (2009 \text{ Price of Oranges} \times 2009 \text{ Quantity of Oranges}).\end{aligned}$$

To understand the meaning of GDP more fully, we turn to **national income accounting**, the accounting system used to measure GDP and many related statistics.



Economists distinguish between two types of quantity variables: stocks and flows. A **stock** is a quantity measured at a given point in time, whereas a **flow** is a quantity measured per unit of time. A bathtub is the classic example used to illustrate stocks and flows. The amount of water in the tub is a stock: it is the quantity of water in the tub at a given point in time. The amount of water coming out of the faucet is a flow: it is the quantity of water being added to the tub per unit of time. Note that we measure stocks and flows in different units.

The GDP Deflator

From nominal GDP and real GDP we can compute a third statistic: the GDP deflator. The **GDP deflator**, also called the *implicit price deflator for GDP*, is the ratio of nominal GDP to real GDP: $\text{GDP Deflator} = \text{Nominal GDP} / \text{Real GDP}$

The GDP deflator reflects what’s happening to the overall level of prices in the economy.

To better understand the definition of the GDP deflator allows us to separate nominal GDP into two parts: one part measures quantities (real GDP) and the other measures prices (the GDP deflator). That is,

$$\text{Nominal GDP} = \text{Real GDP} \times \text{GDP Deflator}.$$

Nominal GDP measures the current dollar value of the output of the economy. Real GDP measures output valued at constant prices. The GDP deflator measures the price of output relative to its price in the base year.