

Study Guide
Chapter 5 Measuring National Income and Product

GDP (Gross Domestic Product) is used to measure two things: (1) the total income of all members in an economy, and (2) the total spending on the nation's output (goods and services)

1. GDP

a) market value = (market price) x (quantity produced)

Market price is used to compute the market value because it is the best indicator of the value of goods and services.

b) final goods and services – include all of the goods and services in a finished format.

- Only new products are included.
- Used products are NOT included.
- Intermediate products are NOT included. (intermediate products are products used to make another good.)
- Financial securities such as stock shares, bonds ... are NOT included.

c) within a country – products made inside the country are included in GDP.

Products made outside the country are not included in GDP.

Example. A Ford Thunderbird (\$30,000) had been made in Mexico. This business activity does not affect the U.S. GDP because the product is made outside of the U.S. though the owners of the car (Ford Corporation) are Americans. The value of this Ford Thunderbird is added into the Mexico GDP because it was made inside Mexico.

Another concept, **GNP (Gross National Product)**, emphasizes on ownership. GNP is the market value of all final goods and services owned by its citizens in a given period. Refer to the example above - a Ford Thunderbird (\$30,000) had been made in Mexico. The value of the car \$30,000 is included in US GNP because Americans own the car. The value does not added to Mexico GNP because it is not owned by Mexicans.

d) in a given period. In the U.S., GDP is computed by the Bureau of Economic Analysis every quarter and every year. Thus you can find Quarterly GDP and Yearly GDP.

2. There are two ways to compute GDP

- Expenditure approach (add all spending together = GDP)
- Income approach (add all incomes together = GDI gross domestic income)

In principle, GDP and GDI must have exactly the same value due to the fact that what buyers pay (spending) must be what sellers receive (income).

3. Expenditure approach $GDP = C + I + G + NX$

C: personal consumption = durable goods + nondurable goods + services

For example, the tuition you paid for this Maymester is included in services. The gas you paid is included in nondurable goods. If you bought a new car in 2008, the value would be added under durable goods.

By the way, if you purchase a used car in 2008, the value would not be included.

I: private investment = nonresidential investments + residential investments + changes in inventory.

Nonresidential investments include equipments, machineries, and business construction. The Walgreens built in the middle of Douglas (including the parking lots) is included in nonresidential investments.

Residential investments include houses, apartment buildings, and other constructions for residence purpose.

Changes in inventory = production – sales.

Once a product reaches its finished stage and is ready for sale, its value is added in changes in inventory, through “production.” When this product is sold later, the same value will be subtracted from the changes in inventory. For example, the Ford factory finished a Ford Thunderbird that was worth \$27,000 in January 2008. In March, the same car was sold to a consumer by a car dealer for \$30,000.

In this case, US GDP first increased by \$27,000 in January 2008 (the value entry was in changes in inventory under production). In March, after the car was sold, the changes in inventory dropped by \$27,000 because of “- sales”); and the consumption increased by \$30,000 (durable goods \$27,000 and service \$3,000). In net, US GDP increased by \$30,000.

G: Government spending includes the federal government, state governments, and local governments.

For example, in 2006, Georgia State Government spent \$5 million on maintaining a toll road. It has collected \$90,000 toll the same year.

In this case, the \$5 million was added to 2006 US GDP through state government spending. The toll was paid by consumers and thus should be added under consumption. Thus GDP 2006 increased by \$5,090,000 due to this activity.

NX: Net Exports = exports – imports.

Example 1. A U.S. household buys a Sony TV(\$500) made in Japan.

In this case, the value of the TV (\$500) is added in the U.S. GDP under consumption first. However since the TV is imported from Japan, net exports drops \$500 because we should “- imports.” As a result, U.S. GDP will not be affected.

Example 2. An American student buys a computer (\$1000) in U.S. from an American-owned company operating in Switzerland.

In this case, since the spending on this computer is consumption, GDP increases by \$1000 first. But since the computer was made in Switzerland, it should be considered as import, though the American owns it. GDP thus decreases by \$1000 because of “- import.” In net, GDP does not change.

4. Gross Domestic Income – all income payments made in the country in a given period. These income payments include wage, rent, interests, and profits. Note that if a foreign citizen work in the U.S., his/her income is added to the US GDI. However, when American basketball players play in Canada, their incomes are not included in the U.S.GDI, because the incomes are not made in the U.S. But since the players are American citizens, their incomes are included in U.S. GNI (Gross National Income). Since GDP must equal to GDI, we usually use GDP to indicate both. That’s why you always heard GDP in the news, not GDI.

5. Nominal GDP vs. Real GDP

Nominal GDP is the GDP measured by current year’s price.

Real GDP is the GDP measured by base year’s price.

For example,

The nominal GDP of 2005 = (price of 2005) x (quantity of 2005)

The nominal GDP of 2006 = (price of 2006) x (quantity of 2006)

As for real GDP, if the base year is 2000, then

The real GDP of 2005 = (price of 2000) x (quantity of 2005)

The real GDP of 2006 = (price of 2000) x (quantity of 2006)

Example:

Year	Price of Pens	Quantity of Pens	Price of Books	Quantity of Books
2000	\$3	100	\$10	50
2005	3	120	12	70
2006	4	120	14	70

From the information above, we can find

Nominal GDP of 2000 = (\$3)(100) + (\$10)(50) = \$800

Nominal GDP of 2006 = (\$4)(120) + (\$14)(70) = \$1460

If the base year is 2000,

Real GDP of 2000 = (\$3)(100) + (\$10)(50) = \$800

Real GDP of 2006 = (\$3)(120) + (\$10)(70) = \$1060

Since real GDP keeps the prices constant, if the value of real GDP increase, it means the total amount of products increase. Contrast to nominal GDP, since the prices are not fixed, when the value of nominal GDP increase, we cannot tell if the increase caused by the increase in prices, quantities, or both.

6. GDP deflator (or Price level index)

GDP deflator is an indicator of price level. Since nominal GDP contains the changes in prices while real GDP doesn’t, the ratio of nominal GDP to real GDP shows the changes in prices.

$$\text{GDP deflator} = (\text{nominal GDP} / \text{real GDP}) \times 100$$

From the information above,

GDP deflator 2000 = (\$800/\$800)x100 = 100;

GDP deflator 2006 = (\$1460/\$1060)x100 = 137.8