

EC132.03
Principles of Macroeconomics

Boston College

Thursday, January 28

Reminders and Announcements

1. Please hand in your discussion section sign-up sheet today.
2. First (introductory) problem set due tomorrow (Friday, January 29) at 9am.
3. Second problem set on GDP will be due on Monday, February 8.
4. Next: Ch 24, “Measuring the Cost of Living.”

Components of GDP

The national income accounting identity

$$Y = C + I + G + NX$$

$Y = \text{GDP}$

$C = \text{consumption}$

$I = \text{investment}$

$G = \text{government purchases}$

$NX = \text{net exports}$

Components of GDP

$$Y = C + I + G + NX$$

Spending (by households) on:

- Durable goods.
- Nondurable goods.
- Services.

Components of GDP

$$Y = C + I + G + NX$$

Spending (mostly by firms) on:

- Capital equipment (machines, tools).
- Structures (factories, office buildings).
- Inventories (goods produced but not yet sold).
- New homes purchased by households.

Components of GDP

$$Y = C + I + G + NX$$

Inventory investment:

- Ford builds a car in 2009, but it doesn't sell until 2010.
- I goes up in 2009.
- C goes up in 2010 but I goes down in 2010.
- Y goes up in 2009 but not in 2010.

Components of GDP

$$Y = C + I + G + NX$$

Spending by federal, state, and local governments on:

- Goods and services.
- Salaries of government workers.

Does not include **transfer payments** like social security, unemployment benefits.

Components of GDP

$$Y = C + I + G + NX$$

$$Y = C + I + G + X - M$$

Net exports equal exports – imports:

- **Exports**: purchases of US produced goods by foreigners.
- **Imports**: purchases of foreign goods by US households and firms.

Components of GDP

$$Y = C + I + G + NX$$

$$Y = C + I + G + X - M$$

Boeing sells airplanes to British Airways:

- US exports (X) go up.
- $NX = X - M$ goes up.
- Y goes up.

Components of GDP

$$Y = C + I + G + NX$$

$$Y = C + I + G + X - M$$

You buy a new Porsche:

- US consumption goes up.
- But US imports (M) also go up.
- $NX = X - M$ goes down.
- US GDP stays unchanged.

Components of GDP, 2008

	Total (Billions of Dollars)	Per Person (Dollars)	Percent Of Total
Y	14,441	47,440	
C	10,130	33,277	70
I	2,136	7,017	15
G	2,883	9,471	20
NX	-708	-2,325	-5

Real and Nominal GDP

Year	Price of HD	Quantity of HD	Price of HB	Quantity of HB
2008	\$1	100	\$2	50
2009	\$2	150	\$3	100
2010	\$3	200	\$4	150

Use **Current** Prices to Calculate **Nominal** GDP:

$$2008: (\$1 \text{ per HD}) \times (100 \text{ HDs}) + (\$2 \text{ per HB}) \times (50 \text{ HBs}) = \$100 + 100 = \$200$$

$$2009: (\$2 \text{ per HD}) \times (150 \text{ HDs}) + (\$3 \text{ per HB}) \times (100 \text{ HBs}) = \$300 + 300 = \$600$$

$$2010: (\$3 \text{ per HD}) \times (200 \text{ HDs}) + (\$4 \text{ per HB}) \times (150 \text{ HBs}) = \$600 + 600 = \$1200$$

Real and Nominal GDP

Year	Price of HD	Quantity of HD	Price of HB	Quantity of HB
2008	\$1	100	\$2	50
2009	\$2	150	\$3	100
2010	\$3	200	\$4	150

Use **Constant** (Base Year 2008) Prices to Calculate **Real** GDP:

$$2008: (\$1 \text{ per HD}) \times (100 \text{ HDs}) + (\$2 \text{ per HB}) \times (50 \text{ HBs}) = \$100 + 100 = \$200$$

$$2009: (\$1 \text{ per HD}) \times (150 \text{ HDs}) + (\$2 \text{ per HB}) \times (100 \text{ HBs}) = \$150 + 200 = \$350$$

$$2010: (\$1 \text{ per HD}) \times (200 \text{ HDs}) + (\$2 \text{ per HB}) \times (150 \text{ HBs}) = \$200 + 300 = \$500$$

Real and Nominal GDP

Year	Price of HD	Quantity of HD	Price of HB	Quantity of HB
2008	\$1	100	\$2	50
2009	\$2	150	\$3	100
2010	\$3	200	\$4	150

Year	Nominal GDP	Real GDP	GDP Deflator
2008	\$200	\$200	$(\$200/\$200) \times 100 = 100$
2009	\$600	\$350	$(\$600/\$350) \times 100 = 171$
2010	\$1200	\$500	$(\$1200/\$500) \times 100 = 240$

$$\text{GDP Deflator} = (\text{Nominal GDP} / \text{Real GDP}) \times 100$$

GDP and Well-Being

Because GDP is based on **market** value, it does not account for:

- Volunteer work.
- Environmental quality.
- Equality in income distribution.

But Mankiw's table 3 shows that real GDP per capita is highly correlated with other measures of the quality of life.