Measuring Economic Performance

Chapter 2

Outline

- Gross Domestic Product
- Measuring GDP Through Spending
- Measuring GDP Through Production
- Measuring GDP Through Income
- Saving and Investment
- Transactions with the Rest of the World
- Measuring Employment and Wages

2.1. Gross Domestic Product

Value of the goods and services produced in the United States during one year

2.1. Gross Domestic Product

Three ways to think about GDP:

- **spending** on goods and services by different groups households, business, government, etc.
- **production** in different industries
- total wage and profit **income** earned by different groups producing GDP

Spending = Production = Income

Total spending on goods and services can be broken down as follows:

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

Y = Gross Domestic Product

C = Consumption

I = Investment

G = Government Spending

X = Net Exports (exports minus imports)

Consumption = spending by households

- Includes purchases of:
 - durable goods (cars, stereos, etc)
 - nondurable goods (food, clothing, etc)
 - services (haircuts, education, etc)
- Must be new purchases
- Used items (resold computer, used car, etc) are excluded from consumption calculation
- Spending on new houses not included

Investment

- sum of spending by firms on goods such as plant, equipment and inventories and spending by households on housing
- = fixed investment + inventory investment

a) Fixed investment

- Non-residential fixed investment -- spending on structures and equipment for use in business (ex. power plants, office buildings, trucks, computers)
- Residential fixed investment -- spending on construction of new houses and apartment buildings

- Government Purchases are the sum of the federal government and state and local government purchases of goods and services.
- includes such items as schools, road construction, military hardware, etc.
- represents only part of the government budget, excluding transfer payments of income from the government to individuals.

The distinction between consumption, investment, and government purchases is based on the type of purchaser rather than the type of product. A good purchased by:

- a household enters Consumption
- a business enters Investment
- government enters Government Purchases
- Exception: Residential Investment includes all housing purchases whether by household, business, or government

Imports and Exports

- Exports = goods and services produced in the
 U.S. and purchased by foreigners
- Imports = goods and services produced abroad and purchased by U.S.

Net Exports = Exports – Imports

- only Net Exports (X) are added to GDP
 - If X > 0 then trade surplus
 - If X < 0 then trade deficit

- Consumption is the biggest component (about 2/3 of GDP) typical for recent years
- Services a growing share of consumption (medical services growing most rapidly)
- Fixed investment 15% of GDP (nonresidential much larger than residential)
- Government purchases 19% of GDP
- Imports 14% of GDP
- Exports 10% of GDP

Real vs. Nominal GDP

- **GDP** is the *value* of all final goods and services produced. Changes in **GDP** can be due to:
 - changes in prices
 - changes in quantities of output produced For a correct comparison of production across years we use a measure of output that corrects for inflation (**Real GDP**).
- Real GDP measures these values using the prices of a base year.
- Nominal GDP measures these values using current prices (synonymous with GDP).

2.3 Measuring GDP Through Production: Value Added

- GDP is the sum of the value added by all the firms located in the U.S.
- Value added = difference between the revenue the firm earns by selling its products and the amount it pays for the products of other firms it uses as intermediate goods

2.4 Measuring GDP Through Income

■ GDP is the sum of all firms' income

There are several measures of income:

1. Most comprehensive is **national income** – includes income taxes and several other items that are deducted before people receive payments

2.4 Measuring GDP Through Income

- 2. **Personal Income** total income received by the public before income taxes
- 3. Disposable Personal Income total income after taxes

2.5 Saving and Investment

Closed economy, no government

GDP = Consumption + Investment

Income = Consumption + Saving

GDP = Income

From the above: Saving = Investment

2.5 Saving and Investment

Open economy

Some notation:

F = Government transfers to the private sector

Q = Interest on the government debt

T = Taxes

V = Factor income and transfer payments from abroad (net)

Sp = Private Saving

Sg = Government Saving

Sr = Rest of the world saving

Yd = Disposable Income

2.5 Saving and Investment

Private Saving:

$$S_p = Yd - C = (Y + V + F + Q - T) - C$$

Government Saving:

$$Sg = (T - F - Q) - G$$

Rest of the World Saving

$$Sr = -(X + V) = capital inflow$$

(X+V) is the surplus (or deficit) of the current account

Add up:
$$Sp + Sg + Sr = Y - C - G - X = I$$

National Saving = $Sp + Sg$

2.6 Transactions with the rest of the world

- a) The balance of payments = transactions between Americans and the rest of the world
- Current Account (CA) = net exports of goods and services + net interest payments + net international transfers

Financial Account (FA) = borrowing and lending CA + FA = 0

- If imports > exports then the U.S. borrows from the rest of the world
- If exports > imports then the U.S. lends to the rest of the world

2.6 Transactions with the rest of the world

- **b)** The Exchange Rate = the price at which one currency is exchanged for another currency
- The dollar exchange rate measures the price of dollars in terms of foreign currencies.
- When the exchange rate rises foreign goods become cheaper compared with home goods – Americans buy more goods abroad.
- Twelve European countries share a single currency (the euro).

- The *rate of inflation* percentage rate of change in the general price level from one period to the next
- The *general price level* measure of the purchasing power of the dollar (the amount of goods and services that the dollar can buy)

Two ways to measure the general price level:

- construct *price indexes* from data on prices of goods and services
- calculate *deflators* by dividing nominal GDP by Real GDP

- Price indexes
- Price index = 100 in the base year and correspondingly higher in later years if the prices of the things in the basket have risen
- Most important: CPI (Consumer Price Index) and PPI (Producer Price Index)

- a) CPI
- A measure of the overall price level
- Published by the Bureau of Labor Statistics (BLS)
- Used to:
 - Track changes in the typical household's cost of living
 - Allow comparisons of dollar figures from different years

2.7 Measuring Inflation How the BLS Computes CPI

- 1. Surveys consumers' buying habits to determine the composition of the typical consumer's "basket of goods" (the weights on the individual prices)
- 2. Collects data every month on prices for all items in the basket and compute cost of basket
- 3. CPI = 100 X <u>cost of basket in that month</u> cost of basket in the base period

b) PPI

- Instead of measuring prices paid by consumers, PPI measures the prices charged by producers at various stages in the production process.
- There is no clear basis for the choice of weights for the PPI, comparable to the market basket that gives the weights for the CPI.

2. Deflators

the ratio of nominal GDP to real GDP is called the GDP implicit price deflator

GDP deflator = $100 \times \text{Nominal GDP/Real GDP}$

Ex. Compute GDP deflator and inflation rate:

	Nom.	Real	GDP	Inflation
	GDP	GDP	deflator	rate
2001	\$46,200	\$46,200	100.0	n.a.
2002	\$51,400	\$50,000	102.8	2.8%
2003	\$58,300	\$52,000	112.1	9.1%

2.8 Measuring Employment and Wages

- Information on employment comes from 2 surveys: households and other establishments (offices, factories, stores, mines, etc).
- Employment is not a complete measure of labor input in production. The average number of hours falls during recessions and rises during recoveries.
- A better measure is **total hours of work** = the number of employed multiplied by average hours worked.