• **Gross national product** (GNP) is the value of all final goods and services *produced by a nation's factors of production* in a given time period.

♦ What are factors of production? workers (labor), physical capital (like factories and equipment), natural resources and other factors that are used to produce goods and services.

♦ The value of final goods and services produced by US labor, capital and natural resources are counted as US GNP.

• Another approximate measure of national income is **gross domestic product** (GDP):
• Gross domestic product measures the final value of all goods and services that are produced *within a country* in a given time period.
• GDP = GNP – factor payments from foreign countries + factor payments to foreign countries

GNP = Expenditure on a Country's Goods and Services

$$Y = Cd + Id + Gd + EX$$
$$= (C\text{-}Cf) + (I\text{-}If) + (G\text{-}Gf) + EX$$
$$= C + I + G + EX - (Cf + If + Gf)$$
$$= C + I + G + EX - IM$$
$$= C + I + G + CA$$

CA = EX – IM = Y – (C + I + G)

• When production > domestic expenditure, exports > imports: current account > 0, trade balance > 0

• When production < domestic expenditure, exports <imports: current account < 0, trade balance < 0

Saving and the Current Account

- National saving (S) = national income (Y) that is not spent on consumption (C) or government purchases (G).
- $Y - C - G$
- $(Y - C - T) + (T - G)$
- $Sp + Sg = S$

How Is the Current Account Related to
National Saving?

$$CA = Y - (C + I + G)$$

implies

$$CA = (Y - C - G) - I$$

$$= S - I$$

current account = national saving – investment

current account = net foreign investment

If trade surplus, country is a net lender in world financial markets
If trade deficit, net borrower.

International flows of funds to finance capital accumulation and international flow of goods and services are two sides of the same coin:

If S>I, savings not invested at home are used to make loans to foreigners. Foreigners need these loans because we're providing them with more goods and services than they are providing us.(home is running a trade surplus)

If S<I, extra investment must be financed by borrowing from abroad. These loans allow us to import more goods and services than we export (trade deficit)

The international flows of capital can take many form. We just assumed that when we run a trade deficit, $S-I<0$ represents loans that foreigners make to us.

But equivalently, this can also include foreigners buying assets (shares in companies, buildings, etc.) in our country.

In both cases, foreigners obtain a claim to the future returns to domestic capital (i.e, they own some of the domestic capital stock)

A country's international transactions are recorded in the balance of payment (BOP) accounts.

Two types of transactions are recorded in the balance of payments:
export or import of goods and services enter the current account

Transactions that involve the purchase of an asset enter the capital account.
(An asset: any one of the forms of wealth that can be held: money, stocks, factories, gvt debt, land)
when a UK citizen buys a house in the US (i.e. « imports » an asset from the US), the enters the UK balance of payments as a debit on the capital account.

Fundamental principle: double entry bookkeeping = each transaction enters the BOP twice, once as credit(+) and once as a debit (-).

Example of Balance of
Payment Accounting

• You import a DVD of Japanese anime (for 30£) by using your debit card.

• The Japanese producer of anime deposits the funds in its bank account in London. The bank credits the account by the amount of the deposit.

Credit (“sale”) of bank account by bank (capital account)	+£30
DVD purchase (current account)	–£30

• You invest in the Japanese stock market by buying £500 in Sony stock.
• Sony deposits your funds in its London bank account. The bank credits the account by the amount of the deposit.

Credit (“sale”) of bank account by bank (capital account)	+£500
Purchase of stock (capital account)	–£500

How Do the Balance of Payments Accounts Balance?

- Due to the double entry of each transaction, the balance of payments accounts will balance by the following equation:

current account + capital account = 0

Definitions of Exchange Rates

• Exchange rates are quoted as foreign currency per unit of domestic currency or domestic currency per unit of foreign currency.

♦ How much can be exchanged for one pound? £0.5/$1

♦ How much can be exchanged for one dollar? $2/£1

• Exchange rate allow us to express the cost or price of a good or service in a common currency.

♦ How much does a bottle of Californian wine cost? $30

♦ Or, $30 x £0.5/$1 = £15

Depreciation and Appreciation

• **Depreciation** is a *decrease* in the value of a currency relative to another currency.

♦ A depreciated currency is *less valuable* (less expensive) and therefore can be exchanged for (can buy) a smaller amount of foreign currency.

♦ £0.5/$1 → £1/$1 means that the pound has depreciated against the dollar. It now takes £1 (instead of £0.5) to buy one dollar, so that the pound is less valuable.

♦ At the same time, the dollar has appreciated against the pound: it is now more valuable.

• **Appreciation** is an i*ncrease* in the value of a currency relative to another currency.

♦ An appreciated currency is *more valuable* (more expensive) and therefore can be exchanged for (can buy) a larger amount of foreign currency.

• A depreciated currency is less valuable, and therefore it can buy fewer foreign-produced goods with prices that are quoted in foreign currency terms.

♦ bottle of Californian wine: $30. How does a change in the exchange rate affect the cost to YOU (in pounds)?
♦ $30 x £0.5/$1 = $15
♦ $30 x £1/$1 = £ 30

• A depreciated currency means that *imports* are more expensive and domestically produced goods and *exports* are less expensive.
• A depreciated currency lowers the price of exports relative to the price of imports.

(similar story the other way for « appreciated » currency)