

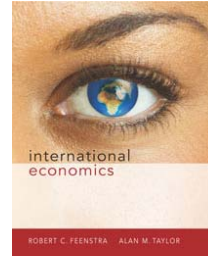
# Advanced International Economics

## ECON 758

Professor Yamin Ahmad

Lecture 7:

- National Income Accounting
- Balance of Payments



## Preview

- National income accounts
  - measures of national income
  - measures of value of production
  - measures of value of expenditure
- National saving, investment and the current account
- Balance of payments accounts

Note: These lecture notes are incomplete without having attended lectures.

7-2

## National Income Accounts

- Records the value of **national income** that results from *production* and *expenditure*.
  - Producers earn income from buyers who spend money on goods and services.
  - The amount of expenditure by buyers = the amount of income for sellers = the value of production.
  - National income is often defined to be the *income earned by a nation's factors of production*.

Note: These lecture notes are incomplete without having attended lectures.

7-3

## National Income Accounts: GNP

- **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.

Note: These lecture notes are incomplete without having attended lectures.

7-4

## National Income Accounts

- To go from National Income to GNP, we have to include the following as well:
  - Depreciation** of capital results in a loss of income to capital owners, so the amount of depreciation is subtracted from GNP.
  - Indirect business taxes** reduce income to businesses, so the amount of these taxes is subtracted from GNP.
- Net National Product**  
= GNP – capital depreciation

Note: These lecture notes are incomplete without having attended lectures.

7-5

## National Income Accounts: GNP (cont.)

- GNP is calculated by adding the value of expenditure on final goods and services produced.
- There are 4 types of expenditure:
  - Consumption**: expenditure by domestic residents
  - Investment**: expenditure by firms on plants & equipment
  - Government purchases**: expenditure by governments on goods and services
  - Current account balance** (exports minus imports): net expenditure by foreigners on domestic goods and services

Note: These lecture notes are incomplete without having attended lectures.

7-6

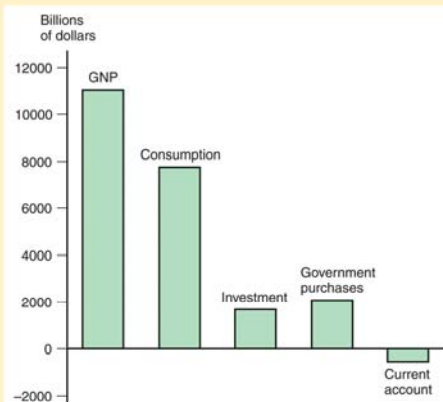
## National Income Accounts: GNP (cont.)

Figure 12-1

### U.S. GNP and Its Components

America's \$11.1 trillion 2003 gross national product can be broken down into the four components shown.

Source: Economic Indicators, U.S. Government Printing Office, July 2004.



Note: These lecture notes are incomplete without having attended lectures.

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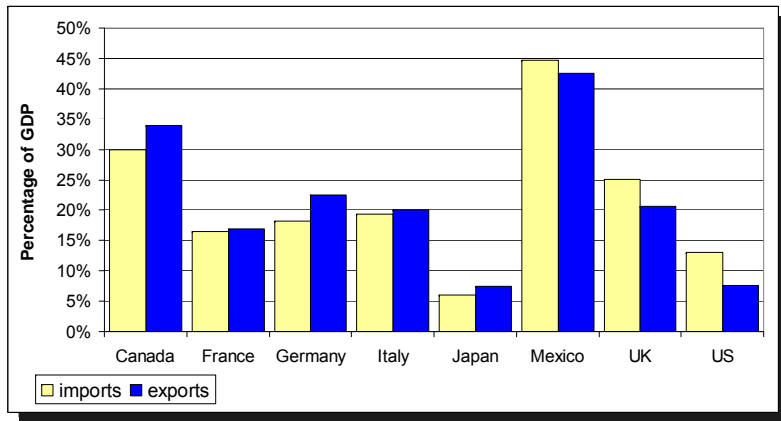
## National Income Accounts (cont.)

- 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.
- GNP - GDP = factor payments from foreign countries + factor payments to foreign countries**

Note: These lecture notes are incomplete without having attended lectures.

7-8

## Imports and Exports As a Fraction of GDP



Imports and exports as a percentage of GDP by country, 2000. Source: OECD

Note: These lecture notes are incomplete without having attended lectures.

7-9

## Preliminaries

$$C = C^d + C^f$$

$$I = I^d + I^f$$

$$G = G^d + G^f$$

superscripts:

**d** = spending on domestic goods

**f** = spending on foreign goods

**EX** = exports = foreign spending on domestic goods

**IM** = imports =  $C^f + I^f + G^f$  = spending on foreign goods

**CA** = Net expenditure by foreigners

$$= NX \text{ [net exports (a.k.a. the "trade balance")] } + \dots$$

$$= EX - IM + \dots$$

Note: These lecture notes are incomplete without having attended lectures.

7-10

## GNP = Expenditure on a Country's Goods and Services

National income = value of production

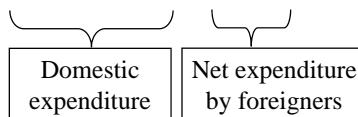
$$Y = C^d + I^d + G^d + EX \quad \leftarrow \text{expenditure on production}$$

$$= (C - C^f) + (I - I^f) + (G - G^f) + EX$$

$$= C + I + G + EX - (C^f + I^f + G^f)$$

$$= C + I + G + EX - IM$$

$$= C + I + G + CA$$



Note: These lecture notes are incomplete without having attended lectures.

7-11

## Expenditure and Production in an Open Economy

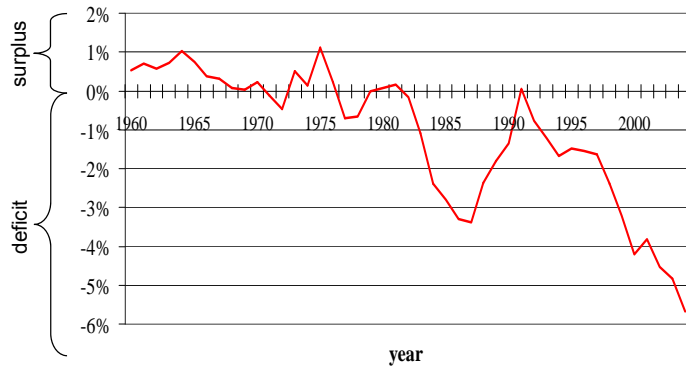
$$CA = EX - IM = Y - (C + I + G)$$

- When production > domestic expenditure, exports > imports: current account > 0, trade balance > 0
  - > when a country exports more than it imports, it earns more income from exports than it spends on imports
  - > net foreign wealth is increasing
- When production < domestic expenditure, exports < imports: current account < 0, trade balance < 0
  - > when a country exports less than it imports, it earns less income from exports than it spends on imports
  - > net foreign wealth is decreasing

Note: These lecture notes are incomplete without having attended lectures.

7-12

## US Current Account As a Percentage of GDP, 1960–2004

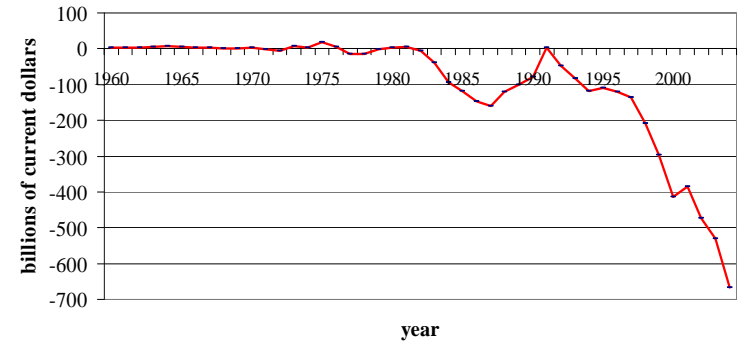


Source: Bureau of Economic Analysis, US Department of Commerce

Note: These lecture notes are incomplete without having attended lectures.

7-13

## US Current Account, 1960–2004



Source: Bureau of Economic Analysis, US Department of Commerce

Note: These lecture notes are incomplete without having attended lectures.

7-14

## US Current Account and Net Foreign Wealth, 1977–2003

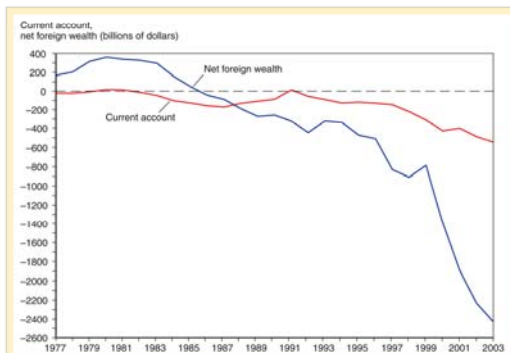


Figure 12-2

The U.S. Current Account and Net Foreign Wealth Position, 1977–2003

A string of current account deficits in the 1980s reduced America's net foreign wealth until, by the early 21st century, the country had accumulated a substantial net foreign debt.

Source: U.S. Government Printing Office, Economic Indicators, April 2004.

Note: These lecture notes are incomplete without having attended lectures.

7-15

## Saving and the Current Account

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

Note: These lecture notes are incomplete without having attended lectures.

7-16

## How Is the Current Account Related to National Saving?

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

implies

$$\begin{aligned} CA &= (Y - C - G) - I \\ &= S - I \end{aligned}$$

**current account = national saving – investment**

**current account = net foreign investment**

- A country that imports more than it exports has low national saving relative to investment.

## International capital flows

- **Net capital outflow**  
 $= S - I$   
 = net outflow of “loanable funds”  
 = net purchases of foreign assets  
 i.e. the country's purchases of foreign assets  
 minus foreign purchases of domestic assets
- When  $S > I$ , country is a **net lender**
- When  $S < I$ , country is a **net borrower**

## The link between trade & cap. flows

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

implies

$$\begin{aligned} CA &= (Y - C - G) - I \\ &= S - I \end{aligned}$$

**trade balance = net capital outflow**

Thus,  
 a country with a trade deficit ( $NX < 0$ )  
 is a net borrower ( $S < I$ ).

## How Is the Current Account Related to National Saving? (cont.)

$$CA = S - I \quad \text{or} \quad I = S - CA$$

- Countries can finance investment either by saving or by acquiring foreign funds equal to the current account deficit.
  - > a current account deficit implies a financial capital inflow or negative net foreign investment.
- When  $S > I$ , then  $CA > 0$  and net foreign investment and financial capital outflows for the domestic economy are positive.

## How Is the Current Account Related to National Saving? (cont.)

$$CA = S^p + S^g - I$$

$$= S^p - \text{government deficit} - I$$

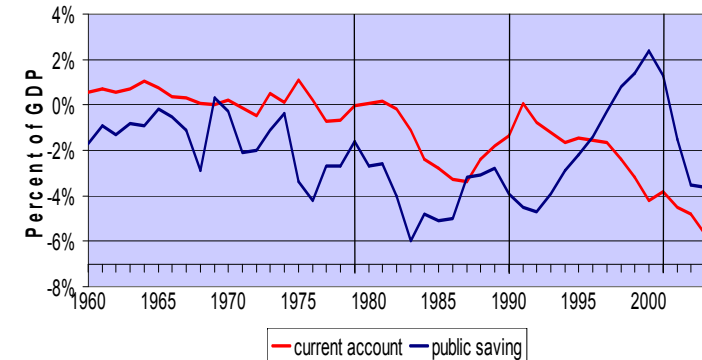
- Government deficit is negative government saving
  - equal to  $G - T$
- A high government deficit causes a negative current account balance, all other things equal.

Note: These lecture notes are incomplete without having attended lectures.

7-21

## Inverse Relationship Between Public Saving and Current Account?

US current account and public saving relative to GDP, 1960-2004



Source: Congressional Budget Office, US Department of Commerce

Note: These lecture notes are incomplete without having attended lectures.

7-22

## Balance of Payments Accounts

- A country's balance of payments accounts accounts for its payments to and its receipts from foreigners.
- Each international transaction enters the accounts twice: once as a credit (+) and once as a debit (-).
  - Debit:- any transaction resulting in payment to foreigners.
  - Credit:- any transaction resulting in a receipt from foreigners.

Note: These lecture notes are incomplete without having attended lectures.

7-23

## Balance of Payments Accounts (cont.)

- The balance of payment accounts are separated into 3 broad accounts:
  - **current account:** accounts for flows of goods and services (imports and exports).
  - **financial account:** accounts for flows of financial assets (financial capital).
  - **capital account:** flows of special categories of assets (capital), typically non-market, non-produced, or intangible assets like debt forgiveness, copyrights and trademarks.

Note: These lecture notes are incomplete without having attended lectures.

7-24

## Examples of Balance of Payment Accounting

### Example 1

- You import a DVD of Japanese anime by using your debit card.
- The Japanese producer of anime deposits the funds in its bank account in San Francisco. The bank credits the account by the amount of the deposit.

DVD purchase (current account)	-\$30
Credit (“sale”) of bank account by bank (financial account)	+\$30

Note: These lecture notes are incomplete without having attended lectures.

7-25

## Examples of Balance of Payment Accounting

### Example 2

- You invest in the Japanese stock market by buying \$500 in Sony stock.
- Sony deposits your funds in its Los Angeles bank account. The bank credits the account by the amount of the deposit.

Purchase of stock (financial account)	-\$500
Credit (“sale”) of bank account by bank (financial account)	+\$500

Note: These lecture notes are incomplete without having attended lectures.

7-26

## Examples of Balance of Payment Accounting

### Example 3

- US banks forgive a \$100 M debt owed by the government of Argentina through debt restructuring.
- US banks who hold the debt thereby reduce the debt by crediting Argentina's bank accounts.

Debt forgiveness: non-market transfer (capital account)	-\$100 M
Credit (“sale”) of bank account by bank (financial account)	+\$100 M

Note: These lecture notes are incomplete without having attended lectures.

7-27

## 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:

$$\text{current account} + \text{financial account} + \text{capital account} = 0$$

- *This is the Fundamental Balance of Payments Identity!*

Note: These lecture notes are incomplete without having attended lectures.

7-28

## Balance of Payments Accounts

- Each of the 3 broad accounts are more finely divided:
- **Current account: imports and exports**
  1. merchandise (goods like DVDs)
  2. services (payments for legal services, shipping services, tourist meals,...)
  3. income receipts (**interest and dividend payments**, earnings of firms and workers operating in foreign countries)
- **Current account: net unilateral transfers**
  - gifts (transfers) across countries that do not purchase a good or service nor serve as income
  - E.g. foreign aid, gifts and retirement pensions

Note: These lecture notes are incomplete without having attended lectures.

7-29

## Balance of Payments Accounts (cont.)

- **Capital account:**
  - Records special asset transfers
  - Includes primarily transactions involving debt forgiveness and financial assets accompanying migrant workers as they enter or leave the country.
  - Nonmarket activities
  - Acquisition or disposal of nonproduced, nonfinancial and possibly intangible assets (e.g. copyrights and trademarks).
  - However, this is a minor account for the US.

Note: These lecture notes are incomplete without having attended lectures.

7-30

## Balance of Payments Accounts (cont.)

- **Financial account:** the difference between sales of domestic assets to foreigners and purchases of foreign assets by domestic citizens.
- **Financial (capital) inflow**
  - Foreigners loan to domestic citizens by acquiring domestic assets.
  - Foreign owned (sold) assets in the domestic economy are a credit (+)
- **Financial (capital) outflow**
  - Domestic citizens loan to foreigners by acquiring foreign assets.
  - Domestically owned (purchased) assets in foreign economies are a debit (-)

Note: These lecture notes are incomplete without having attended lectures.

7-31

## Balance of Payments Accounts (cont.)

- **Financial account** has at least 3 categories:
  1. **Official (international) reserve assets**
  2. All other assets
  3. **Statistical discrepancy**

Note: These lecture notes are incomplete without having attended lectures.

7-32

## Balance of Payments Accounts (cont.)

- **Statistical discrepancy**
  - Data from a transaction may come from different sources that differ in coverage, accuracy, and timing.
  - The balance of payments accounts therefore seldom balance in practice.
  - The statistical discrepancy is the account added to or subtracted from the financial account to make it balance with the current account and capital account.

Note: These lecture notes are incomplete without having attended lectures.

7-33

## Balance of Payments Accounts (cont.)

- **Official (international) reserve assets:** foreign assets held by central banks to cushion against instability in international markets.
  - Assets include government bonds, currency, gold and accounts at the **International Monetary Fund**.
  - Official reserve assets owned by (sold to) foreign central banks are a credit (+).
  - Official reserve assets owned by (purchased by) the domestic central bank are a debit (-).

Note: These lecture notes are incomplete without having attended lectures.

7-34

## Balance of Payments Accounts (cont.)

- The negative value of the official reserve assets is called the **official settlements balance (OSB)** or “**balance of payments**”.
  - It is the sum of the current account, the capital account, the non-reserve portion of the financial account, and the statistical discrepancy.
  - i.e. it is:
    - OSB (aka ‘Balance of Payments’)
    - = **Current Account** + **Capital Account** + **All other assets in Financial Account** + **Statistical Discrepancy in Financial Account**
    - = - **Official Reserves Assets**

Note: These lecture notes are incomplete without having attended lectures.

7-35

## Balance of Payments Accounts (cont.)

- A negative official settlements balance may indicate that a country is depleting its official international reserve assets or may be incurring debts to foreign central banks.
  - selling foreign currency by the domestic central bank and buying domestic assets by foreign central banks are credits for official international reserve assets, and therefore reduce the official settlements balance.

Note: These lecture notes are incomplete without having attended lectures.

7-36

## US Balance of Payments Accounts, 2003 in Billions of Dollars

**TABLE 12-2 U.S. Balance of Payments Accounts for 2003 (billions of dollars)**

	Credits	Debits
<b>Current Account</b>		
(1) Exports	+1,314.9	
Of which:		
Goods	+713.1	
Services	+307.4	
Income receipts	+294.4	
(2) Imports		-1,778.1
Of which:		
Goods		-1,260.7
Services		-256.3
Income payments		-261.1
(3) Net unilateral current transfers		-67.4
Balance on current account		-530.7
[(1) + (2) + (3)]		
<b>Capital Account</b>		
(4)		-3.1

Note: These lecture notes are incomplete without having attended lectures.

7-37

## US Balance of Payments Accounts, 2003 in Billions of Dollars (cont.)

**TABLE 12-2 U.S. Balance of Payments Accounts for 2003 (billions of dollars)**

	Credits	Debits
<b>Financial Account</b>		
(5) U.S. assets held abroad		-283.4
(increase -)		
Of which:		
Official reserve assets	+1.5	
Other assets		-284.9
(6) Foreign assets held in U.S.	+829.2	
(increase +)		
Of which:		
Official reserve assets	+248.6	
Other assets	+580.6	
Balance on financial account	+545.8	
[(5) + (6)]		
Statistical discrepancy		-12.0
[sum of (1) through (6) with sign reversed]		

**Source:** U.S. Department of Commerce, *Survey of Current Business*, July 2004. Totals may differ from sums because of rounding.

Note: These lecture notes are incomplete without having attended lectures.

7-38

## Question

Classify the following transactions on the BOP accounts for country A:

- Exporters of country A send \$6000 of goods to country B, receiving in exchange a short term bank deposit of \$6000 in country B.
- Residents of country A send \$1000 of goods to country B's citizens as a gift.
- Country B's commercial banks sell \$800 to country B's central bank. The foreign central bank's dollar accounts in country A are increased and the foreign commercial banks have reduced their dollar balances in country A banks.

Note: These lecture notes are incomplete without having attended lectures.

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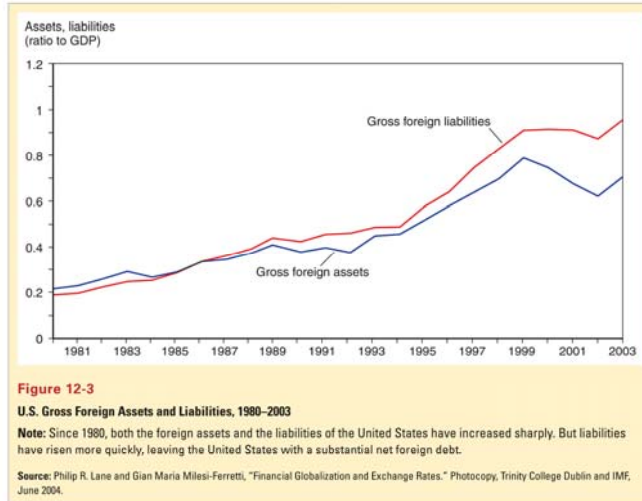
## US Balance of Payments Accounts

- The US has the most negative net foreign wealth in the world, and so is therefore the world's largest debtor nation.
- And its current account deficit in 2004 was \$670 billion dollars, so that net foreign wealth continued to decrease.
- The value of foreign assets held by the US has grown since 1980, but liabilities of the US (debt held by foreigners) has grown more quickly.

Note: These lecture notes are incomplete without having attended lectures.

7-40

## US Balance of Payments Accounts (cont.)



Note: These lecture notes are incomplete without having attended lectures.

7-41

## US Balance of Payments Accounts (cont.)

- About 70% of foreign assets held by the US are denominated in foreign currencies and almost all of US liabilities (debt) are denominated in dollars.
- Changes in the exchange rate influence value of net foreign wealth (gross foreign assets minus gross foreign liabilities).
  - A depreciation of the US dollar makes foreign assets held by the US more valuable, but does not change the dollar value of dollar denominated debt.

Note: These lecture notes are incomplete without having attended lectures.

7-42

## Summary

1. A country's GNP is roughly equal to the income received by its factors of production.
2. In an open economy, GNP equals the sum of consumption, investment, government purchases, and the current account.
3. GDP is equal to GNP minus net receipts of factor income from abroad. It measures the output produced within a country's borders.

Note: These lecture notes are incomplete without having attended lectures.

7-43

## Summary (cont.)

4. National saving minus domestic investment equals the current account ( $\approx$  exports minus imports).
5. The current account equals the country's net foreign investment (net outflows of financial assets).
6. The balance of payments accounts records flows of goods & services and flows of financial assets across countries.
  - It has 3 parts: current account, capital account and financial account, which balance each other.
  - Transactions of goods and services appear in the current account; transactions of financial assets appear in the financial account.

Note: These lecture notes are incomplete without having attended lectures.

7-44

## Summary (cont.)

7. Official international reserve assets are a component of the financial account which records official assets held by central banks.
8. The official settlements balance is the negative value of official international reserve assets, and it shows a central bank's holdings of foreign assets relative to foreign central banks' holdings of domestic assets.
9. The US is the largest debtor nation, and its foreign debt continues to grow because its current account continues to be negative.