Chapter 13

National Income Accounting and the 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
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*. 
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? Factors that are used to produce goods and services: workers (labor services), physical capital (like buildings and equipment), natural resources and others.
  - The value of final goods and services produced by US-owned factors of production are counted as US GNP.
National Income Accounts: GNP (cont.)

- GNP is calculated by adding the value of expenditure on final goods and services produced:
  1. Consumption: expenditure by domestic consumers
  2. Investment: expenditure by firms on buildings & equipment
  3. Government purchases: expenditure by governments on goods and services
Fig. 13-1: U.S. GNP and Its Components

National Income Accounts

- GNP is one measure of national income, but a more precise measure of national income is GNP adjusted for following:

1. **Depreciation** of physical capital results in a loss of income to capital owners, so the amount of depreciation is subtracted from GNP.

2. **Unilateral transfers** to and from other countries can change national income: payments of expatriate workers sent to their home countries, foreign aid and pension payments sent to expatriate retirees.
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.

  – GDP = GNP – payments from foreign countries for factors of production + payments to foreign countries for factors of production
GNP = Expenditure on a Country’s Goods and Services

- The national income identity for an open economy is

\[ Y = C + I + G + EX - IM \]

\[ = C + I + G + CA \]

- Expenditure by domestic individuals and institutions
- Net expenditure by foreign individuals and institutions
Expenditure and Production in an Open Economy

\[ CA = EX - IM = Y - (C + I + G) \]

- When production > domestic expenditure, exports > imports: current account > 0 and 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 and 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
The hobbits live in the Shire. They only grow apples, 1000 apples per year. They invest by putting aside 50 apples for the next year planting. There is the hobbit government who appropriates 300 apples to feed the army. The hobbits can import metal locks from the Lonely Mountain (Erebor) at the price of 10 apples for 1 metal lock. They export 200 apples and import 25 metal locks. Show, by components the National Income of the Shire.
Saving and the Current Account

- National saving \((S)\) = national income \((Y)\) that is not spent on consumption \((C)\) or government purchases \((G)\).

\[
S = Y - C - G
\]
\[
S = (Y - C - T) + (T - G)
\]
\[
S = S^p + S^g
\]
Fig. 13-2: U.S. Current Account and Net Foreign Wealth, 1976–2009

How Is the Current Account Related to National Saving?

\[
CA = Y - (C + I + G) \\
= (Y - C - G) - I \\
= S - I
\]

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

\[ \text{CA} = \text{S} - \text{I} \quad \text{or} \quad \text{I} = \text{S} - \text{CA} \]

- 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 asset inflow or negative net foreign investment.

- When \( S > I \), then \( CA > 0 \) so that 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 when other factors remain constant.
Balance of Payments Accounts

- A country’s balance of payments accounts accounts for its payments to and its receipts from foreigners.

- An international transaction involves two parties, and each transaction enters the accounts twice: once as a credit (+) and once as a debit (−).
Balance of Payments Accounts (cont.)

• The balance of payments 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 nonmarket, non-produced, or intangible assets like debt forgiveness, copyrights and trademarks.
Example of Balance of Payments Accounting

- You import a fax machine from Olivetti.
- Olivetti deposits your check in a U.S. bank.

Fax machine (current account, U.S. good import)  \(-80\)

Bank deposit (financial account, U.S. asset sale)  \(+80\)
Example of Balance of Payments Accounting (cont.)

- You buy lunch in France and pay by credit card.
- French restaurant receives payment from your credit card company.

| Meal purchase (current account, U.S. service import) | $-30 |
| Sale of credit card claim (financial account, U.S. asset sale) | $+30 |
Example of Balance of Payments Accounting (cont.)

- You buy a share of BP.
- BP deposits the money in a U.S. bank.

Stock purchase (financial account, U.S. asset purchase)  
- $90

Bank deposit (financial account, U.S. asset sale)  
+ $90
Example of Balance of Payments Accounting (cont.)

- U.S. banks forgive a $50 M debt owed by the government of Argentina through debt restructuring.
- U.S. banks who hold the debt thereby reduce the debt by crediting Argentina's bank accounts.

Debt forgiveness (capital account, U.S. transfer payment)  
\[ -50 \text{ M} \]

Reduction in bank’s claims (financial account, U.S. asset sale)  
\[ +50 \text{ M} \]
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:

\[
\text{current account} + \text{financial account} + \text{capital account} = 0
\]
Balance of Payments Accounts

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, etc.)
  3. income receipts (interest and dividend payments, earnings of firms and workers operating in foreign countries)
Balance of Payments Accounts (cont.)

- **Current account**: net unilateral transfers
  - gifts (transfers) across countries that do not purchase a good or service nor serve as income for goods and services produced

- **Capital account**: records special transfers of assets, but this is a minor account for the U.S.
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 inflow**
  - Foreigners loan to domestic citizens by buying domestic assets.
  - Domestic assets sold to foreigners are a credit (+) because the domestic economy acquires money during the transaction.

- **Financial outflow**
  - Domestic citizens loan to foreigners by buying foreign assets.
  - Foreign assets purchased by domestic citizens are a debit (–) because the domestic economy gives up money during the transaction.
Balance of Payments Accounts (cont.)

- **Financial account** has at least 3 subcategories:
  1. Official (international) reserve assets
  2. All other assets
  3. Statistical discrepancy
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.
Balance of Payments Accounts (cont.)

- **Official (international) reserve assets**: foreign assets held by central banks to cushion against financial instability.
  - 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 (+) because the domestic central bank can spend more money to cushion against instability.
  - Official reserve assets owned by (purchased by) the domestic central bank are a debit (−) because the domestic central bank can spend less money to cushion against instability.
Balance of Payments Accounts (cont.)

• The negative value of the official reserve assets is called the **official settlements balance** or “balance of payments.”
  
  – It is the sum of the current account, the capital account, the nonreserve portion of the financial account, and the statistical discrepancy.

  – A negative official settlements balance may indicate that a country
    
    • is depleting its official international reserve assets, or
    • may be incurring large debts to foreign central banks so that the domestic central bank can spend a lot to protect against financial instability.
Table 13-2: U.S. Balance of Payments Accounts for 2009 (billions of dollars)

<table>
<thead>
<tr>
<th>Current Account</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Exports</td>
<td>2,159.0</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
</tr>
<tr>
<td>Goods</td>
<td>1,068.5</td>
</tr>
<tr>
<td>Services</td>
<td>502.3</td>
</tr>
<tr>
<td>Income receipts (primary income)</td>
<td>588.2</td>
</tr>
<tr>
<td>(2) Imports</td>
<td>2,412.5</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
</tr>
<tr>
<td>Goods</td>
<td>1,575.4</td>
</tr>
<tr>
<td>Services</td>
<td>370.3</td>
</tr>
<tr>
<td>Income payments (primary income)</td>
<td>466.8</td>
</tr>
<tr>
<td>(3) Net unilateral transfers (secondary income)</td>
<td></td>
</tr>
<tr>
<td>Balance on current account</td>
<td>−124.9</td>
</tr>
<tr>
<td>[(1) + (2) + (3)]</td>
<td>−378.4</td>
</tr>
</tbody>
</table>

| Capital Account                      |       |
| (4)                                   | 0.1   |

| Financial Account                    |       |
| (5) Net U.S. acquisition of financial assets, excluding financial derivatives | 140.5 |
| Of which:                            |       |
| Official reserve assets              | 52.3  |
| Other assets                         | 88.2  |
| (6) Net U.S. incurrence of liabilities, excluding financial derivatives | 305.7 |
| Of which:                            |       |
| Official reserve assets              | 450.0  |
| Other assets                         | −144.3|
| (7) Financial derivatives, net      |       |
| Net financial flows                  | −50.8 |
| [(5) − (6) + (7)]                    | −216.0 |
| Net errors and omissions             | 162.5 |
| [Net financial flows less sum of current and capital accounts] |       |

U.S. Balance of Payments Accounts

- The U.S. has the most negative net foreign wealth in the world, and so is therefore the world’s largest debtor nation.

- Its current account deficit in 2009 was $378 billion dollars, so that net foreign wealth continues to decrease.

- The value of foreign assets held by the U.S. has grown since 1980, but liabilities of the U.S. (debt held by foreigners) has grown faster.
Fig. 13-3: U.S. Gross Foreign Assets and Liabilities, 1976-2009

U.S. Balance of Payments Accounts (cont.)

• About 70% of foreign assets held by the U.S. are denominated in foreign currencies and almost all of U.S. liabilities (debt) are denominated in dollars.

• Changes in the exchange rate influence value of net foreign wealth (gross foreign assets minus gross foreign liabilities).
  
  – Appreciation of the value of foreign currencies makes foreign assets held by the U.S. more valuable, but does not change the dollar value of dollar-denominated debt for the U.S.
Table 13-3: International Investment Position of the United States at Year End, 2008 and 2009 (millions of dollars)

<table>
<thead>
<tr>
<th>Line</th>
<th>Type of investment</th>
<th>Position, 2008*</th>
<th>Position, 2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Net international investment position of the United States (line 2+3)</td>
<td>-3,483,962</td>
<td>-2,167,075</td>
</tr>
<tr>
<td>2</td>
<td>Financial assets, financial liabilities (line 1+2)</td>
<td>-3,483,962</td>
<td>-2,167,075</td>
</tr>
<tr>
<td>3</td>
<td>Net international investment position, excluding financial derivatives (line 6 less line 26)</td>
<td>-3,953,517</td>
<td>-1,865,771</td>
</tr>
<tr>
<td>4</td>
<td>Nonfinancial assets abroad (line 5a)</td>
<td>21,294,675</td>
<td>21,294,675</td>
</tr>
<tr>
<td>5</td>
<td>Financial derivatives (gross positive for United States)</td>
<td>6,127,499</td>
<td>6,127,499</td>
</tr>
<tr>
<td>6</td>
<td>U.S.-owned assets abroad, excluding financial derivatives (line 7a+17)</td>
<td>23,422,174</td>
<td>23,422,174</td>
</tr>
<tr>
<td>7</td>
<td>U.S. official reserve assets</td>
<td>18,043,126</td>
<td>17,397,069</td>
</tr>
<tr>
<td>8</td>
<td>Gold</td>
<td>297,439</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Special drawing rights</td>
<td>5,340</td>
<td>4,820</td>
</tr>
<tr>
<td>10</td>
<td>Reserve position in the International Monetary Fund</td>
<td>7,683</td>
<td>3,397</td>
</tr>
<tr>
<td>11</td>
<td>Foreign currency and demand deposits</td>
<td>42,270</td>
<td>46,266</td>
</tr>
<tr>
<td>12</td>
<td>U.S. government assets, other than official reserve assets</td>
<td>642,100</td>
<td>541,342</td>
</tr>
<tr>
<td>13</td>
<td>U.S. credits and other long-term assets</td>
<td>65,977</td>
<td>1,098</td>
</tr>
<tr>
<td>14</td>
<td>Receivables</td>
<td>1,036</td>
<td>1,036</td>
</tr>
<tr>
<td>15</td>
<td>Other</td>
<td>179</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>U.S. foreign currency holdings and U.S. short-term assets</td>
<td>854,222</td>
<td>543,278</td>
</tr>
<tr>
<td>17</td>
<td>U.S. private assets</td>
<td>12,199,503</td>
<td>6,352,552</td>
</tr>
<tr>
<td>18</td>
<td>Direct investment at current cost</td>
<td>3,743,035</td>
<td>2,984,890</td>
</tr>
<tr>
<td>19</td>
<td>Foreign portfolio investments</td>
<td>3,045,122</td>
<td>2,781,511</td>
</tr>
<tr>
<td>20</td>
<td>Bonds</td>
<td>1,395,285</td>
<td>1,328,690</td>
</tr>
<tr>
<td>21</td>
<td>Corporate stocks</td>
<td>2,749,928</td>
<td>1,615,037</td>
</tr>
<tr>
<td>22</td>
<td>U.S. claims on unaffiliated foreign governments reported by U.S. nonbanking concerns</td>
<td>794,859</td>
<td>542,428</td>
</tr>
<tr>
<td>23</td>
<td>U.S. claims on unaffiliated foreign governments reported by U.S. nonbanking concerns</td>
<td>3,674,347</td>
<td>2,777,067</td>
</tr>
<tr>
<td>24</td>
<td>Foreign-owned assets in the United States (line 25+26)</td>
<td>22,738,727</td>
<td>18,362,713</td>
</tr>
<tr>
<td>25</td>
<td>Portfolio equity (net of changes in valuation)</td>
<td>3,987,514</td>
<td>1,361,872</td>
</tr>
<tr>
<td>26</td>
<td>Foreign-owned assets in the United States, excluding financial derivatives (line 27+28)</td>
<td>16,770,942</td>
<td>16,990,841</td>
</tr>
<tr>
<td>27</td>
<td>Foreign official assets in the United States</td>
<td>3,939,968</td>
<td>430,630</td>
</tr>
<tr>
<td>28</td>
<td>U.S. Government securities</td>
<td>3,884,566</td>
<td>430,630</td>
</tr>
<tr>
<td>29</td>
<td>U.S. Treasury securities</td>
<td>2,404,316</td>
<td>430,630</td>
</tr>
<tr>
<td>30</td>
<td>U.S. other assets</td>
<td>386,223</td>
<td>386,223</td>
</tr>
<tr>
<td>31</td>
<td>Other</td>
<td>40,577</td>
<td>40,577</td>
</tr>
<tr>
<td>32</td>
<td>U.S. official assets</td>
<td>292,608</td>
<td>292,608</td>
</tr>
<tr>
<td>33</td>
<td>Foreign assets abroad</td>
<td>12,830,944</td>
<td>14,294,294</td>
</tr>
<tr>
<td>34</td>
<td>Direct investment at current cost</td>
<td>2,825,853</td>
<td>134,707</td>
</tr>
<tr>
<td>35</td>
<td>U.S. Treasury securities</td>
<td>850,921</td>
<td>22,821</td>
</tr>
<tr>
<td>36</td>
<td>U.S. other assets</td>
<td>60,028</td>
<td>60,028</td>
</tr>
<tr>
<td>37</td>
<td>Corporate and other bonds</td>
<td>2,770,808</td>
<td>136,596</td>
</tr>
<tr>
<td>38</td>
<td>Corporate stocks</td>
<td>1,801,162</td>
<td>136,596</td>
</tr>
<tr>
<td>39</td>
<td>U.S. currency</td>
<td>301,139</td>
<td>12,632</td>
</tr>
<tr>
<td>40</td>
<td>U.S. liabilities reported to unaffiliated foreign governments reported by U.S. nonbanking concerns</td>
<td>739,358</td>
<td>1,440,572</td>
</tr>
<tr>
<td>41</td>
<td>U.S. liabilities reported to unaffiliated foreign governments reported by U.S. nonbanking concerns</td>
<td>3,855,194</td>
<td>-313,013</td>
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<tr>
<td>42</td>
<td>Expenditures</td>
<td>3,103,704</td>
<td>368,860</td>
</tr>
<tr>
<td>43</td>
<td>Direct investment abroad at market value</td>
<td>2,392,572</td>
<td>134,707</td>
</tr>
</tbody>
</table>

**Notes:**
1. Represents gains or losses on foreign currency-denominated assets and liabilities due to their revaluation at current exchange rates.
2. Includes changes in coverage due to year-to-year changes in the composition of reporting parents, primarily for bank and nonbank financial institutions.
3. Includes changes in coverage due to year-to-year changes in the composition of reporting parents, primarily for bank and nonbank financial institutions.
4. Data are not separately available for the three types of valuation adjustments; therefore, the sum of the three types is shown in column (5).
5. Reflects changes in the value of the official gold stock due to fluctuations in the market price of gold.
6. Reflects changes in gold prices from U.S. Treasury sales of gold and purchases of gold bullion; also reflects revaluation through open market purchases. These demonstration/investor sales are not included in international transactions net flows.
7. Includes all public capital subscriptions to international financial institutions and outstanding obligations of intergovernmental claims that have been collected through international agreements to be repaid to the U.S. government over periods in excess of 1 year. Excludes World War II debts that are not outstanding.
8. Includes all nonbank securities of foreign financial institutions and other financial institutions, such as life insurance companies and mutual funds.
9. Includes foreign currency-denominated assets abroad through temporary repatriation of currency arrangements maintained by U.S. nonbank financial institutions. These assets are included in the investment position of the United States and net derivatives are available only on a net basis, which is shown in line 2. They are not separately available for gross positive fair values and gross negative fair values of financial derivatives. Consequently, column (6) through (8) will not sum to the valuation.
10. Includes Treasury security sales due to fluctuations in the market price of gold.
11. Includes U.S. government securities sold as a result of sales contracts with the United States government and other related transactions.

**Source:** U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, July 2010.
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 income from foreign countries for factors of production. It measures the value of output produced within a country’s borders.
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.
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 U.S. is the largest debtor nation, and its foreign debt continues to grow because its current account continues to be negative.
Consider two fictional economies, the Shire and the Lonely Mountain. Construct the balance of payments of the Shire given the following list of transactions:

- Shire bought $100 in oil from Erebor
- Tourists from Erebor spent $25 on Shire’s hills
- S residents purchased $45 in life insurance from E
- E resident were paid 15$ in dividends from their holding of domestic equities.
- S residents gave 100$ to E charities
- E forgave 50$ in debt when S was attacked by a demon
- S borrowed 65$ from E banks
- E bought 15$ in S bonds
- S investors sold off 50$ in holdings of E government bonds
- One dwarf married a hobbit and brought 20$ when he moved to S
- E central bank bought a 30$ S check