University of Warsaw
Faculty of Economic Sciences

National and International Accounts: Income, Wealth, and the Balance of Payments

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Introduction

- On this lecture, we study economic transactions between countries, how they are undertaken, and what impact they have on the macroeconomy.

- The first task of any macroeconomist is to measure economic transactions.

- The goals of this chapter are to:
  - Explain the international system of trade and payments
  - Discover how international trade in goods and services is complemented and balanced by a parallel trade in assets
  - Understand how these international transactions relate to national income and wealth

1 Measuring Macroeconomic Activity: An Overview

- At various points in the *circular flow of payments*, a nation's aggregate economic activity is measured and recorded in the **national income and product accounts**.
- In an open economy, however, such measurements are more complicated because we must account for cross-border flows.
- All of these additional flows are recorded in a nation's **balance of payments accounts**.

The Flow of Payments in a Closed Economy:

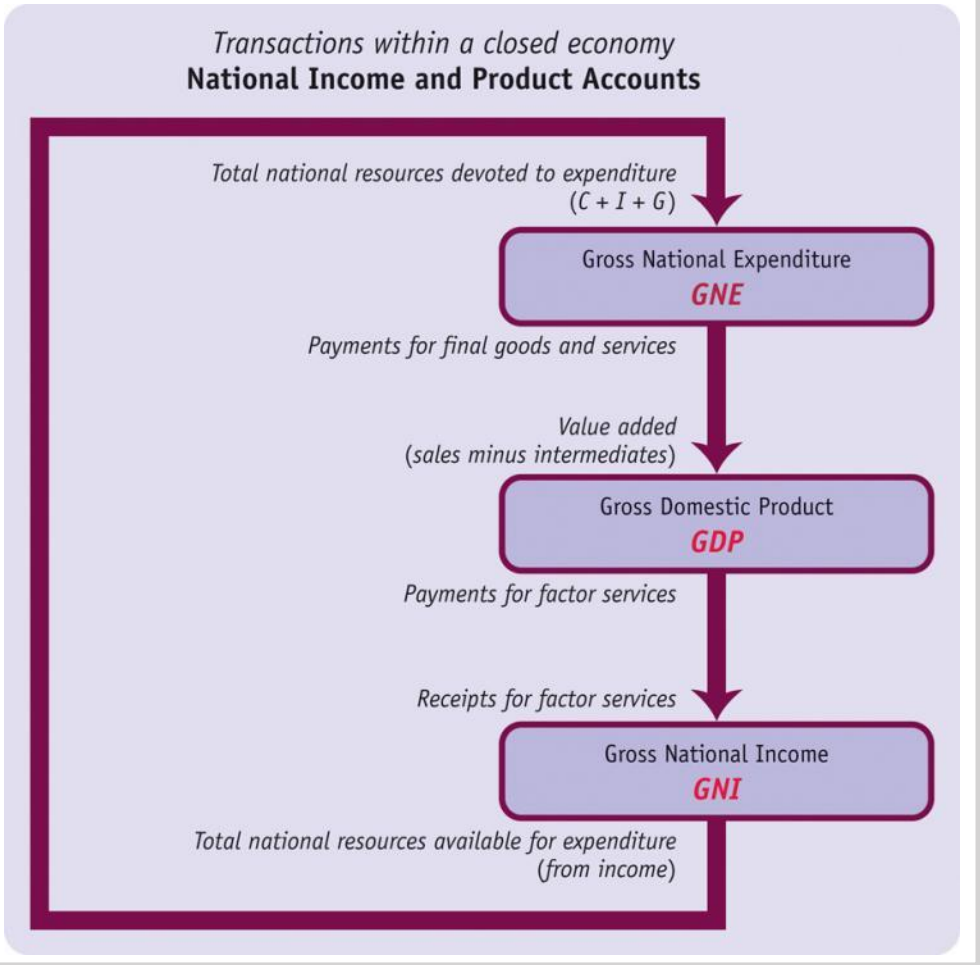
Introducing the National Income and Product Accounts

Three key measures based on expenditure, product, and income:

- **Gross national expenditure (GNE)** is the total expenditure on final goods and services by home entities in any given period. It is made up of three parts: personal consumption *C,* investment *I,* and government spending *G*. GNE = $C + I + G$
- A country's **gross domestic product (GDP)** is the value of all (*intermediate* and *final*) goods and services produced as output by firms, minus the value of all goods and services purchased as *intermediate* inputs by firms.
- In a closed economy, income is paid to domestic entities. It thus equals the total income resources of the economy, also known as **gross national income (GNI)**.

1 Measuring Macroeconomic Activity: An Overview

FIGURE 5-1

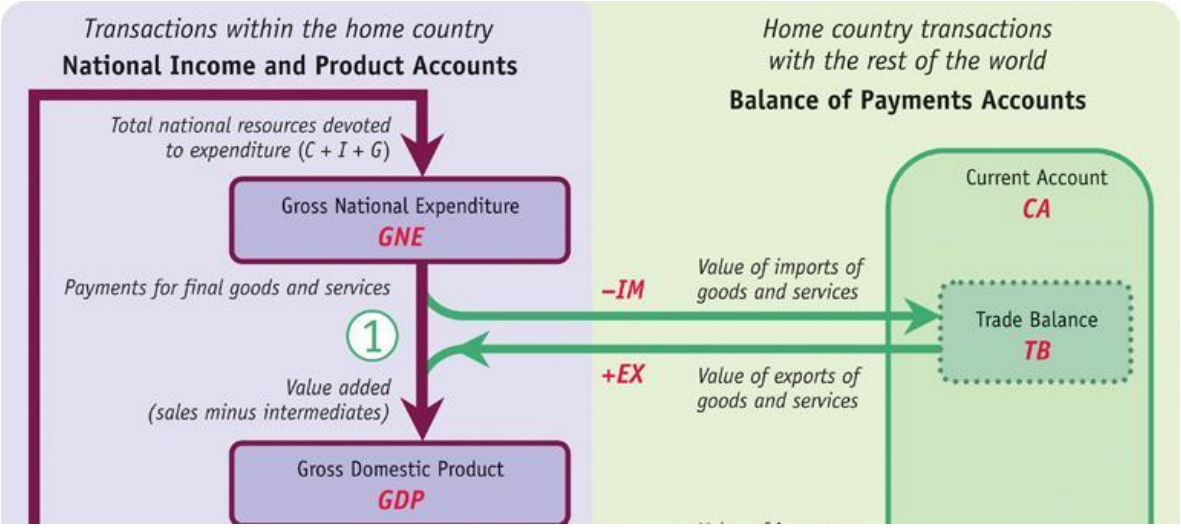


The Closed Economy

Measurements of national expenditure, product, and income are recorded in the national income and product accounts, with the major categories shown. The purple line shows the circular flow of all transactions in a closed economy.

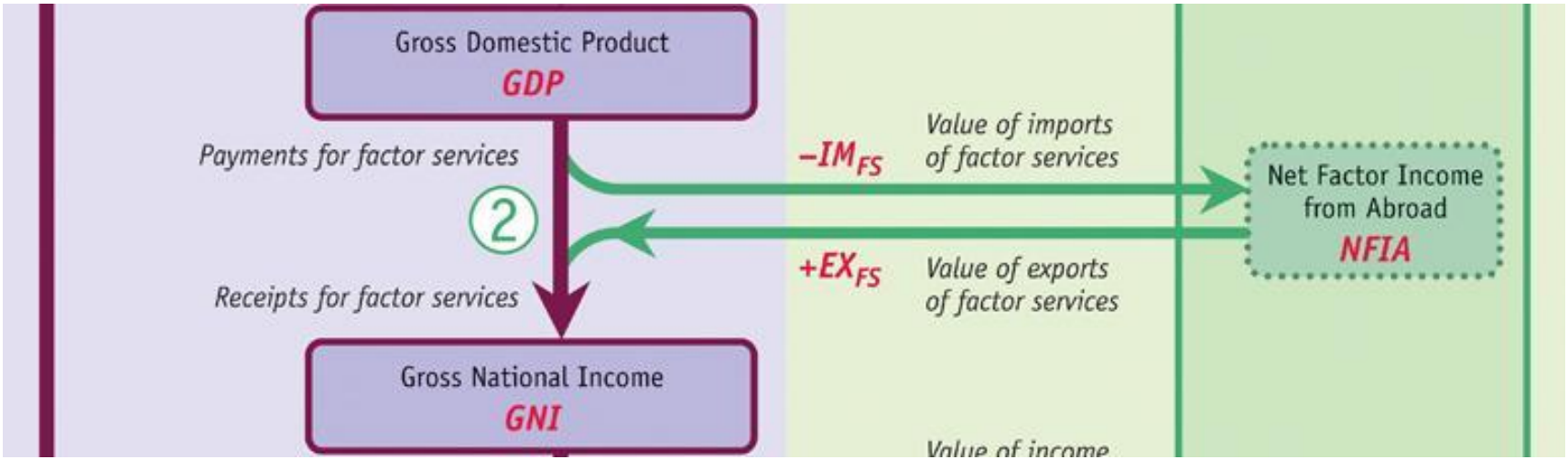
The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

- The difference between payments made for imports and payments received for exports is called the **trade balance (TB)**, which equals net payments to domestic firms due to trade.
- GNE plus TB equals GDP, the total value of production in the home economy.



The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

- The value of factor service exports minus factor service imports is known as **net factor income from abroad (NFIA)**, and thus GDP plus NFIA equal GNI, the total income earned by domestic entities from all sources, domestic and foreign.

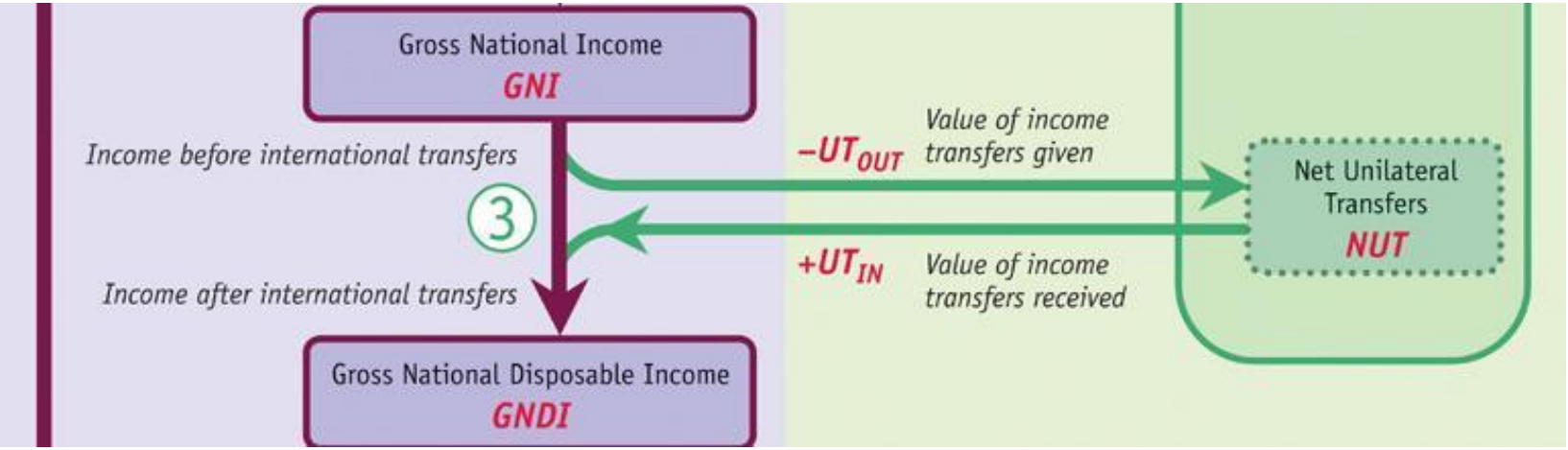


The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

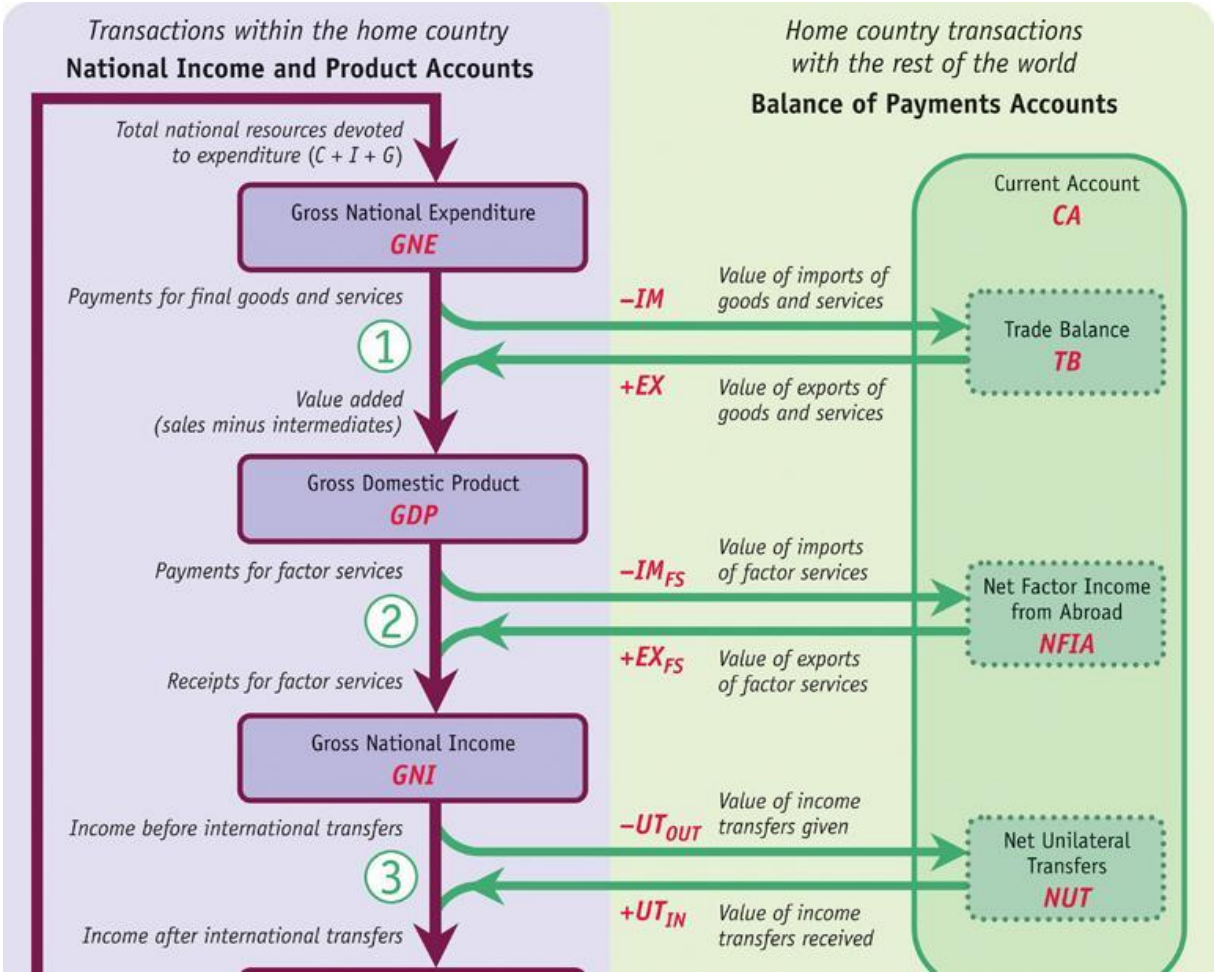
- Gifts may take the form of income transfers or "in kind" transfers of goods and services.
- They are considered nonmarket transactions, and are referred to as *unilateral transfers.*
- **Net unilateral transfers (NUT)** equals the value of unilateral transfers the country receives from the rest of the world minus those it gives to the rest of the world.

The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

- These net transfers have to be added to GNI in order to calculate **gross national disposable income (GNDI)**.
- Thus, GNI plus NUT equals GNDI, which represents the total income resources available to the home country.



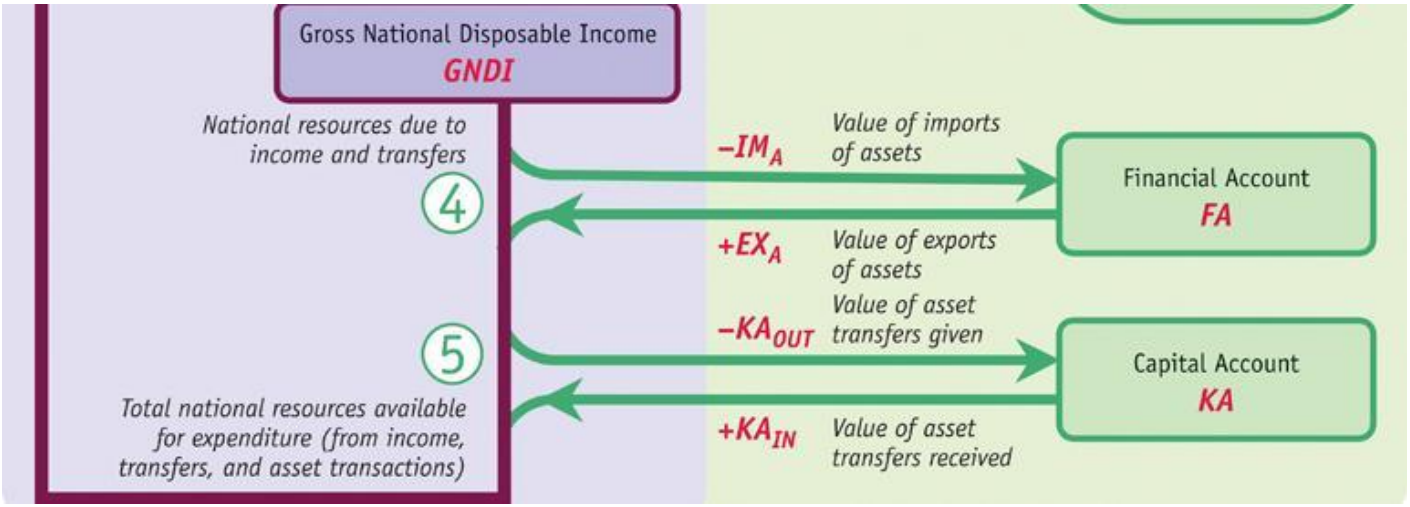
The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts



The **current account (CA)** is a tally of all international transactions in goods, services, and income (occurring through market transactions or transfers).

The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

- The value of asset exports minus asset imports is called the **financial account (FA)**.
- These net asset exports are added to home GNDI when calculating the total resources available for expenditure in the home country.



The Flow of Payments in an Open Economy: Incorporating the Balance of Payments Accounts

- A country may not only buy and sell assets but also transfer assets as gifts.
- Such asset transfers are measured by the **capital account (KA)**, which is the value of capital transfers from the rest of the world minus those to the rest of the world.

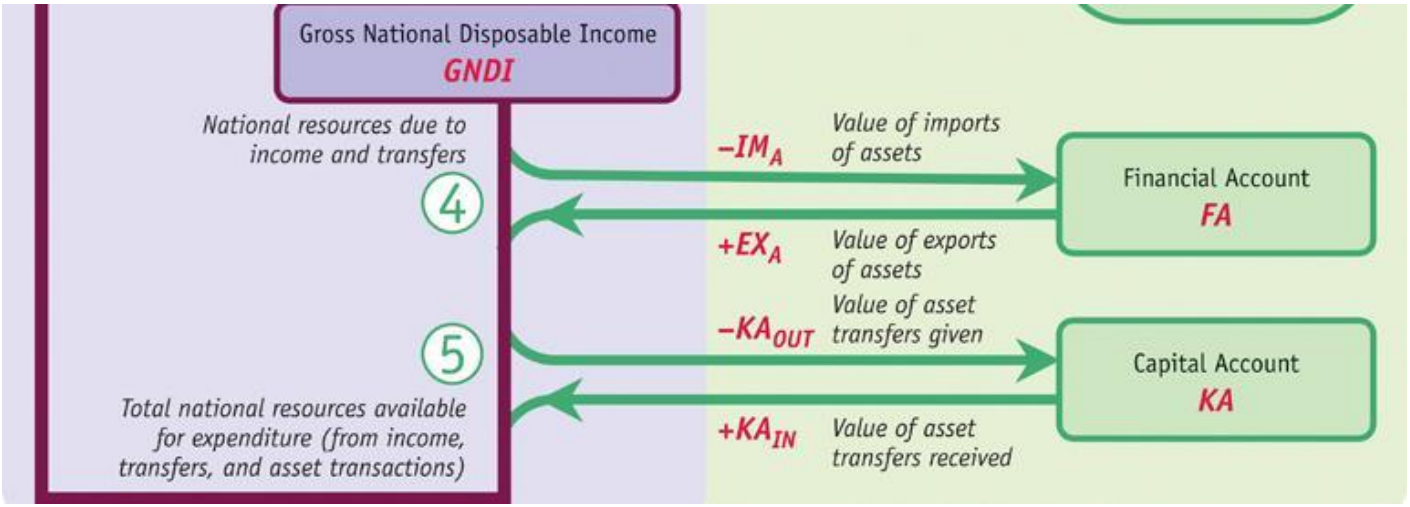
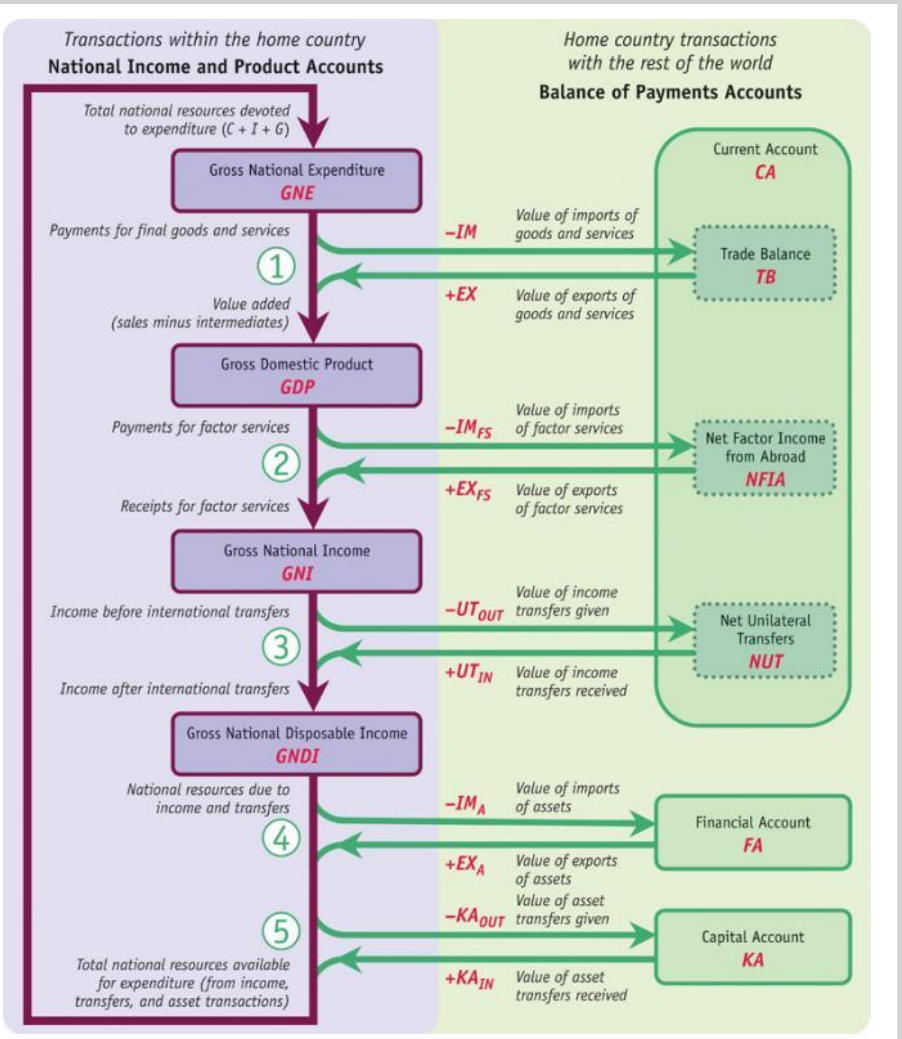


FIGURE 5-2



The Open Economy Measurements of national expenditure, product, and income are recorded in the national income and product accounts, with the major categories shown on the left.

Measurements of international transactions are recorded in the balance of payments accounts, with the major categories shown on the right.

The purple line shows the flow of transactions within the home economy.

The green lines show all cross-border transactions.

Three Approaches to Measuring Economic Activity

- The *expenditure approach* looks at the demand for goods: It examines how much is spent on demand for final goods and services. The key measure is GNE.

- The *product approach* looks at the supply of goods: It measures the value of all goods and services produced as output minus the value of goods used as inputs in production. The key measure is GDP.

- The *income approach* focuses on payments to owners of factors: It tracks the amount of income they receive. The key measures are gross national income (GNI) and gross national disposable income (GNDI) (which includes net transfers).

From GNE to GDP: Accounting for Trade in Goods and Services

- *Personal consumption expenditures* (usually called "consumption") equal total spending by private households on final goods and services. This includes nondurable goods (e.g., food), durable goods (e.g., autos), and services.

- *Gross private domestic investment* (usually called "investment") equals total spending by firms or households on final goods and services to make additions to the stock of capital. This includes construction of a new house or factory, the purchase of new equipment, and net increases in inventories of goods held by firms (i.e., unsold output).

From GNE to GDP: Accounting for Trade in Goods and Services

- *Government consumption expenditures and gross investment* (often called "government consumption") equal spending by the public sector on final goods and services. This includes spending on public works, national defense, the police, and the civil service. It does *not* include any transfer payments or income redistributions, e.g., Social Security or unemployment insurance payments—these are *not* purchases of goods or services, just rearrangements of private spending power.

From GNE to GDP: Accounting for Trade in Goods and Services

$$\underbrace{GDP}_{\substack{\text{Gross}\\\text{domestic}\\\text{product}}} = \underbrace{C + I + G}_{\substack{\text{Gross}\\\text{national}\\\text{expenditure}\\\text{GNE}}} + \underbrace{\left(\underbrace{EX}_{\substack{\text{All exports,}\\\text{final and intermediate}}} - \underbrace{IM}_{\substack{\text{All imports,}\\\text{final and intermediate}}} \right)}_{\substack{\text{Trade Balance}\\\text{TB}}} \qquad (5\text{-}1)$$

This formula says gross domestic product is equal to gross national expenditure (GNE) plus the trade balance (TB).

The trade balance (TB), also referred to as *net exports,* may be positive or negative.

- If $TB > 0$, exports are greater than imports and we say a country has a *trade surplus.*
- If $TB < 0$, imports are greater than exports and we say a country has a *trade deficit.*

From GDP to GNI: Accounting for Trade in Factor Services

- Gross national income equals gross domestic product (GDP) plus net factor income from abroad (NFIA).

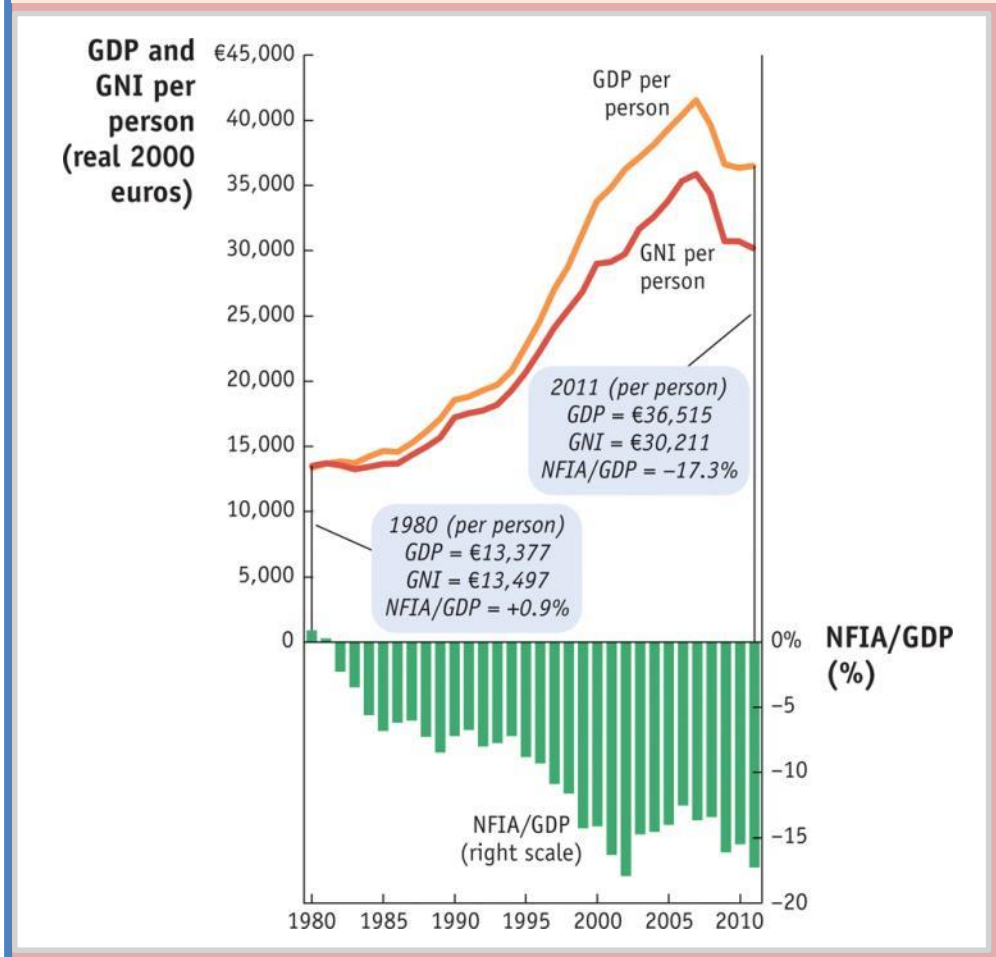
$$GNI = \underbrace{C + I + G}_{\text{Gross national expenditure GNE}} + \underbrace{(EX - IM)}_{\text{Trade balance TB}} + \underbrace{(EX_{FS} - IM_{FS})}_{\text{Net factor income from abroad NFIA}} \quad (5\text{-}2)$$

$$\underbrace{\qquad\qquad\qquad\qquad}_{GDP}$$

APPLICATION

Celtic Tiger or Tortoise?

FIGURE 5-3



A Paper Tiger? The chart shows trends in GDP, GNI, and NFIA in Ireland from 1980 to 2011. Irish GNI per capita grew more slowly than GDP per capita during the boom years of the 1980s and 1990s because an ever-larger share of GDP was sent abroad as net factor income to foreign investors. Close to zero in 1980, this share had risen to around 15% of GDP by the year 2000 and has remained there.

From GNI to GNDI: Accounting for Transfers of Income

If a country receives transfers worth UT_{IN} and gives transfers worth UT_{OUT}, then its net unilateral transfers (NUT) are

$$NUT = UT_{IN} - UT_{OUT}$$

Adding net unilateral transfers to gross national income gives a full measure of national income in an open economy, known as gross national disposable income (GNDI), henceforth Y:

$$\underbrace{Y}_{GNDI} = \underbrace{\underbrace{C + I + G}_{GNE} + \underbrace{(EX - IM)}_{\text{Trade balance } (TB)} + \underbrace{(EX_{FS} - IM_{FS})}_{\text{Net factor income from abroad } (NFIA)}}_{GNI} + \underbrace{(UT_{IN} - UT_{OUT})}_{\text{Net unilateral transfers } (NUT)} \quad (5\text{-}3)$$

HEADLINES

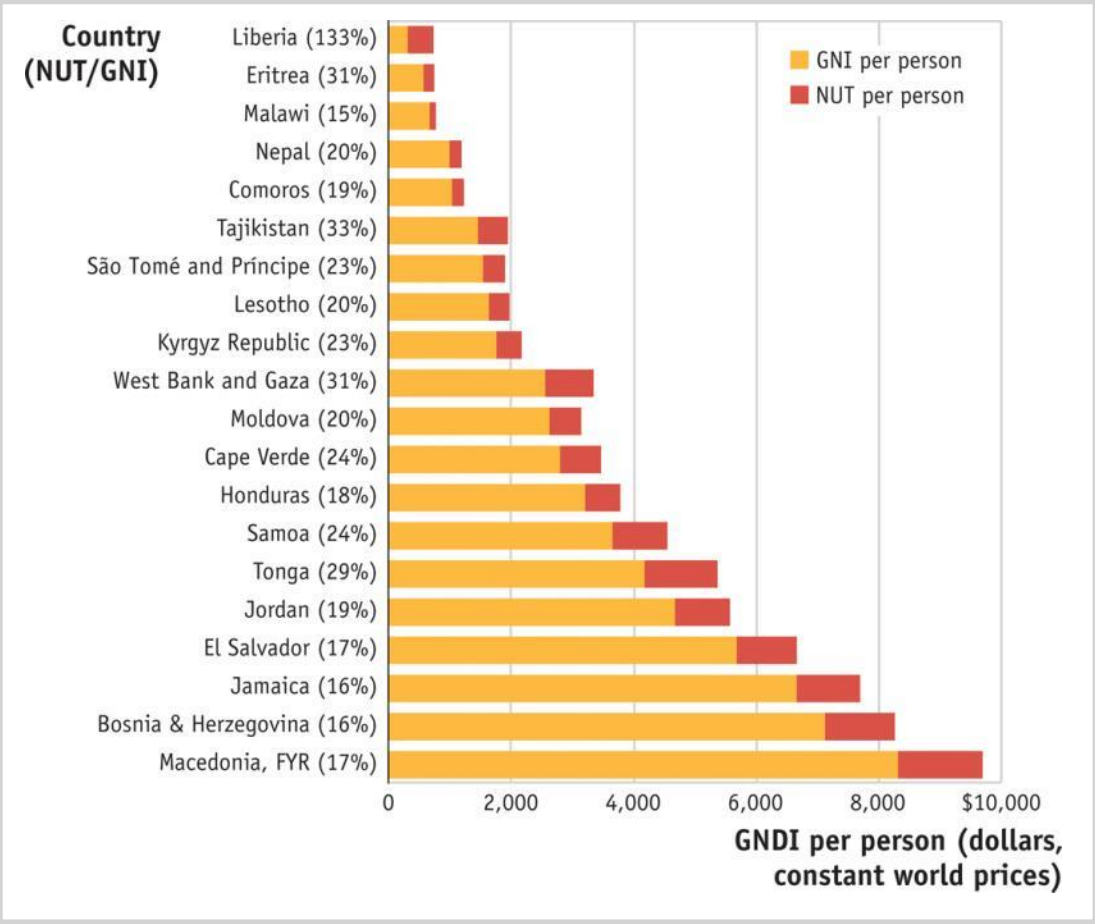
Are Rich Countries "Stingy" with Foreign Aid?

The Asian tsunami on December 26, 2004, was one of the worst natural disasters of modern times. Hundreds of thousands of people were killed and billions of dollars of damage was done. Some aftershocks were felt in international politics. Jan Egeland, UN undersecretary general for humanitarian affairs and emergency relief, declared, "It is beyond me why we are so stingy." His comments rocked the boat in many rich countries, especially in the United States, where official aid fell short of the UN goal of 0.7% of GNI. However, the United States gives in other ways, making judgments about stinginess far from straightforward.

An Indonesian soldier thanks two U.S. airmen after a U.S. Navy helicopter delivered fresh water to Indonesian tsunami victims. The normal operating costs of military assets used for humanitarian purposes are not fully counted as part of official development assistance.

From GNI to GNDI: Accounting for Transfers of Income

FIGURE 5-4



Major Transfer Recipients The chart shows average figures for 2000 to 2010 for all countries in which net unilateral transfers exceeded 15% of GNI. Many of the countries shown were heavily reliant on foreign aid, including some of the poorest countries in the world, such as Liberia, Eritrea, Malawi, and Nepal. Some countries with higher incomes also have large transfers because of substantial migrant remittances from a large number of emigrant workers overseas (e.g., Tonga, El Salvador, Honduras, and Cape Verde).

What the National Economic Aggregates Tell Us

$$\underbrace{Y}_{GNDI} = \underbrace{C + I + G}_{GNE} + \underbrace{\left\{ \underbrace{(EX + IM)}_{\substack{\text{Trade} \\ \text{balance} \\ (TB)}} + \underbrace{(EX_{FS} - IM_{FS})}_{\substack{\text{Net factor income} \\ \text{from abroad} \\ (NFIA)}} + \underbrace{(UT_{IN} - UT_{OUT})}_{\substack{\text{Net unilateral} \\ \text{transfers} \\ (NUT)}} \right\}}_{\text{Current Account } (CA)} \quad (5\text{-}4)$$

- On the left is our full income measure, GNDI.
- The first term on the right is GNE, which measures payments by home entities.
- The remaining terms measure net payments to the home country from all international transactions in goods, services, and income. We group the three cross-border terms into an umbrella term that is called the current account (CA).

Understanding the Data for the National Economic Aggregates

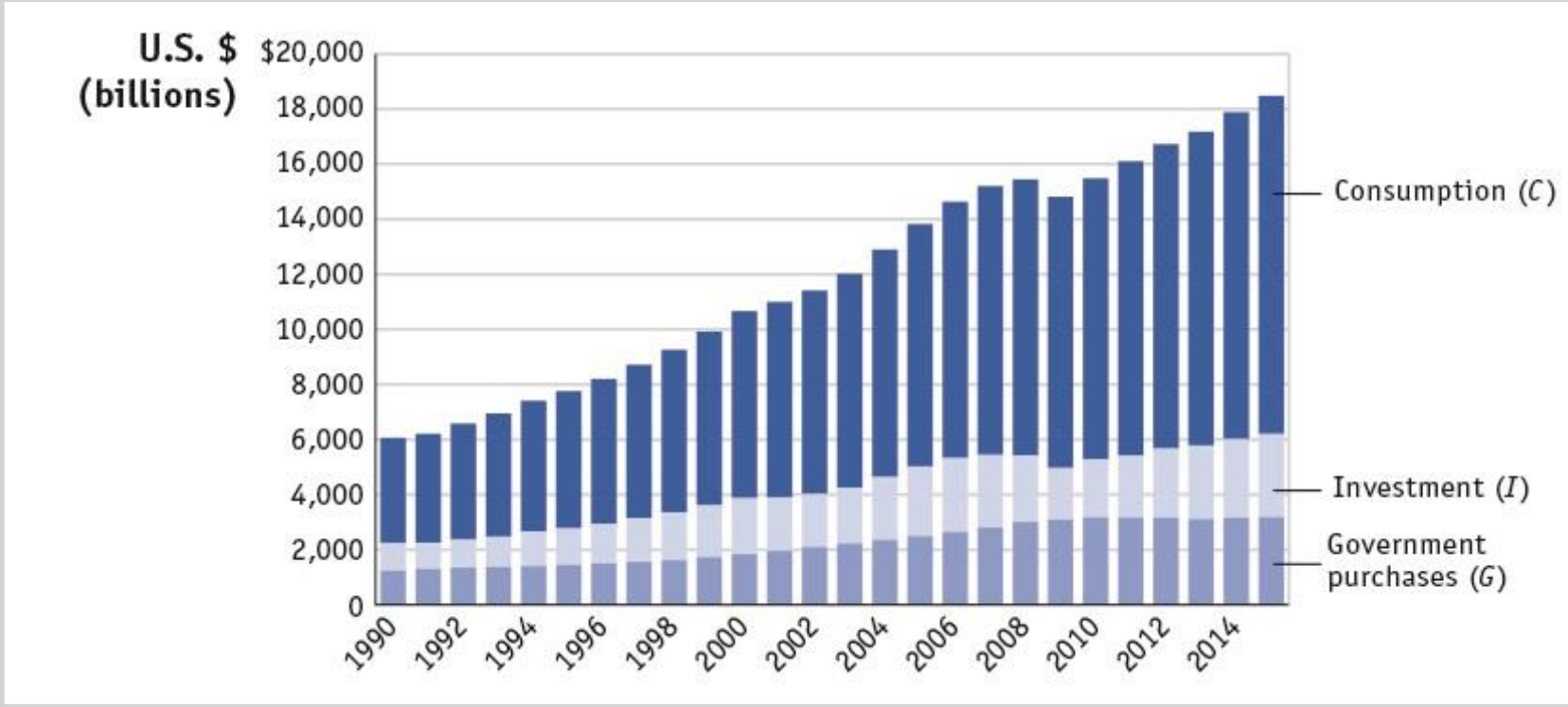
TABLE 5-1

U.S. Economic Aggregates in 2015 The table shows the computation of GDP, GNI, and GNDI in 2015 in billions of dollars using the components of gross national expenditure, the trade balance, international income payments, and unilateral transfers.

Line	Category	Symbol	$ billions
1	Consumption (personal consumption expenditures)	*C*	12,272
2	+ Investment (gross private domestic investment)	*I*	3,021
3	+ Government consumption (government expenditures)	*G*	3,183
4	= Gross national expenditure	*GNE*	18,476
5	+ Trade balance	*TB*	−529
6	= Gross domestic product	*GDP*	17,947
7	+ Net factor income from abroad	*NFIA*	214
8	= Gross national income	*GNI*	18,161
9	+ Net unilateral transfers	*NUT*	−134
10	= Gross national disposable income	*GNDI*	18,027

Some Recent Trends

FIGURE 5-5



U.S. Gross National Expenditure and Its Components, 1990–2015 The figure shows consumption (C), investment (I), and government purchases (G) in billions of dollars.

Some Recent Trends

FIGURE 5-6

U.S. Current Accounts and Its Components, 1990–2015 The figure shows the trade balance (*TB*), net factor income from abroad (*NFIA*), and net unilateral transfers (*NUT*) in billions of dollars.

What the Current Account Tells Us

$$Y = C + I + G + CA \qquad (5\text{-}5)$$

- This equation is the open-economy **national income identity**. It tells us that the current account represents the difference between national income *Y* (or GNDI) and gross national expenditure GNE (or *C* + *I* + *G*). Hence:
  - *GNDI is greater than GNE if and only if CA is positive, or in surplus.*
  - *GNDI is less than GNE if and only if CA is negative, or in deficit.*

What the Current Account Tells Us

- The current account is also the difference between **national saving** ($S = Y - C - G$, by definition) and investment:

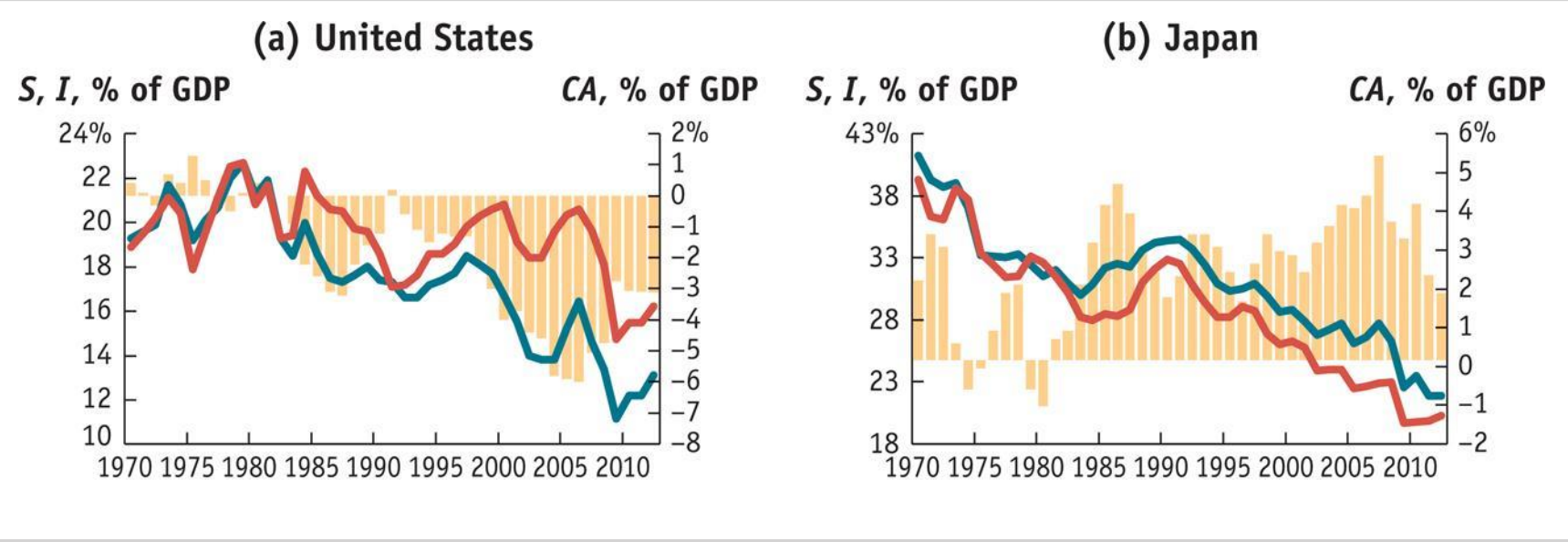
$$\underbrace{S}_{Y-C-G} = I + CA \qquad (5\text{-}6)$$

- This equation, often written as $CA = S - I$, is called the **current account identity** even though it is just a rearrangement of the national income identity. Thus,
  - *S is greater than I if and only if CA is positive, or in surplus.*
  - *S is less than I if and only if CA is negative, or in deficit.*

APPLICATION

Global Imbalances

FIGURE 5-7 (1 of 2) Saving, Investment, and Current Account Trends: Industrial Countries



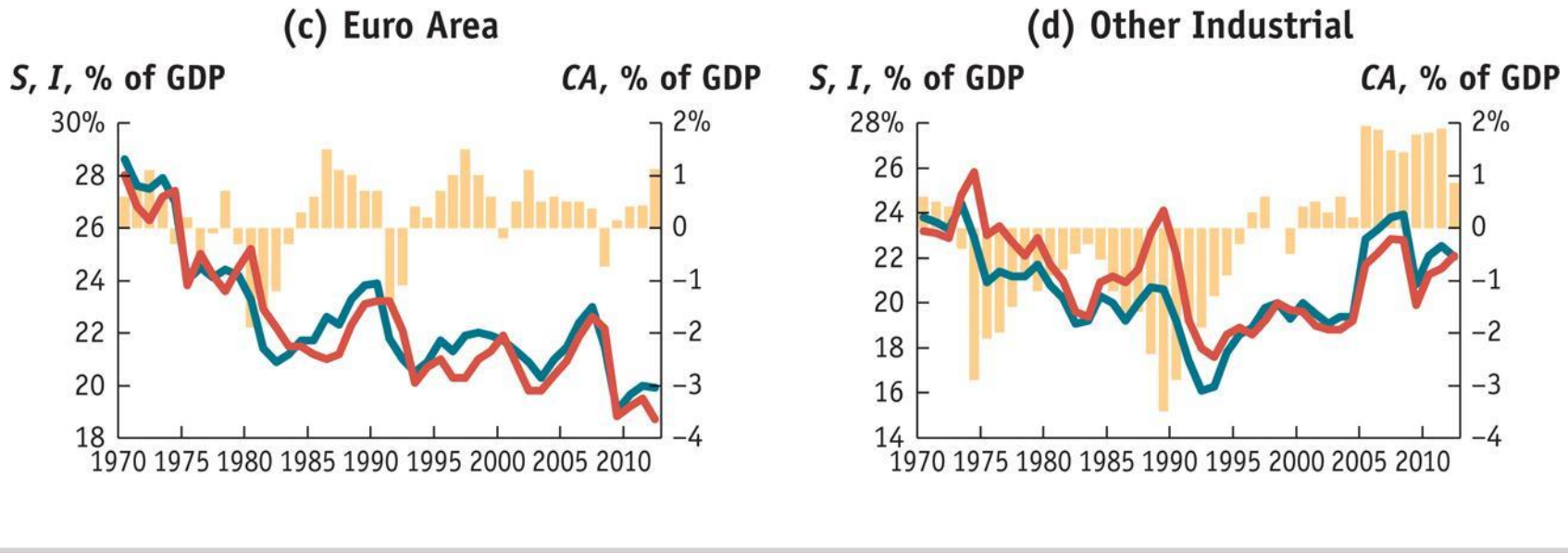
The charts show saving, investment, and the current account as a percent of each sub-region's GDP for four groups of advanced countries. The United States has seen both saving and investment fall since 1980, but saving has fallen further than investment, opening up a large current account deficit approaching 6% of GDP in recent years.

Japan's experience is the opposite: Investment fell further than saving, opening up a large current account surplus of about 3% to 5% of GDP.

APPLICATION

Global Imbalances

FIGURE 5-7 (2 of 2) Saving, Investment, and Current Account Trends: Industrial Countries (continued)



The Euro area has also seen saving and investment fall but has been closer to balance overall.

Other advanced countries (e.g., non-Euro area EU countries, Canada, Australia, etc.) have tended to run large current account deficits.

APPLICATION

Global Imbalances

- We define **private saving (S_p)** as that part of *after-tax* private sector disposable income *Y* that is *not* devoted to private consumption *C*.

$$S_p = Y - T - C \tag{5-7}$$

- We define **government saving (S_g)** as the difference between tax revenue *T* received by the government and government purchases *G*.

$$S_g = T - G \tag{5-8}$$

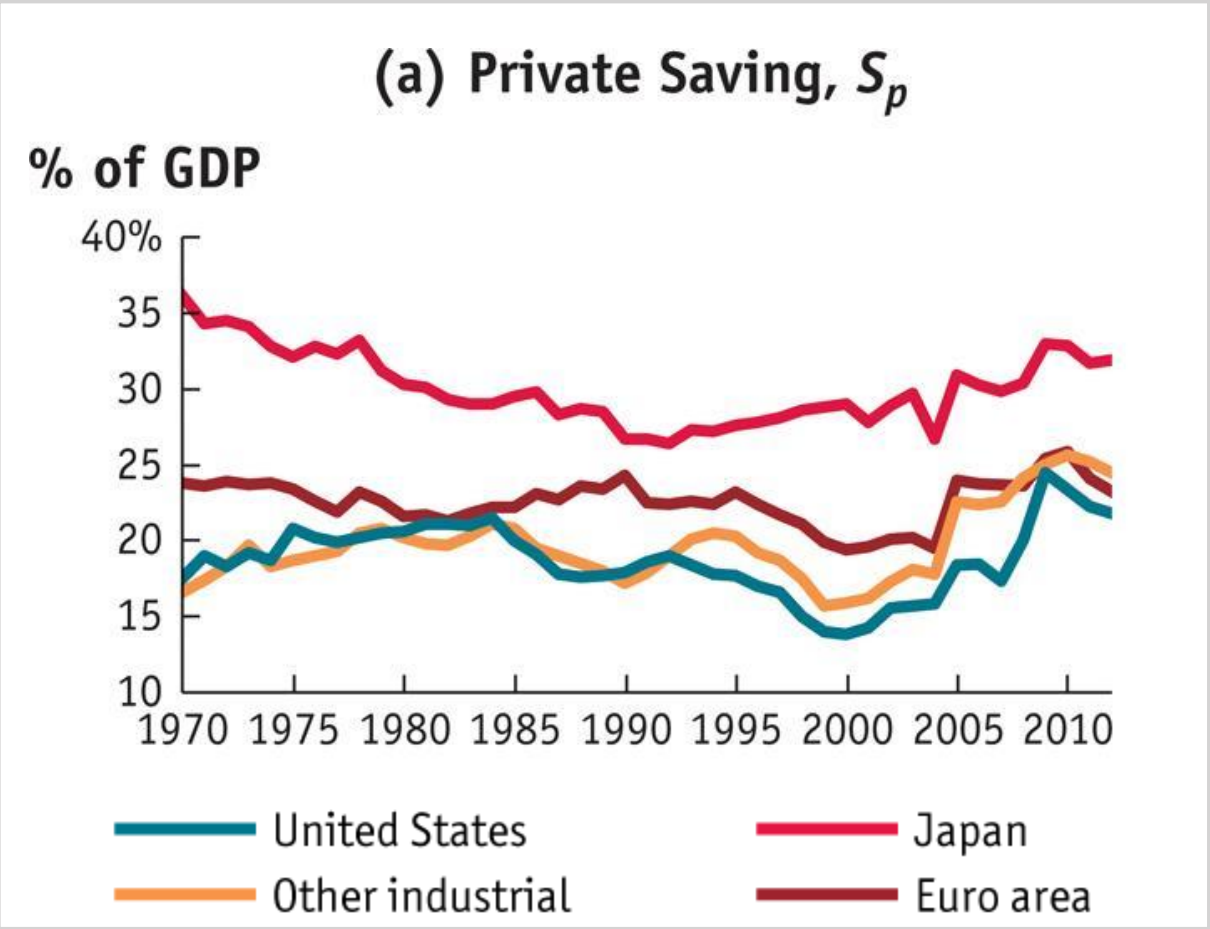
- Private saving plus government saving equals total national saving, *S*

$$S = Y - C - G = \underbrace{(Y - T - C)}_{\text{Private saving}} + \underbrace{(T - G)}_{\text{Government saving}} = S_p + S_g \tag{5-9}$$

APPLICATION

Global Imbalances

FIGURE 5-8 (1 of 2) Private and Public Saving Trends: Industrial Countries

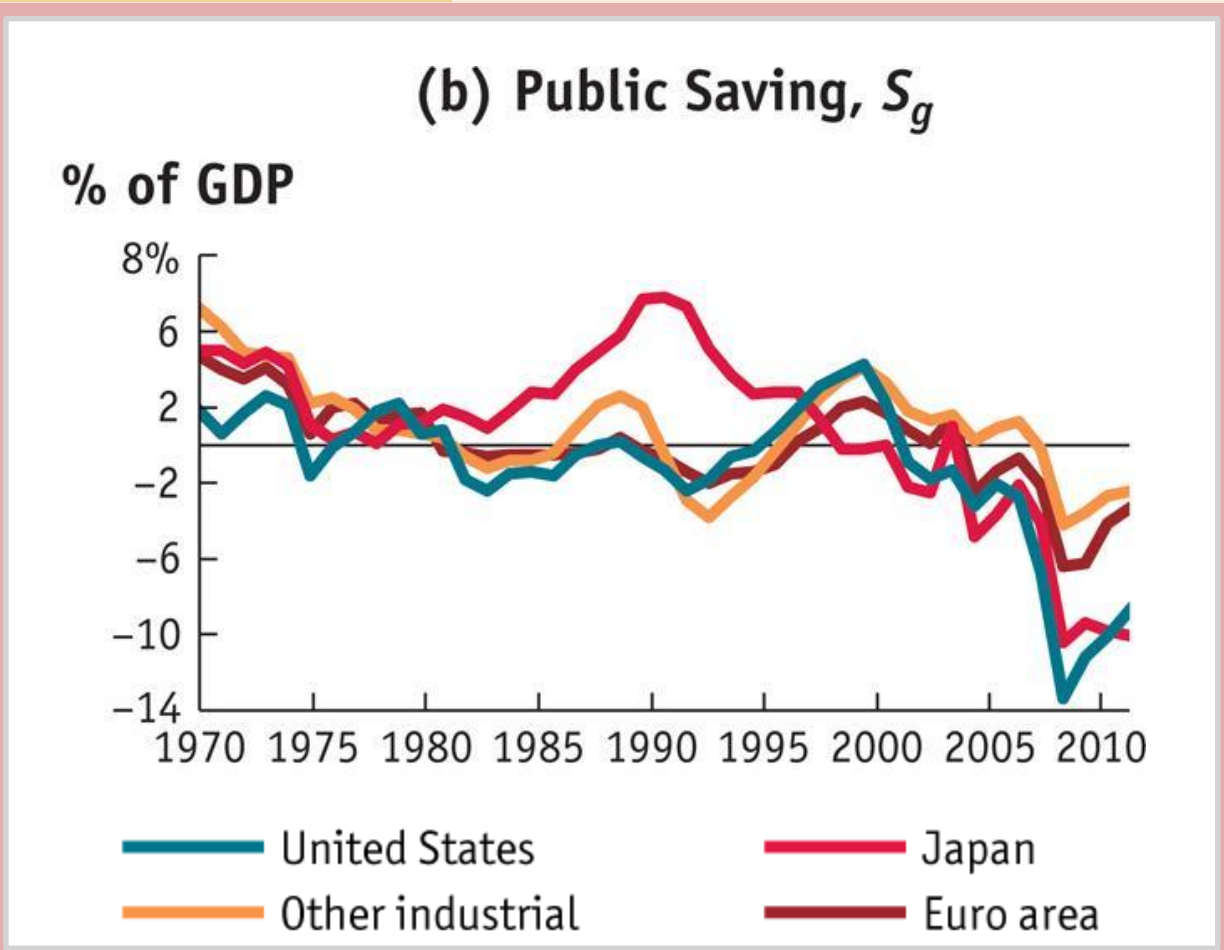


This chart shows private saving, and the chart on the next slide public saving, both as a percent of GDP. Private saving has been declining in the industrial countries, especially in Japan (since the 1970s) and in the United States (since the 1980s). Private saving has been more stable in the Euro area and other countries.

APPLICATION

Global Imbalances

FIGURE 5-8 (2 of 2) Private and Public Saving Trends: Industrial Countries (continued)



Public saving is clearly more volatile than private saving. Japan has been mostly in surplus and massively so in the late 1980s and early 1990s. The United States briefly ran a government surplus in the late 1990s but has now returned to a deficit position.

APPLICATION

Global Imbalances

Do government deficits cause current account deficits?

- Sometimes they go together, but these "twin deficits" are not inextricably linked, as is sometimes believed.
- We can use the equation just given and the current account identity to write

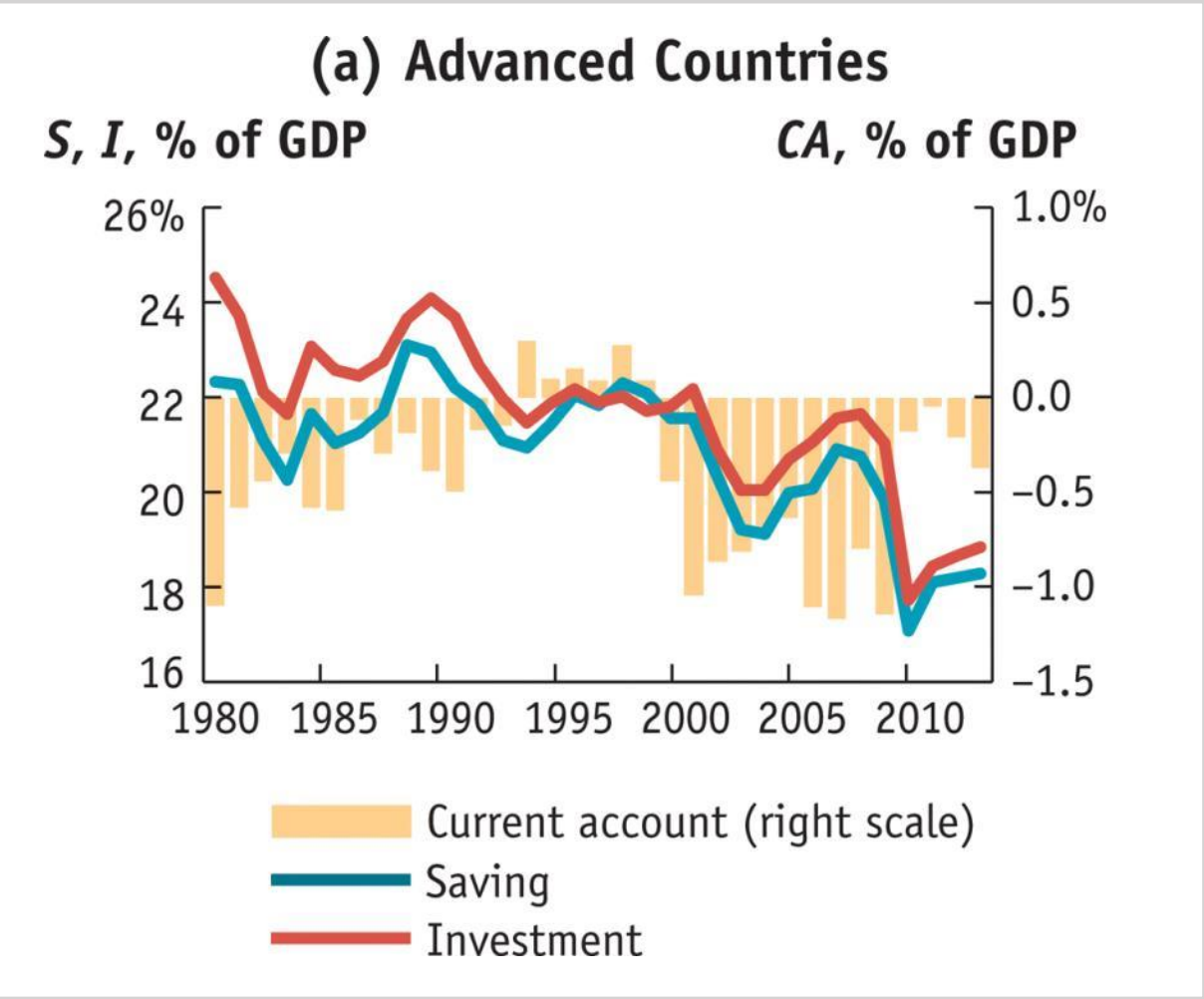
$$CA = S_p + S_g - I \qquad (5\text{-}10)$$

- The theory of *Ricardian equivalence* asserts that a fall in public saving is fully offset by a contemporaneous rise in private saving.
- However, empirical studies do not support this theory: Private saving does not fully offset government saving in practice.

APPLICATION

Global Imbalances

FIGURE 5-9 (1 of 3) Global Imbalances

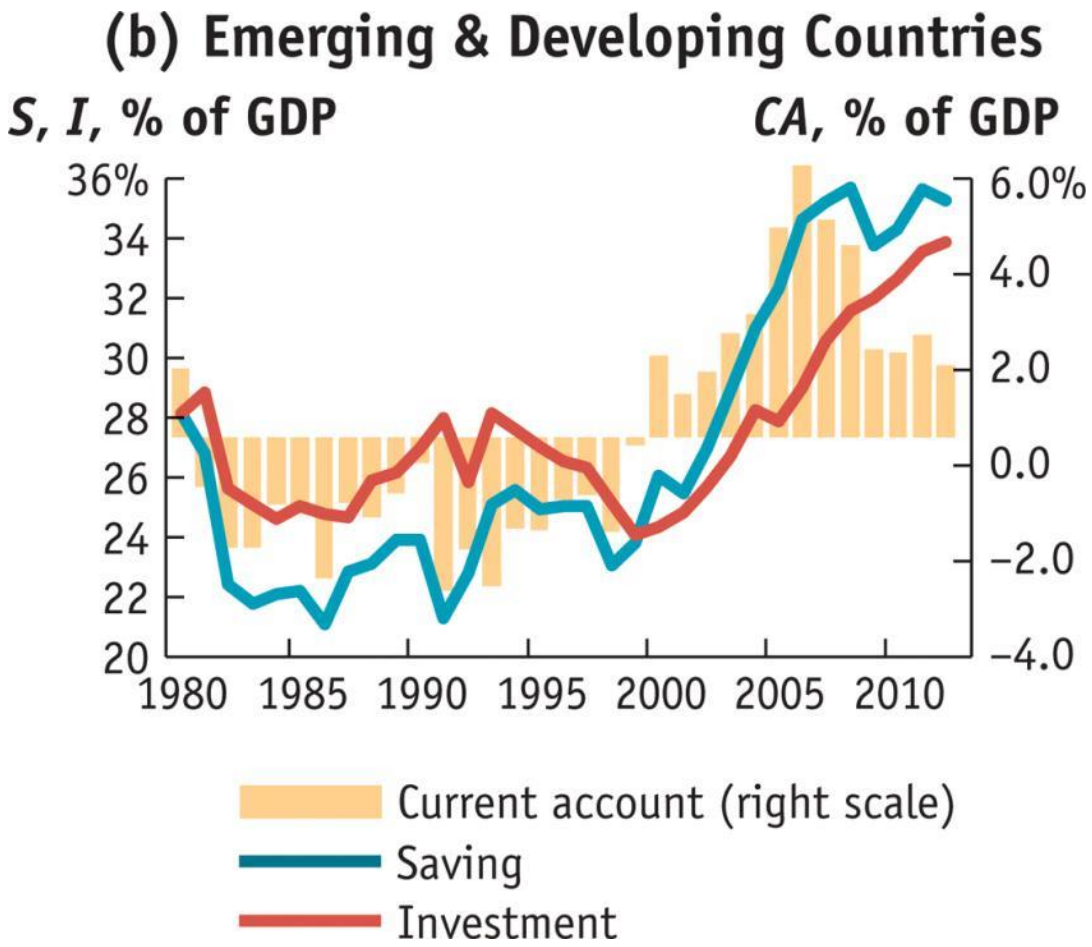


The chart shows saving (blue), investment (red), and the current account (beige) as a percent of GDP.

APPLICATION

Global Imbalances

FIGURE 5-9 (2 of 3) Global Imbalances (continued)

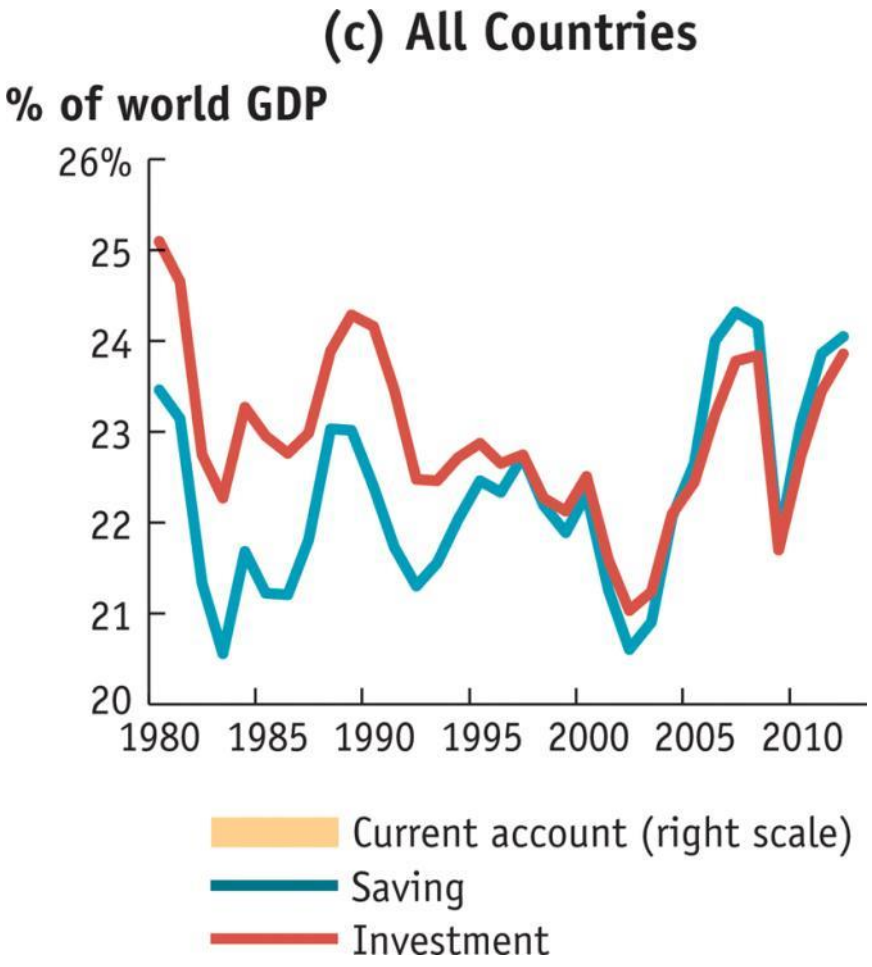


In the 1990s, emerging markets moved into current account surplus and thus financed the overall trend toward current account deficit of the industrial countries.

APPLICATION

Global Imbalances

FIGURE 5-9 (3 of 3) Global Imbalances (continued)



For the world as a whole since the 1970s, global investment and saving rates have declined as a percent of GDP, falling from a high of near 26% to low near 20%.

Accounting for Asset Transactions: The Financial Account

- The financial account (FA) records transactions between residents and nonresidents that involve financial assets. This definition covers all types of assets:
  - Real assets such as land or structures
  - Financial assets such as debt (bonds, loans) or equity issued by any entity
- Subtracting asset imports from asset exports yields the home country's net overall balance on asset transactions, which is known as the financial account, where $FA = EX_A - IM_A$.
- The financial account therefore measures how the country accumulates or decumulates assets through international transactions.

Accounting for Asset Transactions: The Capital Account

- The capital account (KA) covers two remaining areas of asset movement, both of minor quantitative significance:
  1. Capital transfers (i.e., gifts of assets), an example of which is the forgiveness of debts
  2. The acquisition and disposal of nonfinancial, nonproduced assets (e.g., patents, copyrights, trademarks)
- We denote capital transfers received by the home country as KA_{IN} and capital transfers given by the home country as KA_{OUT}. The capital account, $KA = KA_{IN} - KA_{OUT}$, denotes net capital transfers received, and is typically small in magnitude.

Accounting for Home and Foreign Assets

- From the home perspective, a foreign asset is a claim on a foreign country.
- When a home entity holds such an asset, it is called an **external asset** of the home country.
- From the foreign perspective, a foreign asset is a claim on the home country.
- When a foreign entity holds such an asset, it is called an **external liability** of the home country because it represents an obligation owed by the home country to the rest of the world.

SIDE BAR

The Double-Entry Principle in the Balance of Payments

Summary of hypothetical international transactions

1.	CA: Drinks in Paris bar	$-IM$	−$110
	FA: Bar's claim on AMEX	$+EX^{H}_{A}$	+$110
2.	CA: Arkansas wine exported to Denmark	EX	+$36
	CA: Jutland wine imported to United States	$-IM$	−$36
3.	FA: George's French tech stocks	$-IM^{F}_{A}$	−$10,000
	FA: BNP claim against Citibank	$+EX^{H}_{A}$	+$10,000

SIDE BAR

The Double-Entry Principle in the Balance of Payments

Summary of hypothetical international transactions (continued)

4.	CA: Relief supplies exported to Bam	$+EX$	+$5,000
	CA: George's charitable gift	$-UT_{OUT}$	−$5,000
5.	KA: U.S. grant of debt relief	$-KA_{OUT}$	−$1,000,000,000
	FA: Decline in U.S. external assets	$+EX^{F}_{A}$	+$1,000,000,000

Accounting for Home and Foreign Assets

- If we use superscripts "H" and "F" to denote home and foreign assets, we can break down the financial account as the sum of the net exports of each type of asset:

$$FA = \underbrace{(EX_A^H - IM_A^H)}_{\text{Net export of home assets}} + \underbrace{(EX_A^F - IM_A^F)}_{\text{Net export of foreign assets}} = \underbrace{(EX_A^H - IM_A^H)}_{\substack{\text{Net export of home assets} \\ = \\ \text{Net additions to external liabilities}}} - \underbrace{(IM_A^F - EX_A^F)}_{\substack{\text{Net import of foreign assets} \\ = \\ \text{Net additions to external assets}}} \quad (5\text{-}11)$$

- Thus, FA equals:
  - *The additions to external liabilities* (the home-owned assets moving into foreign ownership, net)
  - *Minus the additions to external assets* (the foreign-owned assets moving into home ownership, net)

How the Balance of Payments Accounts Work:

A Macroeconomic View

- Recall that gross national disposable income is

$$Y = GNDI = GNE + TB + NFIA + NUT = \underbrace{GNE + CA}_{\text{Resources available to home country from income}}$$

- But the home economy can also free up resources by sales (or purchases) of assets. We calculate these extra resources using our previous definitions:

$$\underbrace{\left[\underbrace{EX_A}_{\text{Value of all assets exported}} - \underbrace{KA_{OUT}}_{\text{Value of all assets exported as gifts}}\right]}_{\text{Value of all assets sold}} - \underbrace{\left[\underbrace{IM_A}_{\text{Value of all assets imported}} - \underbrace{KA_{IN}}_{\text{Value of all assets imported as gifts}}\right]}_{\text{Value of all assets purchsed}} = EX_A - IM_A + KA_{IN} - KA_{OUT} = \underbrace{FA + KA}_{\text{Extra resources available to the home country due to all asset trades}}$$

How the Balance of Payments Accounts Work:

A Macroeconomic View

- Adding the last two expressions, we have the value of the total resources available to the home country for expenditures. This total value is equal to the total value of home expenditure on final goods and services, GNE:

$$\underbrace{GNE + CA}_{\text{Resources available to home country due to income}} + \underbrace{FA + KA}_{\text{Extra resources available to the home country due to asset trades}} = GNE$$

- Cancelling GNE from both sides, we obtain a result known as the **balance of payments identity** or **BOP identity**:

$$\underbrace{CA}_{\text{Current account}} + \underbrace{KA}_{\text{Capital account}} + \underbrace{FA}_{\text{Financial account}} = 0 \qquad (5\text{-}12)$$

How the Balance of Payments Accounts Work:

A Microeconomic View

- The components of the BOP identity allow us to see the details behind why the accounts must balance.

$$CA = (EX - IM) + (EX_{FS} - IM_{FS}) + (UT_{IN} - UT_{OUT})$$

$$KA = (KA_{IN} - KA_{OUT}) \qquad (5\text{-}13)$$

$$FA = (EX_A^H - IM_A^H) + (EX_A^F - IM_A^F)$$

- If an item has a plus sign, it is called a balance of payments credit or **BOP credit**.
- If an item has a minus sign, it is called a balance of payments debit or **BOP debit**.

How the Balance of Payments Accounts Work:

A Microeconomic View

- We have to understand one simple principle: Every market transaction (whether for goods, services, factor services, or assets) has two parts.
- If party A engages in a transaction with a counterparty B, then A receives from B an item of a given value, and in return B receives from A an item of equal value.

Understanding the Data for the Balance of Payments Account

TABLE 5-2 (1 of 3) The U.S. Balance of Payments in 2015

The table shows U.S. international transactions in 2015 in billions of dollars. Major categories are in bold type.

Major Account	Line	Category or Subcategory	Symbol	$ billions
Current Account	**1**	**Exports of goods and services**	$+EX$	**2,224**
	1a	Of which: Goods		1,513
	1b	Services		710
	2	**Income receipts** [= exports of factor services]	$+EX_{FS}$	**783**
	3	**Imports of goods and services (−)**	$-IM$	**−2,764**
	3a	Of which: Goods (−)		−2,273
	3b	Services (−)		−491
	4	**Income payments** [= imports of factor services (−)]	$-IM_{FS}$	**−592**
	5	**Net unilateral transfers**	NUT	**−136**

Understanding the Data for the Balance of Payments Account

TABLE 5-2 (2 of 3) The U.S. Balance of Payments in 2015 (continued)

The table shows U.S. international transactions in 2015 in billions of dollars. Major categories are in bold type.

Major Account	Line	Category or Subcategory	Symbol	$ billions
	6	**Capital account** net	KA	**0**
	7	**U.S.-owned assets abroad** net increase (−) [= net imports of ROW assets or financial outflow (−)]	$+EX_A^F - IM_A^F$	**−242**
Capital and Financial Account	7a	Of which: U.S. official reserve assets		6
	7b	Other assets		−248
	8	**Foreign-owned assets in U.S.** net increase (+) [= net exports of U.S. assets or financial inflow (+)]	$+EX_A^H - IM_A^H$	**426**
	8a	Of which: Foreign official assets		−110
	8b	Other assets		536

Understanding the Data for the Balance of Payments Account

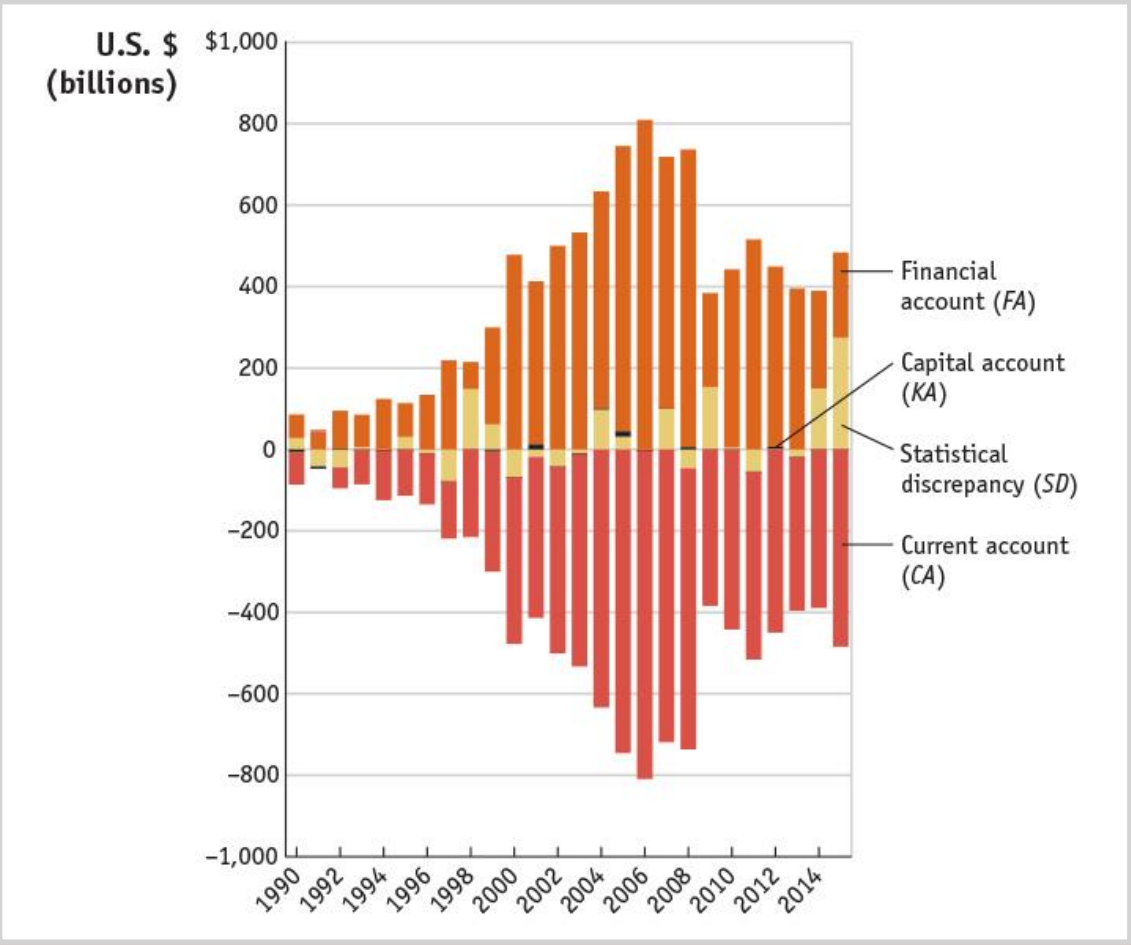
TABLE 5-2 (3 of 3) The U.S. Balance of Payments in 2015 (continued)

The table shows U.S. international transactions in 2015 in billions of dollars. Major categories are in bold type.

Major Account	Line	Category or Subcategory	Symbol	$ billions
Statistical Discrepancy	**9**	**Statistical discrepancy** (sum of 1 to 8, sign reversed)	*SD*	**−301**
Summary Items		**Balance on current account** (lines 1, 2, 3, 4, and 5)	*CA*	**−485**
		Of which: Balance on goods and services (lines 1 and 3)	*TB*	−540
		Balance on income (lines 2 and 4)	*NFIA*	191
		Balance on financial account (lines 7 and 8)	*FA*	**184**
		Of which: Official settlements balance (lines 7a and 8a)		−104
		Nonreserve financial account (lines 7b and 8b)		288

Some Recent Trends in the U.S. Balance of Payments

FIGURE 5-10



U.S. Balance of Payments and Its Components, 1990–2015 The figure shows the current account balance (*CA*), the capital account balance (*KA*, barely visible), the financial account balance (*FA*), and the statistical discrepancy (*SD*), in billions of dollars.

Understanding the Data for the Balance of Payments Account

- A country with a current account surplus is a **(net) lender**.
  - By the BOP identity, it must have a deficit in its asset accounts.
  - Any lender, on net, buys assets (acquiring IOUs from borrowers). For example, China is a large net lender.
- A country with a current account deficit is a **(net) borrower**.
  - By the BOP identity, it must have a surplus in its asset accounts.
  - Any borrower, on net, sells assets (issuing IOUs to lenders). As we saw, the U.S. is a large net borrower.

What the Balance of Payments Account Tells Us

- The balance of payments accounts consist of:
  - The current account, which measures external imbalances in goods, services, factor services, and unilateral transfers
  - The financial and capital accounts, which measure asset trades
- Surpluses on the current account side must be offset by deficits on the asset side. Deficits on the current account must be offset by surpluses on the asset side.
- The balance of payments makes the connection between a country's income and spending decisions and the evolution of that country's wealth.

4 External Wealth

- Just as a household is better off with higher wealth, all else equal, so is a country.
- "Net worth" or **external wealth** with respect to the rest of the world (ROW) can be calculated by adding up all of the ROW assets owned by the home country and then subtracting all of the home assets owned by the ROW.
- In 2015, the United States had an external wealth of about –$7,357 billion.
- This made the United States the world's biggest debtor in history at the time of this writing.

The Level of External Wealth

- The level of a country's external wealth (W) equals

$$\underbrace{\text{External wealth}}_{W} = \underbrace{\left[\begin{matrix}\text{ROW assets}\\ \text{owned by home}\end{matrix}\right]}_{A} - \underbrace{\left[\begin{matrix}\text{Home assets}\\ \text{owned by ROW}\end{matrix}\right]}_{L} \qquad (5\text{-}14)$$

- A country's level of external wealth is also called its *net international investment position* or *net foreign assets.* It is a stock measure, not a flow measure.

  If $W > 0$, home is a **net creditor** *country: external assets exceed external liabilities.*

  If $W < 0$, home is a **net debtor** *country: external liabilities exceed external assets.*

Changes in External Wealth

- There are two reasons a country's level of external wealth changes over time.

1. *Financial flows:* As a result of asset trades, the country can increase or decrease its external assets and liabilities. Net exports of home assets cause an equal increase in the level of external liabilities and hence a corresponding decrease in external wealth.
2. *Valuation effects:* The value of existing external assets and liabilities may change over time due to capital gains or losses. In the case of external wealth, this change in value could be due to price effects or exchange rate effects.

Changes in External Wealth

- Adding up these two contributions to the change in external wealth (ΔW), we find

$$\underbrace{\left[\begin{array}{c}\text{Change in}\\ \text{external wealth}\end{array}\right]}_{\Delta W} = -\underbrace{\left[\begin{array}{c}\text{Financial}\\ \text{account}\end{array}\right]}_{\substack{\text{Net export of assets}\\ =\\ FA}} + \underbrace{\left[\begin{array}{c}\text{Capital gains on}\\ \text{external wealth}\end{array}\right]}_{\substack{\text{Valuation effects}\\ =\\ \text{Capital gains minus}\\ \text{Capital losses}}} \quad (5\text{-}15)$$

- From the **BOP Identity**: $-FA = CA + KA$. Substituting this identity into Equation (5-15), we obtain

$$\underbrace{\left[\begin{array}{c}\text{Change in}\\ \text{external wealth}\end{array}\right]}_{\Delta W} = \underbrace{\left[\begin{array}{c}\text{Current}\\ \text{account}\end{array}\right]}_{\substack{CA\\ =\\ \text{Unspent}\\ \text{income}}} + \underbrace{\left[\begin{array}{c}\text{Capital}\\ \text{account}\end{array}\right]}_{\substack{KA\\ =\\ \text{Net capital}\\ \text{transfers received}}} + \underbrace{\left[\begin{array}{c}\text{Capital gains on}\\ \text{external wealth}\end{array}\right]}_{\substack{\text{Valuation effects}\\ =\\ \text{Capital gains}\\ \text{minus capital losses}}} \quad (5\text{-}16)$$

Understanding the Data on External Wealth

TABLE 5-3 U.S. External Wealth in 2014–2015

The table shows changes in the U.S. net international investment position during the year 2015 in billions of dollars. The net result in row 3 equals row 1 minus row

		CHANGES IN POSITION DURING 2015 ($ BILLIONS)					
			VALUATION EFFECTS				
Category	Position, end 2014 ($ billions)	Financial Flows (a)	Price Changes (b)	Exchange Rate Changes (c)	Other Changes (d)	Total (a + b + c + d)	Position, end 2015 ($ billions)
1. External Assets = *U.S.-owned assets abroad:*	21,503	225	220	−1,142	138	−558	20,945
2. External Liabilities = *Foreign-owned assets in the United States*	28,635	395	−561	−90	−96	−351	28,283
3. External Wealth = (Line 1 minus line 2) = *U.S. net international investment position*	−7,132	−170	781	−1,052	234	−206	−7,338
Symbol	*W* (end 2014)	*−FA*	Capital gains			*ΔW*	*W* (end 2015)

Some Recent Trends

- For the past 30 years the United States has almost always had a financial account surplus, reflecting a net export of assets to the rest of the world to pay for chronic current account deficits.
- If there were no valuation effects, then Equation (5-15) implies that the change in the level of external wealth should equal the cumulative net import of assets over the intervening period.
- But valuation effects or capital gains can generate a significant difference in external wealth.
- Over the 27 years since 1988, these effects reduced U.S. net external indebtedness at end 2015 by almost 20% compared with the level that financial flows alone would have predicted.

What External Wealth Tells Us

- External wealth data tell us the net credit or debit position of a country with respect to the rest of the world.
- They include data on external assets (foreign assets owned by the home country) and external liabilities (home assets owned by foreigners).
- A creditor country has positive external wealth; a debtor country has negative external wealth.
- Countries with a current account surplus (deficit) must be net buyers (sellers) of assets.

What External Wealth Tells Us

- An increase in a country's external wealth results from every net import of assets; conversely, a decrease in external wealth results from every net export of assets.
- In addition, countries can experience capital gains or losses on their external assets and liabilities that cause changes in external wealth.
- All of these changes are summarized in the statement of a country's net international investment position.

KEY TERMS

national income and product accounts

balance of payments accounts

gross national expenditure (GNE)

gross domestic product (GDP)

gross national income (GNI)

trade balance (TB)

net factor income from abroad (NFIA)

net unilateral transfers (NUT)

gross national disposable income (GNDI)

current account (CA)

financial account (FA)

capital account (KA)

national income identity

national saving

current account identity

private saving

government saving

external asset

external liability

BOP identity

BOP credit

BOP debit

(net) lender

(net) borrower

external wealth (W)

net creditor

net debtor

APPENDIX TO CHAPTER 5

External Wealth and Total Wealth

- External wealth is only part of a country's *total wealth,* the sum of the home capital stock (all nonfinancial assets in the home economy, denoted *K*) plus amounts owed to home by foreigners (*A*) minus amounts owed foreigners by home (*L*):

$$\text{Total wealth} = \underbrace{K}_{\text{Home nonfinancial assets}} + \underbrace{(A - L)}_{\text{External wealth}}$$

- Changes in the value of total wealth can then be written as follows

$$\begin{bmatrix}\text{Change in}\\ \text{total wealth}\end{bmatrix} = \underbrace{\begin{bmatrix}\text{Additions}\\ \text{to } K\end{bmatrix} + \begin{bmatrix}\text{Additions}\\ \text{to } A-L\end{bmatrix}}_{\substack{\text{Additions}\\ \text{(acquisitions minus diposals)}}} + \underbrace{\begin{bmatrix}\text{Capital gains}\\ \text{on } K\end{bmatrix} + \begin{bmatrix}\text{Capital gains}\\ \text{on } A-L\end{bmatrix}}_{\substack{\text{Valuation effects}\\ \text{(gains minus losses)}}}$$

APPENDIX TO CHAPTER 5

External Wealth and Total Wealth

- Additions to the domestic capital stock *K* are simply investment, denoted *I*. Additions to external wealth, *A* – *L*, equal net additions to external assets minus net additions to external liabilities:

$$\begin{bmatrix}\text{Change in}\\ \text{total wealth}\end{bmatrix} = \underbrace{I}_{\substack{\text{Additions to } K\\ =\\ \text{Additions to assets}\\ \text{in the home economy}}} + \underbrace{(-FA)}_{\substack{\text{Additions to } A-L\\ =\\ \text{Net import of assets}\\ \text{into the home economy}}} + \underbrace{\begin{bmatrix}\text{Capital gains}\\ \text{on } K\end{bmatrix} + \begin{bmatrix}\text{Capital gains}\\ \text{on } A-L\end{bmatrix}}_{\text{Valuation effects (gains minus losses)}}$$

- Now, using the BOP identity, we know that *CA + KA + FA* = 0, so minus the financial account –FA must equal *CA + KA*, hence we can write:

$$\begin{bmatrix}\text{Change in}\\ \text{total wealth}\end{bmatrix} = I + CA + KA + \underbrace{\begin{bmatrix}\text{Capital gains}\\ \text{on } K\end{bmatrix} + \begin{bmatrix}\text{Capital gains}\\ \text{on } A-L\end{bmatrix}}_{\text{Valuation effects (gains minus losses)}}$$

APPENDIX TO CHAPTER 5

External Wealth and Total Wealth

- The BOP identity makes the connection between external asset trade and activity in the current account. We take the connection one step further using the current account identity, $S = I + CA$, which allows us to write:

$$\begin{bmatrix}\text{Change in}\\ \text{total wealth}\end{bmatrix} = S + KA + \underbrace{\begin{bmatrix}\text{Capital gains}\\ \text{on } K\end{bmatrix} + \begin{bmatrix}\text{Capital gains}\\ \text{on } A - L\end{bmatrix}}_{\text{Valuation effects (gains minus losses)}}$$

- The message of this expression is clear. As we all probably know from personal experience, there are only three ways to get more (or less) wealthy: do more (or less) saving (*S*), receive (or give) gifts of assets (*KA*), or enjoy the good (or bad) fortune of capital gains (or losses) on your portfolio. What is true about individuals' wealth is also true for the wealth of a nation in the aggregate.

Thank You for your attention!