

Macroeconomic Accounting

Slides for International Finance

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Macroeconomic Accounting

National Income and Product Accounts record:

- ▶ national income and value of current *production*
- ▶ value of *purchases* of newly produced goods

Balance of Payments Accounts record:

- ▶ transactions with foreign residents

National Income and Product Accounts (NIPAs)

NIPAs

- ▶ record the value of national income that results from production and expenditure.
- ▶ measure the level of economic activity (the “size” of the economy)

National income:

- ▶ the income earned by a nation’s factors of production.

Expenditure by buyers:

- ▶ the market value of production
- ▶ income for sellers

Producers earn income by selling goods and services to buyers.

Federal Statistical System

Unlike many countries, the US has no central statistical agency. But it does have:

The Federal Statistical System

- ▶ a network of agencies located in various departments (along with a couple of independent agencies)
- ▶ coordinated via the Office of Management and Budget (OMB),

Principle statistical agencies:

- ▶ BEA, Census, BLS, others

Chief Statistician of the United States:

- ▶ Karin Orvis, since April 2022
- ▶ housed within OMB.



Bureau of Economic Analysis (BEA)



- ▶ A federal agency (in the Economics and Statistics Administration of Dpt of Commerce, along with Census).
- ▶ Established in 1972 by President Nixon.
- ▶ 500 employees; annual budget of approximately \$100 million.
- ▶ Produces the NIPAs.
- ▶ Provides official macroeconomic and industry statistics, particularly GDP of the United States, states, metropolitan areas, cities and industries.

mission statement (<https://www.bea.gov/about>)

"promotes a better understanding of the U.S. economy by providing the most timely, relevant, and accurate economic data in an objective and cost-effective manner"

Income or Product?

GNP vs GNI Conceptually identical; computed with different data
GNI is more widely referenced internationally. GNP is more widely referenced in the US. (Sometimes the average of the two is reported.)

GDP vs GDI Conceptually identical; computed with different data
GDP is in wider usage.

In this course, we treat conceptually identical terms as synonyms.

Gross National Income (GNI or GNP)

GNI or GNP:

- ▶ the “market value”
- ▶ of all final goods and services
- ▶ produced by a nation’s factors of production
- ▶ in a given time period.

Factors of Production:

- ▶ land (natural resources)
- ▶ labor (workers, entrepreneurs; includes human capital)
- ▶ physical capital (incl. buildings and equipment).

Stocks vs Flows

What is the difference?

Stocks vs Flows

Flow:

Measured per *period* of time.

Stock:

Measured at any *point* in time; no mention of a period of time.

GNP/GNI vs GDP/GDI

GNI includes the value of final goods and services produced by **US-owned** factors of production, whether or not those factors are domestically located.

GDP measures a country's economic activity as the production taking place **within its borders**, whether or not the factors of production are domestically owned.

$$\begin{array}{c} \overbrace{C + I + G}^A + EX - IM + FP + UTr \\ \underbrace{\hspace{10em}}_{GDP} \\ \underbrace{\hspace{15em}}_{GNI} \\ \underbrace{\hspace{20em}}_{Y_T} \end{array}$$

Note

Your textbook focuses on GNI. In the US, the NIPAs focus on GDP. In the US, these are almost equal.

Gross Domestic Product (GDP)

Subtract the net factor payments from abroad (FP) from GNI to get GDP, another approximate measure of national income.

$$\text{GDP} = \text{GNI} - \text{FP}$$

$$\text{GNI} = \text{GDP} + \text{FP}$$

FP (factor payments rcd from abroad) - (factor payments pd to abroad)

Gross Domestic Product (GDP)

Gross Domestic Product

Total market value



Within the United States



Goods and services



GDP = the total market value
of all final goods and services
produced domestically (i.e., *within a country*)
in a given time period.

Image source: <https://www.bea.gov/system/files/2020-04/GDP-Education-by-BEA.pdf>

Current GDP

`https://www.bea.gov/`

Click **[View]** and then search for **Current dollar GDP**.

GDP (Select Countries, 2022, USD)

United States	25.44
China	17.96
Japan	4.23
Germany	4.08
India	3.42
UK	3.09
France	2.78
Russia	2.24
Canada	2.14
Italy	2.05
Brazil	1.92
Australia	1.692

Units: Trillions of USD

Data Source: World Bank

GDP Rankings Over Time (1960–2017)

Animation: [Click] Biggest GDPs over time
(Data are nominal GDPs from the World Bank.)

Comparing Economic Activity of Different Periods

GNI and GDP are measured at market prices.

To meaningfully compare a country's economic activity at different points in time, remove the effects of changes in the overall price level.

That is, use *real* values instead of *nominal* values.

Getting GDP over Time from FRED

Search the web for: FRED real gdp

This should point you to:

<https://fred.stlouisfed.org/series/GDPC1>

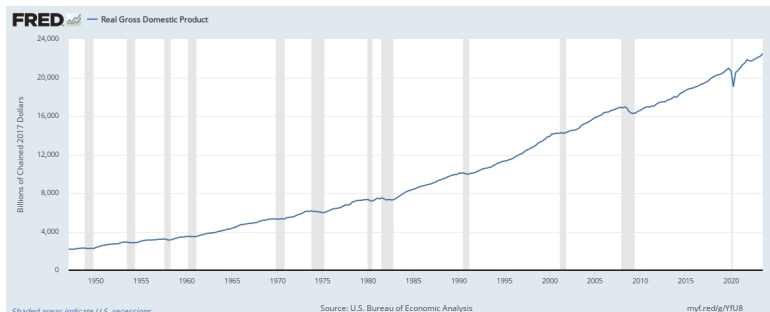
Produce time-series plots:

- ▶ on website (plots provide access link for download)
- ▶ locally after download spreadsheet data
- ▶ locally after API-based access

Data Citation with FRED Data

`https://research.stlouisfed.org/publications/
page1-econ/2020/10/21/data-citations-with-fred`

US Real GDP over Time (Linear Scale)



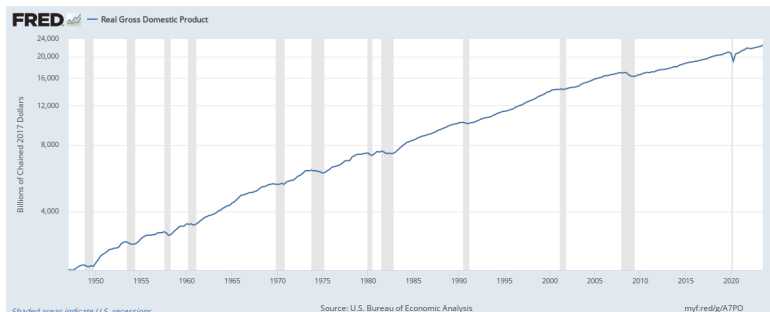
Source: <https://fred.stlouisfed.org/graph/fredgraph.png?g=YfU8>

US Real GDP over Time (Ratio Scale)

To switch to a ratio scale:

- ▶ click [**Edit Graph**]
- ▶ choose the *Format* tab
- ▶ check "Left" beside *Log scale*

US Real GDP over Time (Ratio Scale)



Source: <https://fred.stlouisfed.org/graph/fredgraph.png?g=A7PO>

Optional Exercise: Plotting Real GDP

Do the Real GDP Time-Series Chart spreadsheet exercise

National Income: Seeking A Better Measure

GNI is better than GDP as an *national income* measure.

To produce an even better income measure, adjust GNI for following:

- ▶ Depreciation of physical capital
(implicit loss to capital owners)
- ▶ unilateral transfers to and from other countries
E.g., payments of expatriate workers sent to their home countries;
foreign aid and pension payments sent to expatriate retirees.

National Income: The NIPA Definition

GNI(GNP) =

- ▶ GDP (Gross Domestic Product)
- ▶ Plus: Primary Income receipts from the rest of the world
- ▶ Less: Primary Income payments to the rest of the world

NNI(NNP) =

- ▶ GNI
- ▶ Less: Consumption of fixed capital

NI =

- ▶ NNI(NNP)
- ▶ Less: Statistical discrepancy

http:

[//bea.gov/iTable/iTable.cfm?ReqID=9&step=1](http://bea.gov/iTable/iTable.cfm?ReqID=9&step=1)

Major NIPA Measures of Income and Product

GDP	<i>Less</i> Statistical discrepancy =	GDI	<i>Less</i> Net income payments to the rest of the world =	GNI	<i>Less</i> Consumption of fixed capital =	NI
			<i>Less</i> Consumption of fixed capital =	NDI	<i>Less</i> Net income payments to the rest of the world =	
	<i>Less</i> Net income payments to the rest of the world =	GNP	<i>Less</i> Consumption of fixed capital =	NNP	<i>Less</i> Statistical discrepancy =	
			<i>Less</i> Statistical discrepancy =	GNI	<i>Less</i> Consumption of fixed capital =	
	<i>Less</i> Consumption of fixed capital =	NDP	<i>Less</i> Statistical discrepancy =	NDI	<i>Less</i> Net income payments to the rest of the world =	
			<i>Less</i> Net income payments to the rest of the world =	NNP	<i>Less</i> Statistical discrepancy =	

GDI Gross domestic income
 GDP Gross domestic product
 GNI Gross national income

GNP Gross national product
 NDI Net domestic income
 NDP Net domestic product

NI National income
 NNP Net national product

U.S. Bureau of Economic Analysis

Note: our focus is the GDP to GNP to NNP to NI row of this figure.
 Figure Source: BEA Handbook Fig 2.2

Example: GNI and GDP in the Philippines

GDP	15565733
C	11860949
I	4069367
G	2410933
Ex	4491995
Im	7382503
stat	114992
FP	879241
GNI	16444974

Year: 2022 (*first three quarters*)

Units: PHP millions

Data Source: <https://psa.gov.ph/national-accounts/base-2018/estimates>

Most of net factor income is measured as remittances from overseas Filipino workers (OFWs), and is often referred to as OFW remittances.

Getting the U.S. Data

Let's look at the US data:

- ▶ `http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm`
- ▶ choose "Full Release and Tables"
- ▶ find Table 7: Relation of GDP, GNI, and NI

Not a Measure of Welfare

GNP (GNI) and GDP measure aggregate economic activity. A welfare measure would have to include many other factors, including:

- ▶ the value of leisure time
- ▶ the value of non-market work
- ▶ the costs of environmental destruction

Note

Initial national accounts for Norway included household production. Later this was removed to conform with international NIPA standards.

Welfare-Focused Measures of Economic Activity

- ▶ Measure of Economic Welfare (MEW, Nordhaus and Tobin, 1972)
- ▶ Green GDP
- ▶ Gross National Happiness
- ▶ Human Development Index (HDI)

Green GDP

At present we are stealing the future, selling it in the present, and calling it gross domestic product.

—Paul Hawken

- ▶ incorporates costs of lost biodiversity
- ▶ accounts for costs of climate change
- ▶ accounts for resource depletion

Resource: https://en.wikipedia.org/wiki/Green_gross_domestic_product

Resistance to Environmental Accounting

- 1993** the Bureau of Economic Analysis began working the Integrated Environmental and Economic Accounts.
- 1994** initial results showed that GDP numbers were overstating the impact of mining companies to the nation's economic wealth. Mining companies did not like this.
- 1995** Rep. Mollohan, (D, West Virginia) coal country, sponsored an amendment to the 1995 Appropriations Bill that stopped the Bureau of Economic Analysis from working on revising the GDP. It passed.

Gross National Happiness

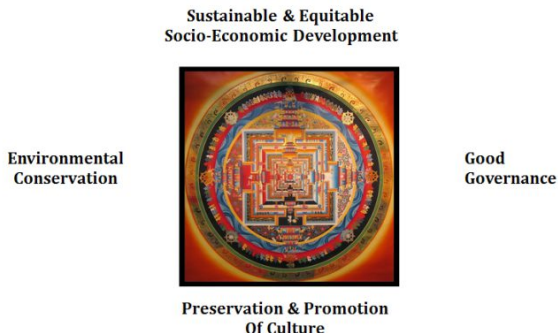
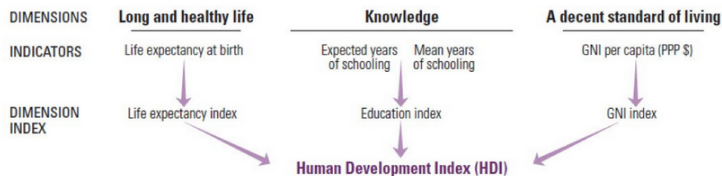


Figure: Bhutan's Four Pillars of GNH

Figure Source: <https://www.gnhcentrebhutan.org/what-is-gnh/the-4-pillars-of-gnh/>

Resource: https://en.wikipedia.org/wiki/Gross_National_Happiness

Human Development Index (HDI)

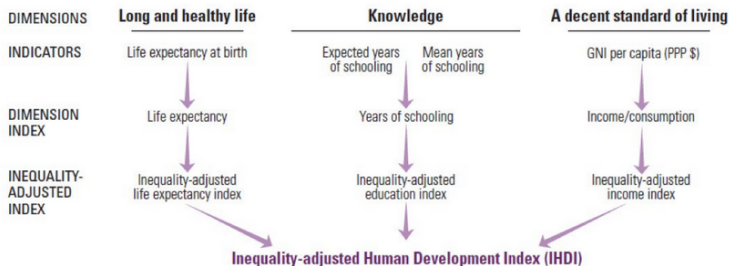


Source: <http://hdr.undp.org/en/content/human-development-index-hdi>

Top HDI Countries

Data: <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>
In the 2021 data, the US ranks 21st.

Inequality-Adjusted Human Development Index (IHDI)



Source: <http://hdr.undp.org/en/content/inequality-adjusted-human-development-index-ihdi>
missing indicators:

- ▶ sustainability
- ▶ political freedom
- ▶ gender inequality
- ▶ unemployment

Top IHDI Countries

Country	Income-Gini
Switzerland	33.1
Norway	27.7
Iceland	26.1
Hong Kong (SAR)	n.a.
Australia	34.3
Denmark	27.7
Sweden	29.3
Ireland	30.6
Germany	31.7
Netherlands	29.2

In the 2021 data, U.S. ranks 21st with an income Gini of 41.5.

Data Source: https://hdr.undp.org/sites/default/files/2021-22_HDR/HDR21-22_Statistical_Annex_I-HDI_Table.xlsx

Visualization: <https://hdr.undp.org/inequality-adjusted-human-development-index#/indicies/IHDI>

Background: <http://hdr.undp.org/en/composite/IHDI>

Newly Produced Goods

Categorize newly produced goods by expenditure source:

- ▶ consumption (C)
- ▶ investment (I)
- ▶ government expenditures (G)
- ▶ current account (CA)

GNI by Expenditure Component

Sum the values of all *newly produced final goods and services*.

Types of expenditure:

- ▶ Consumption: by consumers
- ▶ Investment: by firms (buildings & equipment & inventory)
- ▶ Government: government's purchases of goods and services
- ▶ Current account (exports minus imports): net expenditure by foreigners on domestic goods and services

GNP (GNI) = Expenditure

For simplicity, let $FP = 0$.

$$\begin{aligned} Y &= C^d + I^d + G^d + EX \\ &= (C - C^f) + (I - I^f) + (G - G^f) + EX \\ &= C + I + G + EX - (C^f + I^f + G^f) \\ &= C + I + G + EX - IM \\ &= C + I + G + CA \end{aligned}$$

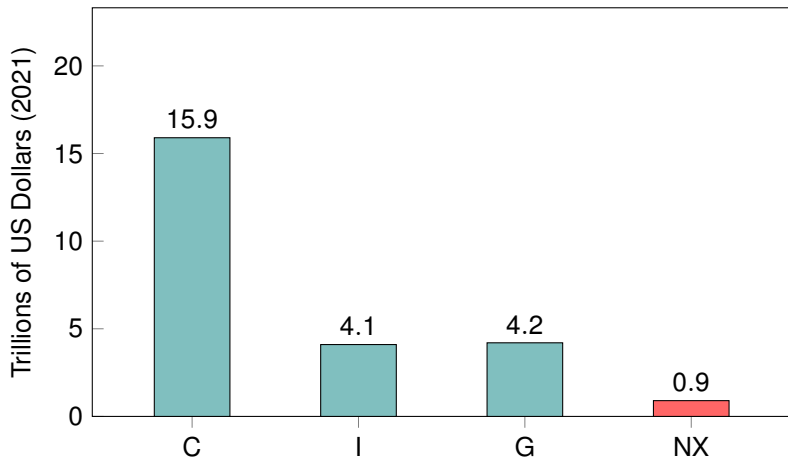
Absorption: $C + I + G$

GNP (GNI): absorption + current account

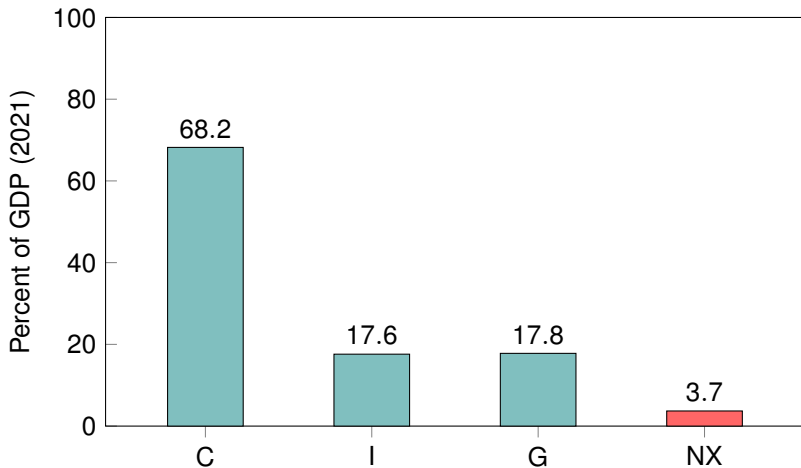
Getting the U.S. Data

- ▶ `http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm`
- ▶ choose "Text Full Release and Tables"
- ▶ find Table 3: Gross Domestic Product
- ▶ find C, I, G, and X-M

Major Components of US GDP



Major Components of US GDP (as pct)



Optional Exercise: Bar Chart of GDP Components

Update the bar chart of the components of real GDP (as a pct of GDP).

Major Components of US GDP

Additional Detail: <https://www.bea.gov/news/2022/gross-domestic-product-third-estimate-gdp-industry->

Getting the U.S. Data

- ▶ `http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm`
- ▶ choose "Text Full Release and Tables"
- ▶ find Table 3: Gross Domestic Product
- ▶ find decompositions of C, I, G, and X-M

GDP Components: Personal Consumption

Personal consumption

Goods

Durable goods

Nondurable goods

Services

GDP Components: Investment

Gross private domestic investment

Fixed investment

Nonresidential

Structures

Equipment

IP Production (e.g., R&D)

Residential

Change in private inventories

GDP Components: Government Expenditure

Government consumption expenditures
and gross investment

Federal

 National defense

 Nondefense

State and local

GDP Components: Net Exports

Net exports of goods and services

Exports

Goods

Services

Imports

Goods

Services

National saving (S)

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

$$S = Y - C - G$$

$$S = (Y - C - T) + (T - G)$$

$$S = S^p + S^g$$

Absorption Approach:

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

Current account surplus spending < less than national income
we must be lending abroad (on net)

This implies a financial capital outflow or positive net foreign investment.

Current account deficit spending > national income
we must be borrowing abroad (on net)

This implies a financial capital inflow or negative net foreign investment.

National Saving and the Current Account

current account = net foreign investment

Rewrite this as

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

current account = national saving - investment

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

Absorption Approach to the Current Account

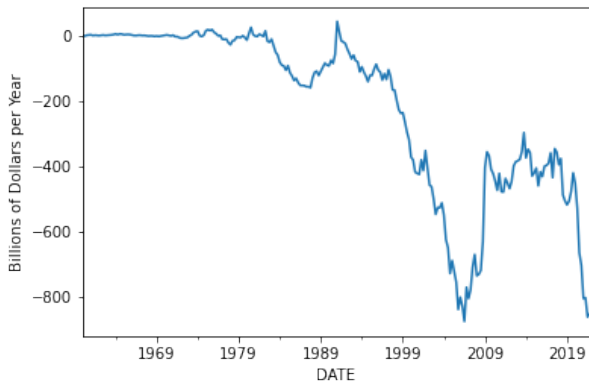
$$\begin{aligned}CA &= EX - IM \\ &= Y - (C + I + G)\end{aligned}$$

Absorption $C + I + G$

When production $>$ domestic expenditure, exports $>$ imports: current account >0 . 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 . A country exports less than it imports, it earns less income from exports than it spends on imports net foreign wealth is decreasing

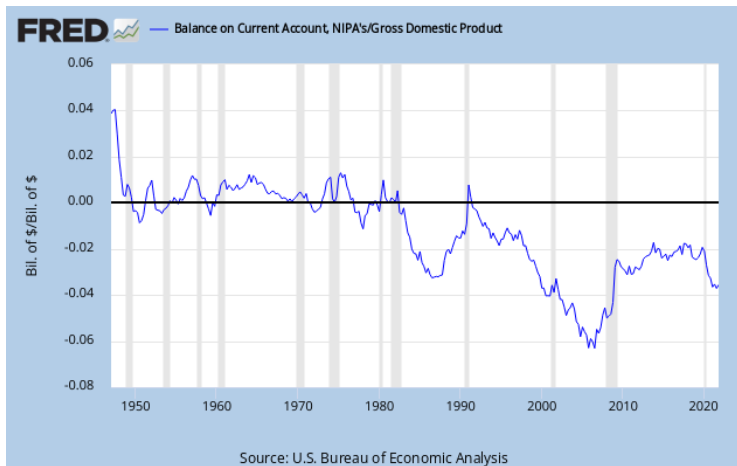
Current Account



Data Source: <https://research.stlouisfed.org/fred2/series/NETFI>

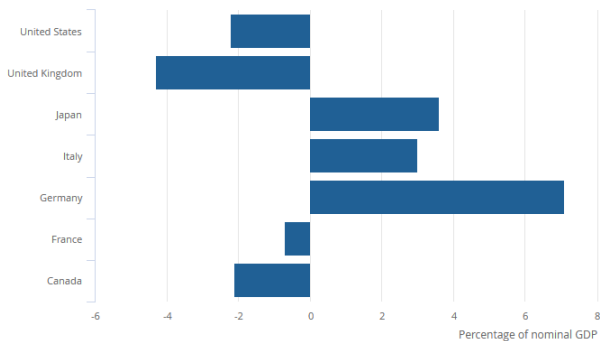
[//research.stlouisfed.org/fred2/series/NETFI](https://research.stlouisfed.org/fred2/series/NETFI)

U.S. Current Account (CA/GDP)



Source: <https://fred.stlouisfed.org/graph/fredgraph.png?g=KSar>

G7 Current Accounts (as % of GDP)



Source: United Kingdom Balance of Payments - The Pink Book 2020

Investment Finance

Countries can finance investment either by saving or by acquiring foreign funds equal to the current account deficit.

Recall

$$CA = S - I$$

When $S > I$, then $CA > 0$ so that net foreign investment and financial capital outflows for the domestic economy are positive.

$$I = S - CA$$

Twin Deficits

$$\begin{aligned}CA &= S - I \\ &= (S^p + S^g) - I \\ &= (S^p - \text{FiscalDeficit}) - I \\ &= (S^p - I) - \text{FiscalDeficit}\end{aligned}$$

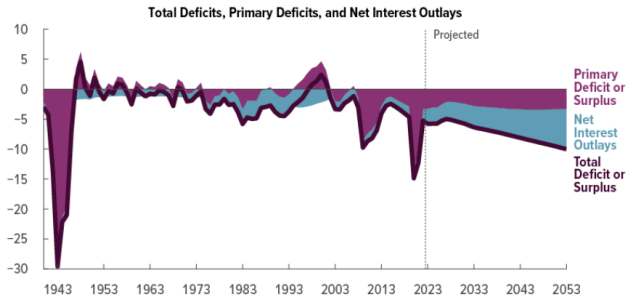
Government surplus (saving) is $S^g = G - T$.

Government deficit is $\text{FiscalDeficit} = G - T = -S^g$.

A rising government deficit is associated with a declining current account balance when other factors remain constant.

US Fiscal Deficits

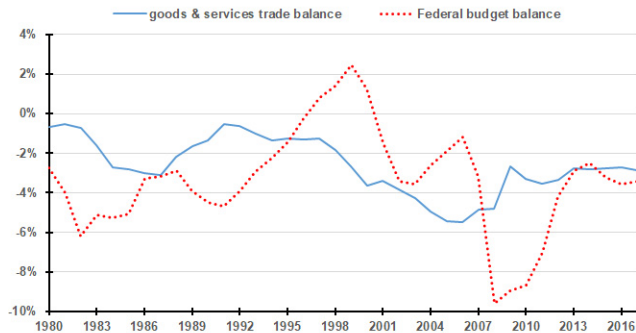
Percentage of GDP



Source: CBO

(<https://www.cbo.gov/publication/59331> chapter 1)

U.S. Twin Deficits?



Source: <https://farmdocdaily.illinois.edu/2019/01/americas-twin-deficits-since-1980.html>

Twin Deficits vs. Ricardian Equivalence

Late 1990s: EU governments slashed deficits from 5.4% to 0.8% of GDP. (Required to participate in January 1999 launch of euro.)

The current account for EU countries was little changed. Why? Private saving decreased by about the same amount!

Explanations:

- ▶ Household wealth increases.
- ▶ Financial wealth rose in this period.
- ▶ Ricardian equivalence.

No Twin Deficits in 1990s EU (%GDP)

Year	CA	Sp	I	G-T
1995	0.6	25.9	19.9	-5.4
1996	1.0	24.6	19.3	-4.3
1997	1.5	23.4	19.4	-2.5
1998	1.0	22.6	20.0	-1.6
1999	0.1	21.8	20.8	-0.8

Federal Deficit

- ▶ a flow: federal expenditures less net federal tax revenues (taxes less transfers) in a year
- ▶ about \$1.8 trillion in 2023
- ▶ better understood as pct of GDP

FRED:

<https://fred.stlouisfed.org/series/FYFSGDA188S>

Federal Debt

- ▶ a stock, accumulated from past deficits.
- ▶ currently (Jan 2024) around \$34 trillion
- ▶ better understood as pct of GDP

FRED:

<https://fred.stlouisfed.org/series/GFDEGDQ188S>

Foreign Holders of US Treasury Securities

[Click] Treasury data

History

According to the US Constitution, Congress must authorize borrowing. The debt limit was instituted in the early 20th century so that the Treasury would not need to ask for permission each time it had to issue debt to pay bills.

Federal Debt Limit

- ▶ a cap on the total amount of money that the federal government is authorized to borrow via U.S. Treasury securities
 - ▶ (like a household's credit card limit)
- ▶ The US gvt runs huge fiscal deficits, so it must borrow huge sums of money to pay its bills.

[Click] CGP Grey: The Debt Limit Explained

Gephardt Rule

- ▶ named after original sponsor (former Rep. Richard Gephardt, (D, Missouri))
- ▶ adopted in 1979
- ▶ required the debt limit to be raised when a budget resolution was passed
- ▶ was for the most part phased out during the 1990s.
- ▶ repealed in 2011

Documents

Note

The following documents are list for your reference only. They are not required for this class.

1. Letter to Congress 2023-01-13 by Secretary Yellen
2. Debt Limit by US Treasury
3. Debt Limit Legislation: The House “Gephardt Rule” by CRS
4. Public Law 117–73 117th Congress (2021-12-16) raised limit by \$2.5 trillion

2011 debt ceiling battle:

- ▶ Some observers argued that President Barack Obama had the power to unilaterally lift the debt ceiling.
 - ▶ Former President Bill Clinton said at the time that if he were still in office, he would invoke the 14th Amendment, which says the validity of U.S. debt shall not be questioned, raise the debt ceiling on his own and force the courts to stop him.
- ▶ President Obama and his lawyers disagreed and opted against that approach.
- ▶ Ultimately the debt ceiling was raised (summer 2011)

In the month before the debt ceiling was raised

- ▶ 3-month T-bills fell in value, pushing their yield sharply higher
- ▶ interestingly, the 10-year Treasury yield moved in the opposite direction (still seen by investors as safe)
- ▶ stock prices fell

Breach: Then What Happens?

- ▶ the Treasury could prioritize payments: paying back bond holders first, forestalling global financial market disaster.
 - ▶ e.g., skip promised payments on social safety net programs or salaries for troops.
- ▶ first-ever default for the United States
- ▶ creating financial chaos in the global economy
- ▶ force American officials to choose between continuing assistance like Social Security checks and paying interest on the country's debt.
- ▶ some investors have already begun to look into protection in case the United States does renege on its debts. (In 2023, a trader at BNP Paribas sent some investors prices for U.S. credit default swaps, which provide some insurance in return for a small premium, paying out any money they lose if the government does not pay them on time.)

Mint the Coin

After leaving office, President Obama acknowledged that he and Treasury officials considered several creative contingency plans, such as minting a \$1 trillion coin to pay off some of the national debt. In a 2017 interview, he described the idea as “wacky.”

At a 2023 House Financial Services hearing, Secretary Yellen dismissed minting such a coin, arguing that the only way to address the borrowing cap is to for Congress to lift or suspend it.

Issue Interest-Only Bonds

The relevant statute refers to the "face value" of the debt.

▶ `https:`

`//www.law.cornell.edu/uscode/text/31/3101`

Interest-only bonds could have a principle payment of 0 (and therefore a statutory face value of 0).

Or so economist John Cochrane has argued.

Debt Prioritization to Force Congressional Responsibility

"[Yellen should say] 'we pay principal and interest on treasury debt first, before anything else.' President Biden should back her up. Drastic delays in social security ... and more are plenty enough threat to get Congress to move, without risking a run." -- John Cochrane

Balance of Payments Accounts

A country's balance of payments accounts record its payments to and its receipts from foreign residents.

An international transaction involves two parties.

Each transaction enters the accounts twice: once as a credit (+) and once as a debit (-).

Credit (+): outflow of value

Debit (-): inflow of value

Balance of Payments: The Accounts

The balance of payments accounts may be separated into 3 broad accounts:

- ▶ current account: records flows of goods and services (imports and exports), primary income, and secondary income.
- ▶ financial account: records flows of financial assets (financial capital).
- ▶ capital account: records flows of special categories of assets (capital): typically non-market, non-produced, or intangible assets like debt forgiveness, copyrights and trademarks.

BoP Accounts Always “Balance”

Double entry of each transaction.

Three accounts should sum to zero:

current account + capital account + financial account = 0

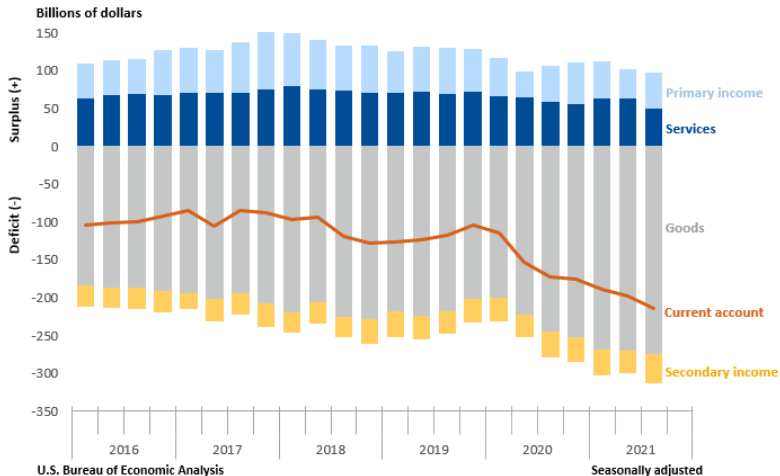
(In reality we include a statistical discrepancy due to recording problems.)

BoP Sub Accounts: CURRENT ACCOUNT

- ▶ Merchandise Trade
- ▶ Services
 - ▶ tourism
 - ▶ transportation
 - ▶ business, professional and other services
- ▶ Primary Income (Factor Services)
 - ▶ Investment Income
 - ▶ Employee Compensation
- ▶ Secondary Income (Unilateral Current Transfers)
 - ▶ government grants
 - ▶ government pensions
 - ▶ private remittances and other transfers (including taxes and workers remittances)

BoP Sub Accounts: CURRENT ACCOUNT

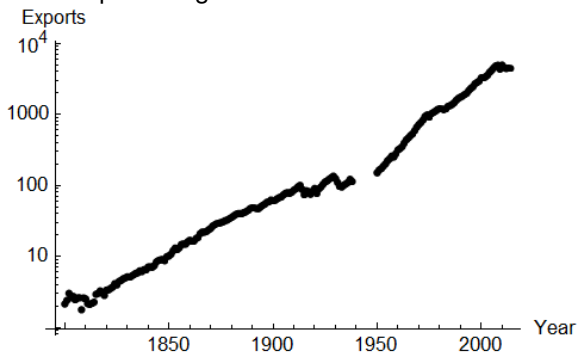
Quarterly U.S. Current-Account and Component Balances



Source: BEA

World Trade Volume (Exports of Goods)

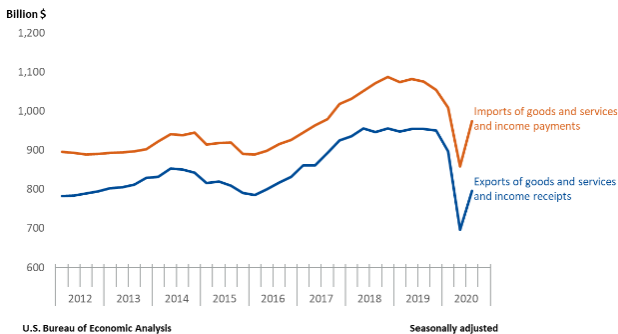
Growth in world exports of goods.



Data Source: <https://ourworldindata.org/trade-and-globalization>

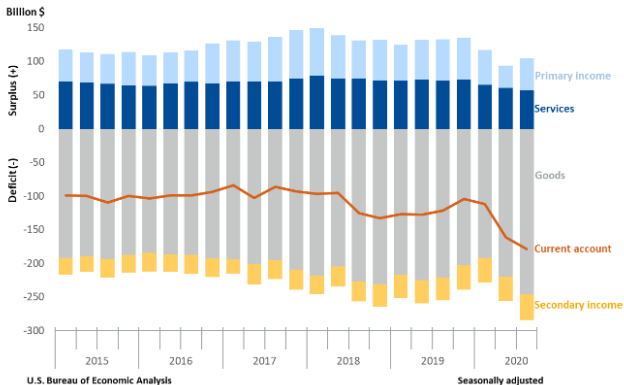
(see animation, and world exports relative to GDP)

U.S. Exports and Imports (Goods and Services)



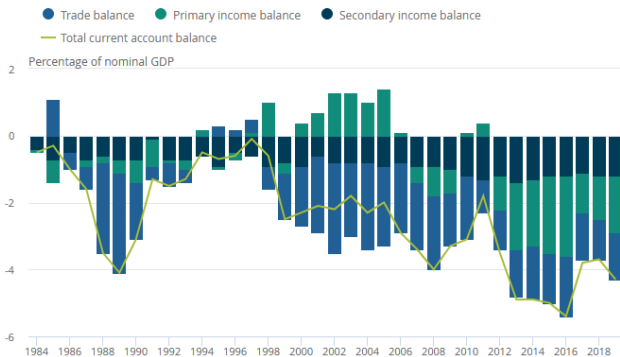
Source: https://www.bea.gov/sites/default/files/2020-12/trans320_0.pdf

US CA Components (Quarterly Rates)



Source: https://www.bea.gov/sites/default/files/2020-12/trans320_0.pdf

UK CA Components (as % of GDP)



Source: United Kingdom Balance of Payments - The Pink Book 2020

BoP Sub Accounts: CAPITAL AND FINANCIAL ACCOUNT

- ▶ Capital Account
 - ▶ Unilateral Capital Transfers (debt forgiveness, investment grants)
 - ▶ Acquisition/Disposal of IPRs
- ▶ Financial Account (Private)
 - ▶ Direct Foreign Investment
 - ▶ Portfolio Investment (long term and short term)
- ▶ Financial Account (ORT) (gold, IMF credits and SDRs, foreign exchange reserves)
 - ▶ Changes in domestic assets held by foreign monetary authority
 - ▶ Changes in foreign assets held by domestic monetary authority
- ▶ Statistical Discrepancy (reported in Financial Account)

Official Settlements Balance

Official Settlements Balance = -ORT
Sometimes called *the balance of payments*.

BoP Example: Imports

You import a DVD of Japanese anime by using your debit card. (Say, *Howl's Moving Castle* (2004) by the famous Japanese filmmaker Hayao Miyazaki.)

The Japanese producer of anime (Studio Ghibli) deposits the money in its bank account in San Francisco.

The bank credits the account by the amount of the deposit.

US BoP Accounts	Amount
Current Account	-\$30
Financial Account	+\$30

BoP Example: Securities

You invest in the Japanese securities market by buying \$5000 in Sony bonds.

Inflow of value: You acquire the foreign bond

Outflow of values: You pay with a check that Sony deposits in its NY bank account. The bank credits the account of the foreign resident by the amount of the deposit.

US BoP Accounts	Amount
Financial Account (bond acquired)	-\$5000
Financial Account (deposit ownership)	+\$5000

BoP Example: Debt Forgiveness

A US bank forgives a \$20M debt owed by the government of Argentina.

Outflow of value (credit): forgiveness means that value flows from the US bank to the Argentine government.

But what is the other half (debit) side of the transaction?

It is handled as an accounting convention and recorded in the Capital account.

US BoP Accounts	Amount
Capital Account (debt forgiveness)	-\$20M
Financial Account (deposit ownership)	+\$20M

Net International Investment Position (IIP)

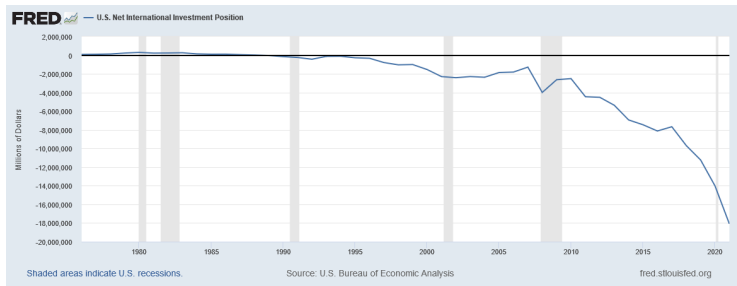
Net International Investment Position (IIP) net foreign assets
(foreign assets - foreign liabilities)

Foreign assets held by the US have grown since 1980, but US liabilities (our debt held by foreigners) have grown more quickly. By the end of 2017, the US international investment position was -\$7725 B. The US has the most negative net foreign wealth in the world, and is therefore the world's largest debtor nation.

Data Source:

<http://www.bea.gov/data/intl-trade-investment/international-investment-position>

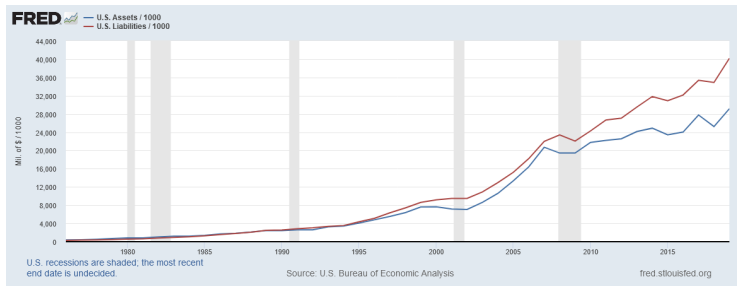
U.S.: NIIP



Source: FRED

(<https://fred.stlouisfed.org/graph/?g=AjTI>)

Gross International Investment Positions



FRED Series: IIPUSASSA and IIPUSLIAA

(<https://fred.stlouisfed.org/graph/?g=AjYH>)

Gross IIP / GDP

Both assets and liabilities have grown over time

1976

- ▶ foreign assets = 25% of GDP
- ▶ foreign liabilities = 16% of GDP

2006

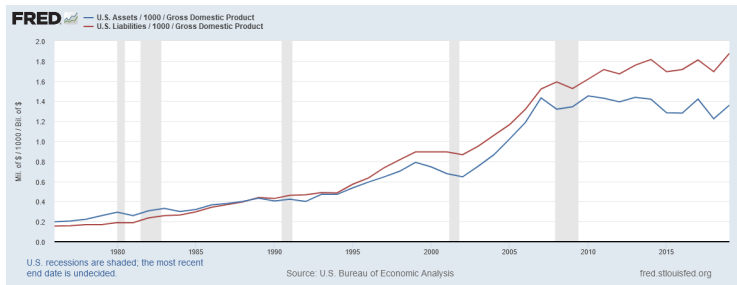
- ▶ foreign assets = 104% of GDP
- ▶ foreign liabilities = 123% of GDP

2018

- ▶ foreign assets = \$27.6T (135% of GDP)
- ▶ foreign liabilities = \$35.5T (174% of GDP)

Source: http://www.bea.gov/system/files/2018-08/intinv118_0.pdf

Gross IIP / GDP



FRED Series: IIPUSASSA, IIPUSLIAA, and GDP
(<https://fred.stlouisfed.org/graph/?g=AjZt>)

Net International Investment Position

NIIP was measured at "historical value" until 1991.

- ▶ original purchase price

BEA now uses *two* different measures affected by capital gains and losses

current cost cost today of same direct investment

market value price at which assets could be sold

Changes in the NIIP

NIIP is affected by:

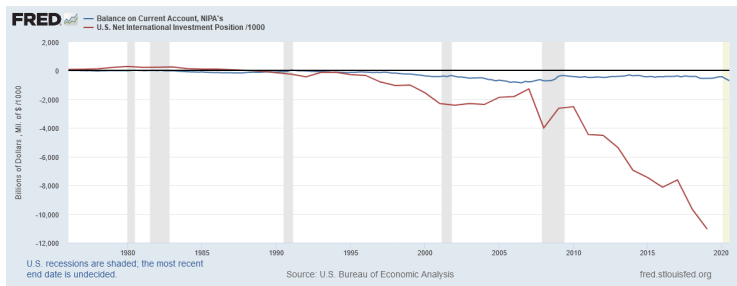
- ▶ current account (net flow of foreign asset accumulation)
- ▶ capital gains and losses:
 - ▶ changes in asset prices in own currency
 - ▶ exchange rate changes -> changes in domestic price

NIIP and CA

The US current account in 2013 was -\$400 B: US net foreign wealth continued to decrease.

Source: <http://www.bea.gov/newsreleases/international/intinv/intinvnewsrelease.htm>

U.S. CA and NIIP



Compare to: fig 2.2 of [Krugman.Obstfeld.Melitz-2018-PrenticeHall].

Source: FRED

(<https://fred.stlouisfed.org/graph/?g=AjV4>)

Major Foreign Holders of US Treasuries

[https://home.treasury.gov/data/
treasury-international-capital-tic-system-home-page/
tic-forms-instructions/
securities-b-portfolio-holdings-of-us-and-foreign-s](https://home.treasury.gov/data/treasury-international-capital-tic-system-home-page/tic-forms-instructions/securities-b-portfolio-holdings-of-us-and-foreign-s)

Investment Income: A Puzzle

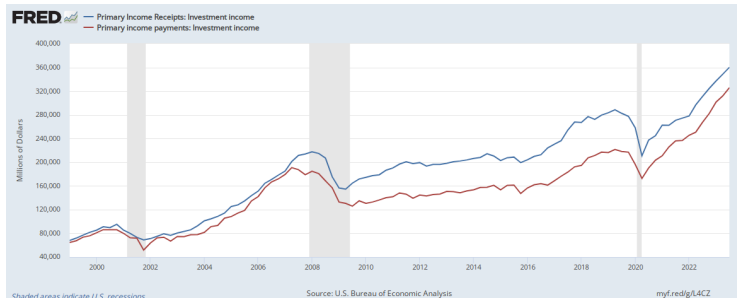


Image Source: FRED (<https://fred.stlouisfed.org/graph/fredgraph.png?g=L4CZ>)

Investment Income: A Puzzle

In 2014Q1, the US ran a surplus on Investment Income.

- ▶ Income receipts were about \$196.5B.
- ▶ Income payments were about \$147.7B.
- ▶ Net income receipts were about \$48.8B.

How can the US NIIP be so negative, yet we have this surplus?

- ▶ Mismeasurement of the NIIP? (But still ... !)
- ▶ Differing rates of return on assets and liabilities.
- ▶ Relative return: Higgins (2005) argues that our FDI has a much higher rate of return.
- ▶ Portfolio composition: our accumulated net FDI position is very positive.

Source: BEA's June 18 news release

Net International Investment Position

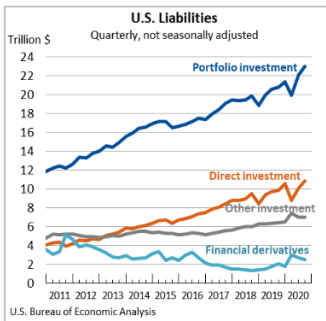
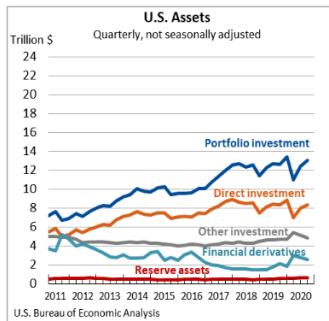
Large gross positions but denomination differs

- ▶ liabilities almost all in dollars
- ▶ assets 70% in foreign currencies
- ▶ so exchange rate changes -> large change in net dollar position

2006 based example for hypothetical 10% depreciation:

- ▶ $10\% \times (70\% \times 104\%) = 7.3\%$
- ▶ $7.3\% \times \text{GDP} = 7.3\% \times \$13.2\text{T} = \$964\text{B}$
- ▶ bigger than CA deficit

Composition of IIP



Source: BEA (<https://www.bea.gov/sites/default/files/2020-12/intinv320.pdf>)

CA vs. Change in NIIP: Another Puzzle

CA and NIIP (US, \$billions)

NIIP 2009 (eop)	-2,738
NIIP 2008 (eop)	-3,494
change in NIIP	756
CA 2009	-378

Q: How can we have $CA < 0$ and $\Delta NIIP > 0$??

A: changes in asset prices (as measured in own currency)

- ▶ capital gains on foreign assets (given E)
- ▶ depreciation of E

References

See the syllabus.