

Lecture 2

Michael Chirico

June 1, 2016

Definition of GDP

GDP is defined in our text as “market value of the final goods and services produced in an economy [in a given year]”.

Entity	GDP (\$ USD, Billion)	Equivalent Countries
USA	\$17,000	-
China	\$10,000	-
Japan	\$4,600	-
Germany	\$3,900	-
Tokyo	\$1,900	Russia, India
NYC	\$1,500	Australia
LA	\$800	Turkey, Saudi Arabia
Seoul	\$700	Switzerland
Paris	\$700	
Chicago	\$600	Sweden, Argentina
Philadelphia	\$400	Colombia, UAE, Thailand
Shanghai	\$400	
Beijing	\$300	Singapore, Malaysia
Xi'an	\$100	Morocco, Angola

All numbers taken from Wikipedia; none are at PPP

Production = Expenditure = Income

Modified example from book: production on a durian farm

Production

Count total durian production

Expenditure

Count sales at the roadside durian stand

Income

Count income earned

Expenditure Approach

$$Y = C + I + G + X$$

Where

- Y = GDP
- C = consumption
- I = investment
- G = government purchases
- X = net exports: exports - imports

Breakdown in the US (textbook):

TABLE 2.1

The Expenditure Approach to U.S. GDP in 2012

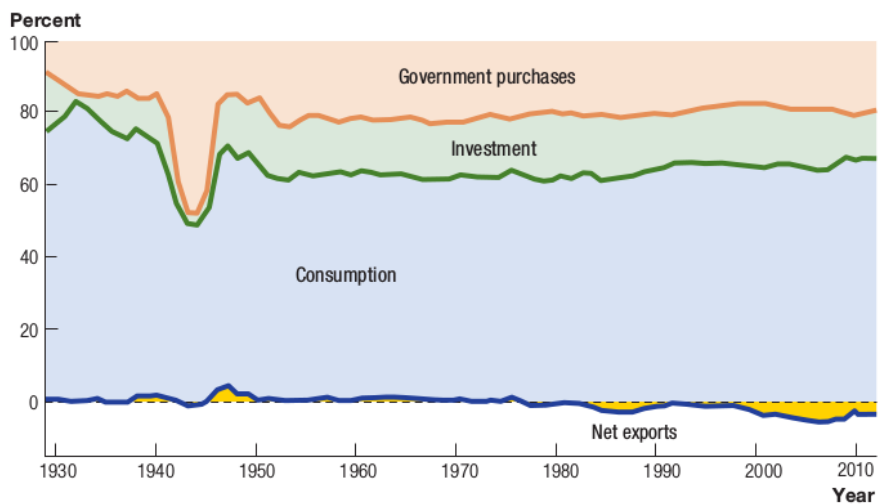
	Total (billions of dollars)	Share of GDP (percent)	Per person (dollars)
Gross domestic product	15,680	100.0	50,140
Personal consumption expenditures	11,120	70.9	35,560
Motor vehicles and parts	410	2.6	1,300
Food	830	5.3	2,650
Housing	1,970	12.6	6,290
Medical care	1,820	11.6	5,810
Gross private domestic investment	2,060	13.1	6,580
Structures (nonresidential)	460	2.9	1,470
Equipment and software	1,160	7.4	3,700
Residential	380	2.4	1,220
Government purchases	3,060	19.5	9,790
National defense	810	5.2	2,590
Net exports of goods and services	-560	-3.6	-1,790
Exports	2,180	13.9	6,980
Imports	2,740	17.5	8,770

Source: U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov.

Evolution over time (textbook):

FIGURE 2.1

Composition of U.S. GDP



Source: U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov.

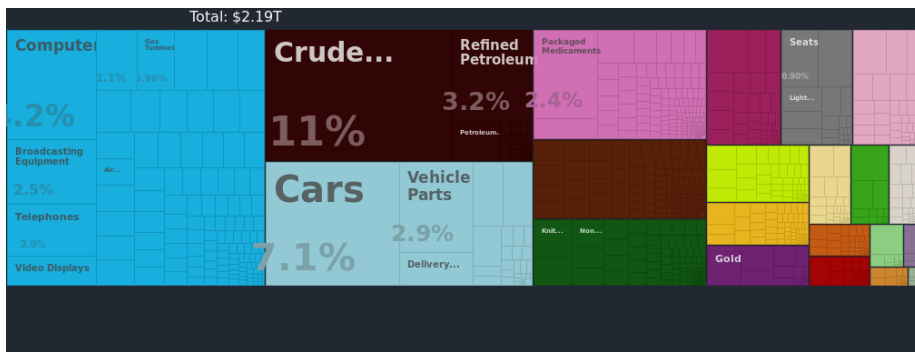
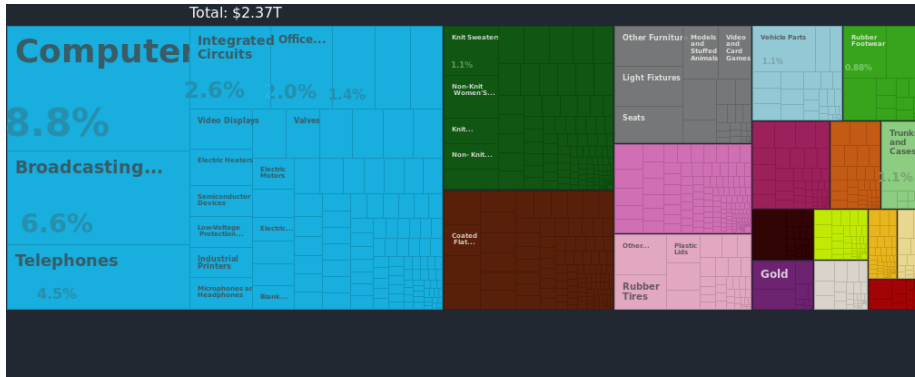
Breakdown of Exports, China & USA

There's an excellent website, The Observatory of Economic Complexity, run by Alex Simoes at MIT, which gives a wealth of data on countries' economies, especially imports/exports: <http://atlas.media.mit.edu/en/>

In addition to breaking down economies by country, it gives a lot of information about import-export networks (trade flows, which countries are receiving from/giving to which countries, and how much) and even about specific products (so you can understand better where certain raw materials are typically produced and follow their supply chain).

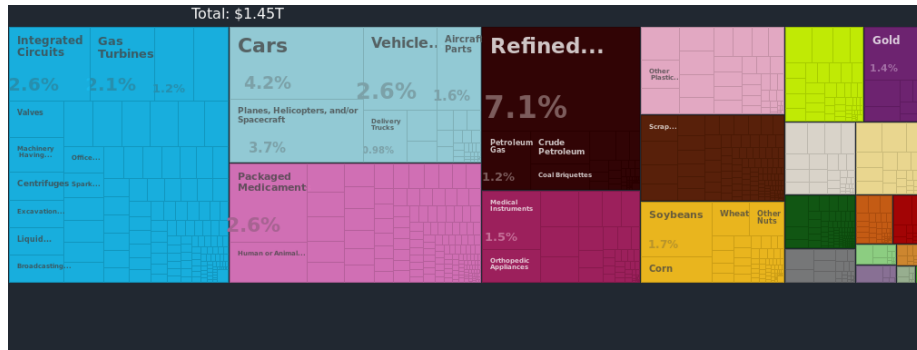
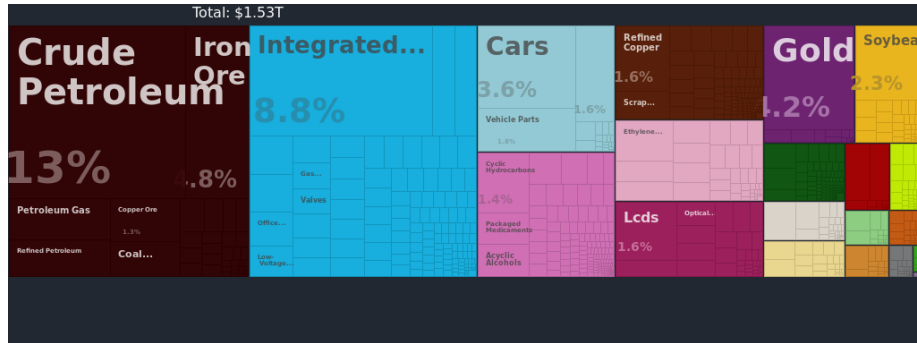
Here is a comparison of imports/exports for China and the US

Imports



Can you guess which is China and which is the US?

Exports



Income Approach

Every dollar paid is a dollar earned.

About depreciation: if we exclude depreciation, we get the *net domestic product*. We don't really measure it – it's there to ensure the balance of the different approaches to measuring GDP.

Production Approach

A hotpot restaurant buys ¥1000 of chili peppers and oil from one farmer, ¥1000 of beef from another, ¥1000 of mushrooms from another, and ¥1000 of Tsing-tao from a beer distributor. They sell all of this for ¥50000. What is the contribution of GDP of all of this?

If we chose ¥54000, we'd be double counting. GDP only includes the ¥50000 sale of *final goods and services* by the restaurant.

TABLE 2.2

The Income Approach to U.S. GDP in 2012

	Total (billions of dollars)	Share of GDP (percent)	Per person (dollars)
Gross domestic product	15,680	100.0	50,140
Compensation of employees	8,570	54.7	27,410
Wages and salaries	6,890	43.9	22,020
Benefits	1,690	10.8	5,390
Taxes less subsidies on businesses	1,070	6.8	3,420
Net operating surplus of businesses	4,030	25.7	12,870
Depreciation of fixed capital	2,010	12.8	6,430

Source: U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov.

An alternative way to think of this is through a **value-added** approach. Each farmer and the beer distributor contributed ¥1000 to GDP; the restaurant only added ¥46000, so that is their contribution.

Subtleties of GDP Measurement

GDP does *not* include private services/value-added. There's no way to count your family's herb garden towards GDP unless it is involved in an officially recorded market transaction.

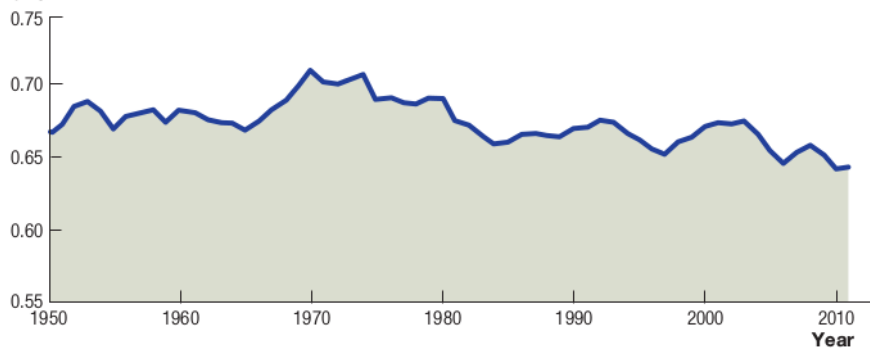
How much does US GDP rise in each of the following scenarios?

- You spend \$5,000 on tuition
- You buy a used car from a friend for \$2,500
- The government spends \$100 million building a dam
- Two foreign graduate students working as teaching assistants in the US earn \$5,000 each

FIGURE 2.3

Labor's Share of GDP

**Labor's share
of GDP**



Source: U.S. Department of Commerce and author's calculations.