

Econ 1115: Principles of Macroeconomics

Lecture 7: GDP, National Income and Statistics

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Public Goods

Public goods are non-rivalrous and non-excludable.

	Excludable	Non-excludable
Rivalrous	Private goods	Common goods
Non-rivalrous	Club goods	Public goods

The "free-rider" problem

Examples of public goods

- Fireworks

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- Lighthouses

Which of the following is an example of the free-rider problem?

- a. Both JD and Turk receive low-cost dental care at the local dental school, so neither of them pays the full cost of the care.
- b. Andy owns Champion, a large three-legged dog who barks whenever anyone walks near his house. Leslie lives next to Andy, and Champion's barking can be heard whenever anyone walks near her house, too. Thus, Leslie receives free protection from burglars because of Champion's barking.
- c. Kimmy purchases a hot dog at Five Guys and gets a second one for free because the restaurant is having a buy one, get one free sale.

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Answer: b

Outline

1 Taxes

2 GDP

- Definition
- Real vs Nominal

Taxes

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- In the case of negative externalities, a tax can be imposed on the consumption or production of the good
- Alternatively taxes can be imposed on income.
- Ideally, the tax revenues are then used to compensate or clean up after the externalities.

Subsidies

When markets fail in the presence of positive externalities, governments can intervene by providing subsidies.

A positive externality essentially means the free-market equilibrium quantity is too low.

Regulations

Instead of taxes or subsidies, the government can also enact new regulations.

Economists prefer taxes and subsidies over regulation.

Suppose that flu shots create a positive externality equal to \$8 per shot. Now if government offers a \$12 per shot subsidy to producers, what is the relationship between the equilibrium quantity and the socially optimal quantity of flu shots produced?

- a. They are equal.
- b. The equilibrium quantity is greater than the socially optimal quantity.
- c. The equilibrium quantity is less than the socially optimal quantity.
- d. There is not enough information to answer the question.

Externalities

Quantity	Private Value	Private Cost	External Cost
	\$	\$	\$
1	14	10	2
2	13	11	2
3	12	12	2
4	11	13	2
5	10	14	2
6	9	15	2
7	8	16	2

What is the market equilibrium?
What is the socially optimal equilibrium?

Which of the following might cause the supply curve for an inferior good to shift to the right?

- a. an increase in input prices
- b. a decrease in consumer income
- c. an improvement in production technology that makes production of the good more profitable
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Answer: c. an improvement in production technology that makes production of the good more profitable

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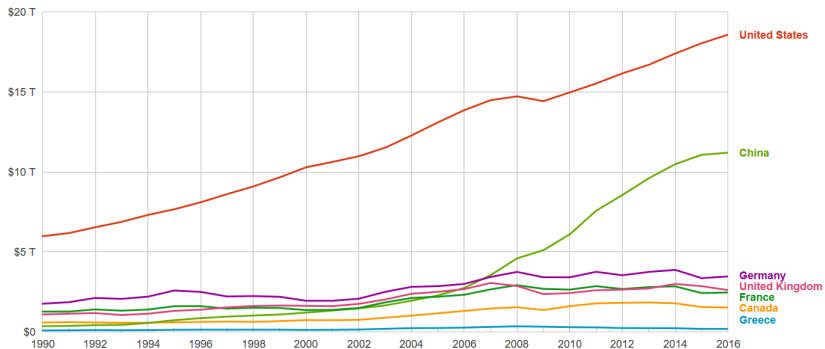
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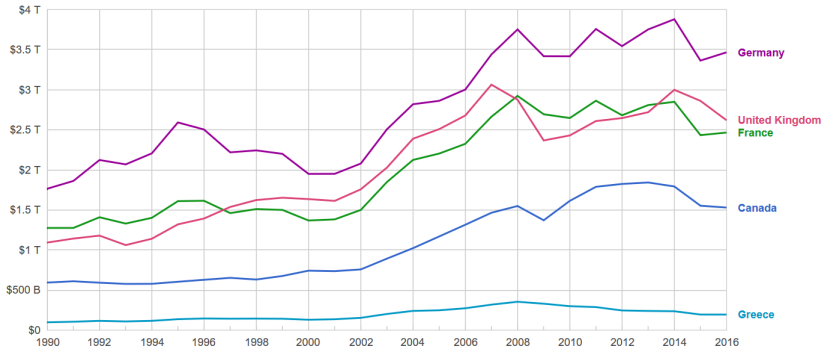
2 GDP

- Definition
- Real vs Nominal

Macroeconomics starts now.

So why is GDP important?





Questions we will be answering today.

- What is GDP?
- How do we measure GDP?
- What are the components of GDP?
- How is GDP related to a country's standards of living?

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- Increase in GDP is **Economic Growth!**

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- What about goods and services that become cheaper over time.
- Can you think of examples of such activities?
- Doing your own laundry, garden, or DIY project, favors for your friend etc.
TVs which are now being discounted in anticipation a new model coming out in the summer.

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- Final goods vs intermediate goods

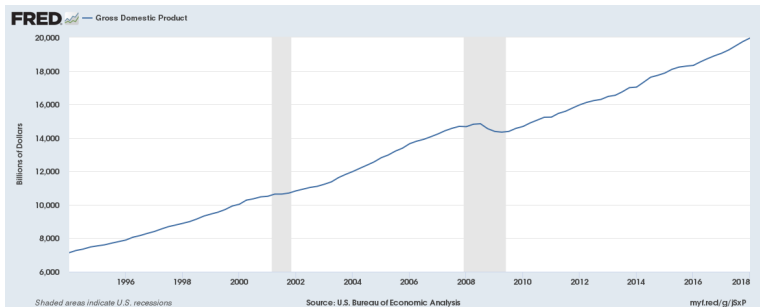
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- In a year's time, but also could be in a quarter.

US GDP in the last few decades



Three ways to measure GDP

1 Output

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- 1 Output
- 2 Income

Three ways to measure GDP

- 1 Output
- 2 Income
- 3 Expenditure

Components of GDP

The components of GDP are

- Consumption (C)
- Investment (I)
- Government Spending (G)
- Net Exports = Exports - Imports (X-M)

These add up to GDP.

$$\text{GDP} = C + I + G + (X-M)$$

Consumption

Total spending by households.

It includes durables, don-durables and services purchased by households. Such as haircuts (services), ovens (durables), and kiwis (non-durables).

The following are other examples of consumption

- When Natasha pays rent on her apartment.
- When Evan buys an iPad.

Investment

- Investment is the total spending to create more capital goods in the economy. Includes purchases of durables, non-durables and services by businesses.
- Includes business spending on factories, equipment etc.
- Also includes investment into building new houses.
- The storage of unsold goods in warehouse (inventory) is also considered investment.

Government Spending

All spending on goods and services by every level of government.
(Federal, State and Local).

Does not include transfer payments.

Net Exports

Net Exports = Exports - Imports

Exports:

Imports:

Example problem

If I am a strawberry producer in the US, and I sold my strawberries for \$100, then would that increase US GDP? If it did, what component of GDP is it?

- Henry purchases a \$ 500 Swiss watch.

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- Dan buys a plot of land for \$100,000.

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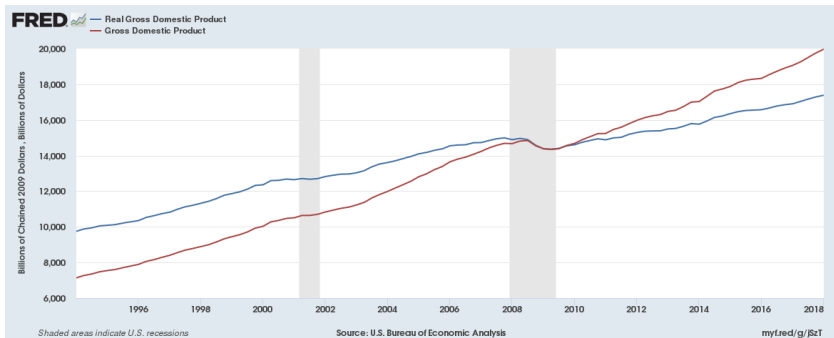
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- The earlier TV which might have sold for \$750 in 2015 will be valued at \$750 if we are calculating real GDP at 2015 prices.
- 2015 is our base year.

Real vs Nominal GDP



GDP Deflator

GDP deflator: A measure of the overall level of prices.

$$\text{GDP Deflator} = 100 \times \text{Nominal GDP} / \text{Real GDP}$$

Measures the current level of prices relative to the level of prices in the base year.

Can be used to calculate the inflation rate (the change in price levels from one year to the next).

GDP as a measure of well-being

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- Real GDP per capita to make comparisons across time