

# Principles of Macroeconomics

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Calculate GDP in this simple economy:

Consumer purchases: \$100 per year

Investment purchases: \$50 per year

Government purchases: \$20 per year

Total exports: \$50 per year

Total imports: \$70 per year

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b.) One year, he learns of a tribe on a nearby island who are willing to trade with him:

If he gives fish, they give clams. He produces just as much as before, but he trades 500 of the 2,000 fish and receives 10,000 clams valued at 5 clams per British pound. What is the British pound value of the exported fish? Of the imported clams?

What are C, I, and X now? What is GDP now?

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Are the following included in U.S. GDP? Briefly explain why or why not:

- Used textbooks sold at your college bookstore
- Used books sold at a garage sale
- Cars made in the United States at a Toyota factory
- Cars made in Germany at a General Motors factory
- The price paid by a German tourist when staying at a New York hotel
- The price paid by an American tourist staying at a Berlin hotel
- A ticket for a Yankees game

a.) Initially he is stuck on an island without the wisdom and local knowledge of Friday.

Because Crusoe is a proper Englishman, he wants to keep his accounts.

This year, he catches and eats 2,000 fish valued at one British pound each, grows and eats 4,000 coconuts valued at £0.5 each, and makes 2 huts (housing) valued at £200 each.

If government purchases are zero and there is no trade, what is C for Crusoe? What is I? What is Y?

c.) The following year, Crusoe produces the same as in every other year, but a tribe on the other side of the island steals his two huts after he makes them, and gives him nothing in return. So he exports, but does not import at all. What are C, I, X, and Y now?

d.) In Crusoe's final year on the island, he produces the same as in every other year (he's a reliable worker), but a new shipwreck washes up on his island containing a clock worth £3, a new shirt worth £2, and a copy of Milton's Paradise Lost and Shakespeare's complete works, each worth £1. Treat these as imported consumer goods. What is GDP this year? (Note: Emphasize the "P" in GDP when considering your answer.) What are C, I, X, and Y this year?

e.) Is Crusoe probably happy about what happens in question c? Is he probably happy about what happens in question d?

## The Income Approach

What is the national income identity?

- ▶ Aggregate income is the total income earned by citizens and businesses in a country in a year
  - ▶ Aggregate income consists of:
    - ▶ Employee compensation
    - ▶ Rent
    - ▶ Interest
    - ▶ Profits
- ▶ Aggregate income = Employee compensation + Rents + Interest + Profits

Consider the following two claims. The first would be a typical statement at the magazine The Nation, while the second would be a typical statement at the magazine National Review:

Europeans have strong labor unions, so their workers get a bigger share of the pie than American workers.

Since European businesses are highly regulated, they have little incentive to make big profits. Therefore, they get a much smaller share of national product than American workers.

It is true that Europeans have stronger labor unions than Americans, and it is true that European businesses face higher regulatory burdens than American businesses. But with that in mind, what is wrong with these two statements? What fact are they ignoring? And what does that fact tell us about what strong unions and high levels of government regulation can't do?

## Aggregate Income Breakdown

Country	Aggregate Income (billions)	= Employee compensation	+ Rents	+ Interest	+ Profits
U.S.	\$14,129	71%	1%	6%	22%
Japan	\$4,294	73%	2%	2%	23%
Germany	\$2,928	73%	2%	6%	19%
U.K.	\$2,213	62%	4%	3%	30%
Canada	\$1,270	68%	8%	6%	18%
Sweden	\$341	64%	4%	13%	19%

# Equality of Income and Expenditures

- ▶ Whenever a good or service is produced (output), somebody receives an income for producing it

Aggregate Income  $\equiv$  Aggregate Production

- ▶ This aggregate identity allows us to calculate GDP either by adding up all values of final outputs (C, I, G, NX) or by adding up the values of all earnings or income (Employee compensation + Rents + Interest + Profits)
- ▶ Profit is a residual that makes the income side equal the expenditures side

Which approach is the right one, looking at GDP as Aggregate Income or Aggregate Production?

# Which Approach is the Right One?

The answer depends on what you want to study:

Want to understand business fluctuations?  
It's worthwhile to study the national spending approach.

Want to study how the income from production is divided amongst people and resources?  
It's worthwhile to focus on the factor income approach.

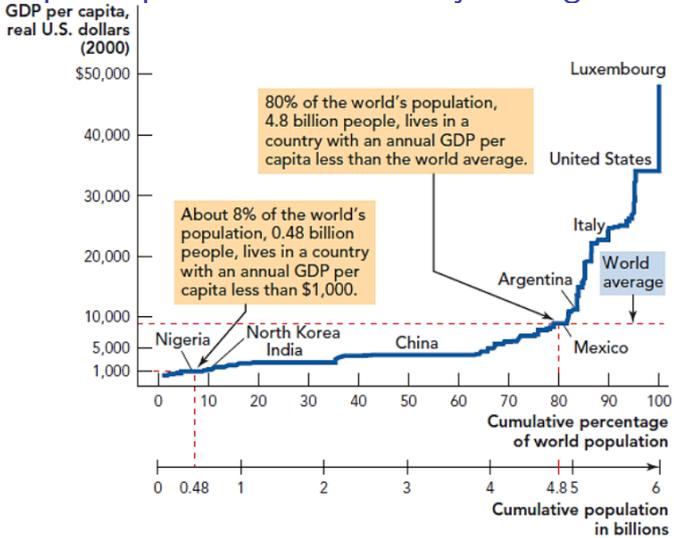
Are there limitations of GDP as a measure of economic well-being? If there are any, what are they?

# Some Limitations of Aggregate Accounting

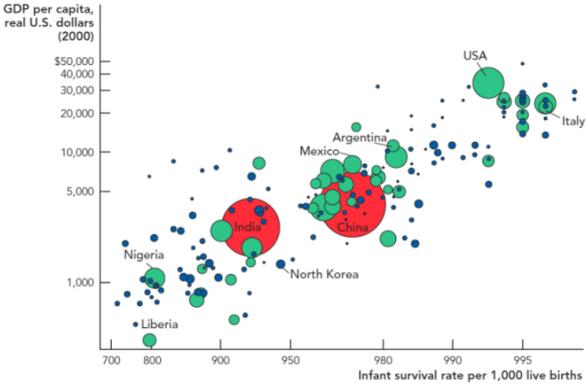
- ▶ GDP measures only official economic activity
- ▶ GDP does not measure happiness, nor does it measure economic welfare
  - ▶ GDP does not count underground activity
  - ▶ GDP does not count nonmarket production
    - ▶ results in biases over time (change from unpaid housework to paid nannies and housekeepers)
    - ▶ results in biases across nations (nonmarket activity is more prevalent in less developed countries)
  - ▶ GDP does not count leisure
  - ▶ GDP does not count Bads (environmental costs like pollution, loss of species, crime)
  - ▶ GDP does not measure the distribution of income

Also read <http://www.economist.com/debate/debates/overview/171>

# GDP per Capita varies enormously among Nations

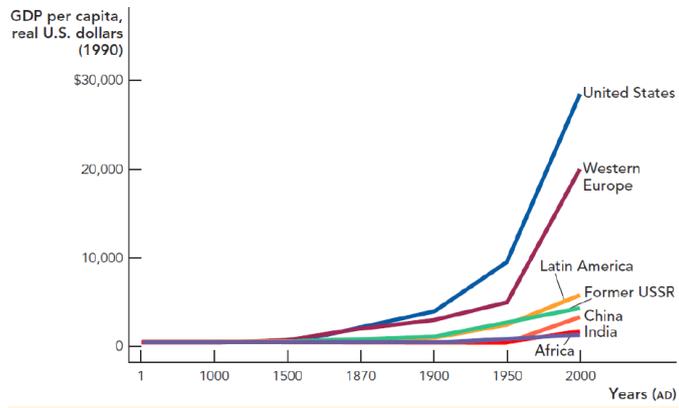


# Wealth and Health go Together

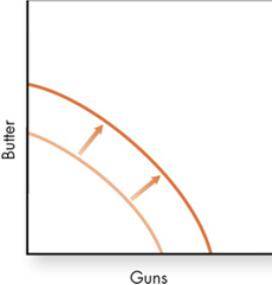


Also watch: [http://www.ted.com/talks/hans\\_rosling\\_shows\\_the\\_best\\_stats\\_you\\_ve\\_ever\\_seen.html](http://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen.html)

# Everyone Used to be Poor



# Growth and the Economy's Potential Output



- ▶ Growth is an increase in potential output
- ▶ Potential output is the highest amount of output an economy can produce from existing production processes and resources

- ▶ Productivity is output per unit of input
- ▶ The long-run growth focus is on how to increase potential output
- ▶ Say's Law is that supply creates its own demand
- ▶ The short-run focus is on how to get the economy operating at its potential

# Per Capita Growth

- ▶ Per capita output is total output divided by total population
- ▶ Per capita growth means the country is producing more goods and services per person

$$\text{Per capita growth} = \% \Delta \text{in output} - \% \Delta \text{in population}$$

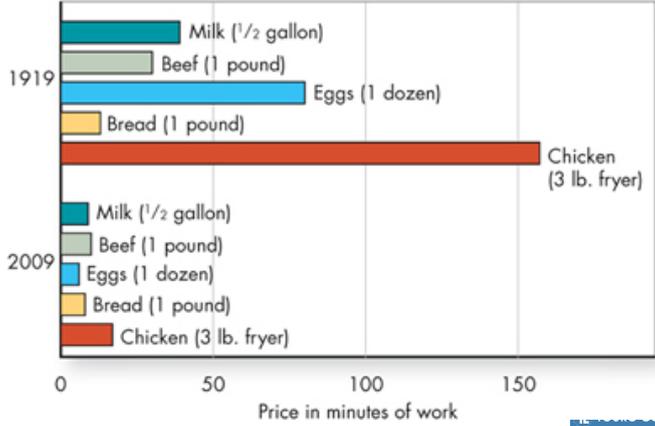
- ▶ Some suggest that median income is a better measure because it takes into account how income is distributed
- ▶ Growth in income improves average living standards
- ▶ Because of compounding, long-term growth rates can make huge differences
- ▶ The rule of 72 states:  
The number of years to double income =  $72 / \text{growth rate}$

# Markets, Specialization, and Growth

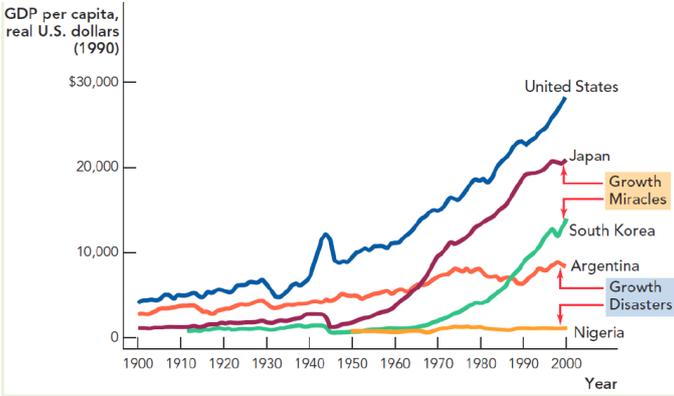
- ▶ Markets, specialization, and the division of labor increase productivity and growth
  - ▶ **Specialization** is the concentration of individuals on certain aspects of production
  - ▶ **Division of labor** is the splitting up of a task to allow for specialization of production
- ▶ Markets may seem unfair because of the effect that they have on the distribution of income
- ▶ Even though growth isn't evenly distributed, it generally raises the incomes of the poor

# Cost of Goods in Hours of Work

Growth has reduced the number of hours the average person needs to work to buy consumer goods



# There are Growth Miracles and Growth Disasters



Consider two countries, A and B, and suppose that both have identical physical endowments of, say, iron ore. But suppose that in country A, any profits that are made from mining the ore are subject to confiscation by the government, while in country B, there is no such risk.

How does the risk of expropriation affect the economic endowment of the two nations? In which nation are people richer?

# Sources of Growth

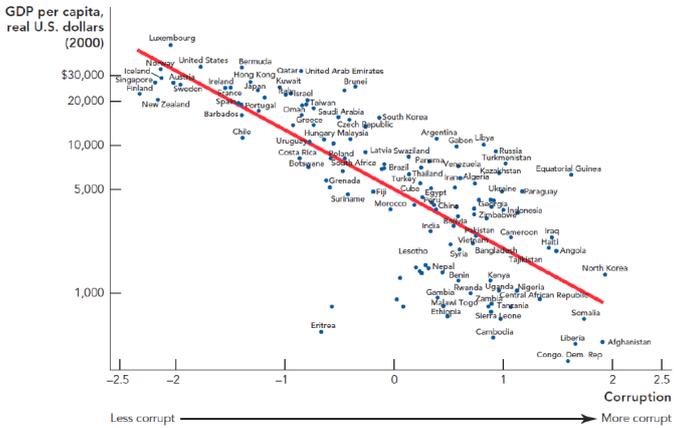
Economists identify five important sources of growth:

1. Growth-compatible institutions
2. Capital accumulation – investment in productive capacity
3. Available resources
4. Technological development
5. Entrepreneurship

# Growth-Compatible Institutions

- ▶ Property rights
  - ▶ Informal property rights limit borrowing by the poor, and hence limit growth
  - ▶ When individuals get much of the gains of growth themselves, they work harder
- ▶ Competitive and open markets
  - ▶ Markets and private ownership of property foster economic growth
  - ▶ Corporations are growth-compatible institutions because of limited liability, which gives stockholders an incentive to invest their savings in large enterprises
- ▶ Honest Government
- ▶ A dependable legal system
- ▶ Political stability

# Corruption and Growth do not go together



How do you explain the fact that in some countries there is widespread political support for government policies that expropriate resources from some groups for the purpose of handing them out to other groups?

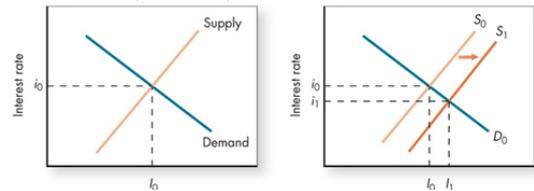
If the crucial factor determining a country's low standard of living is the adverse set of legal and cultural institutions it possesses, can you offer suggestions for how the other nations of the world might help in permanently raising that country's standard of living?

You may want to watch Paul Romer's TED talk "Why the world needs ..."

[http://www.ted.com/talks/paul\\_romer.html](http://www.ted.com/talks/paul_romer.html)

## Investment and Accumulated Capital

- ▶ Although capital is a key element in growth, capital accumulation does not necessarily lead to growth
- ▶ Capital may become obsolete
- ▶ Capital is much more than physical machines & includes:
  - ▶ **Human capital** are skills that workers gain from experience, education, and on-the-job training
  - ▶ **Social capital** is the habitual way of doing things that guides people in how they approach production
- ▶ When the supply of loanable funds (savings) increases, the interest rate falls and the quantity of loanable funds demanded (invested) increases



## Available Resources

- ▶ The growth in the U.S. in the 20th century was due in part to its large supply of natural resources
- ▶ What a resource depends on the production processes of an economy and technology
- ▶ New technology can overcome a lack of resources
- ▶ Greater participation in the market may increase the labor force participation rate

## Technological Development

- ▶ Technology is the way we make goods and supply services
- ▶ Changes in technology and changes in the goods and services we buy fuel growth
- ▶ Advances in technology shift the production possibility curve outward by making workers more productive
- ▶ Important developments in biotechnology, computers, and communications have helped fuel U.S. growth

## Entrepreneurship

- ▶ Entrepreneurship is the ability to get things done using creativity, vision, willingness to accept risk, and a talent for translating vision into reality
- ▶ Entrepreneurs have been central to growth in the U.S.
- ▶ Examples of American entrepreneurs include:
  - ▶ Thomas Edison – generation and use of electricity
  - ▶ Henry Ford – automobile production
  - ▶ Bill Gates – computers and software

## What Causes GDP Growth?

