

# Microeconomics 1

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**Lectures/Seminars:** Friday 13:00-16:50, room  
P312

**Office hours:** online on Saturday 16:00-17:00 per  
request

# Agenda

- Quizzes (10 points)
- 2 homeworks (20 points)
- Class participation (10 points)
- Midterm Exam (30 points): *03.11.2023*
- Final Exam (30 points): *22.12.2023*

# Microeconomics 1

Dali Laxton



Wojciech Gerson (1831-1901)

## Lecture 1

# Ten Principles of Economics





# Why Economics?

## ••• At the professional level:

- How can my firm minimize costs and maximize profits?
- How much price should I charge and how much should I produce?





# Why Economics?

## • At the personal level:

- How can I maximize my average GPA given time constraints?
- Should I quit my job and pursue university education?
- What is a marginal benefit of calling my girlfriend compared to the cost of spent time?



# Why Economics?

The name of spheres of activity	in kroons	EUR (approximately)
Administrating work	23 000 CZK	888
Banking and financial services	36 000 CZK	1 400
Chemistry and Food Industry	35 000 CZK	1 358
Economics and Business	36 000 CZK	1 400
IT and Computer Science	35 000 CZK	1 358
Quality assurance	34 000 CZK	1 316
Human Resources Management	33 000 CZK	1 275
Logistics and Transportation	28 000 CZK	1 066
marketing	36 000 CZK	1 400
Media services, advertising and PR	32 000 CZK	1 233
Procurement	33 000 CZK	1 275
Legal Services	36 000 CZK	1 400
Trade	34 000 CZK	1 316
Services	27 000 CZK	1 025
State structures	21 000 CZK	835
Construction and Real Estate	32 000 CZK	1 333
Engineering	30 000 CZK	1 200
Machinery and electrical	31 000 CZK	1 241
Telecommunications	38 000 CZK	1 483
Creative work and design	30 000 CZK	1 200
Management, TOP-management	67 000 CZK	2 791
industry	30 000 CZK	1 200
Science and Education	25 000 CZK	1 000
Researches	30 000 CZK	1 200
Medicine and Pharmacology	36 000 CZK	1 400
Other	24 000 CZK	900



It pays off ☐

The table shows gross wages in the Czech Republic before paying pension and insurance outlets. The data is retrieved from

<https://www.euroeducation.cz/en/content/36/20>.

# Lecture Today

- Introduction/revision of fundamental principles of economics
- What kinds of questions does economics address?
- What are the principles of how people make decisions?
- What are the principles of how people interact?
- How do Economists think?



# Readings

- Mankiw, Principles of Economics, Chapter 1

# What Economics Is All About

- **Scarcity**: the limited nature of society's resources
- **Economics**: the study of how society manages its scarce resources, e.g.
  - how people decide what to buy, how much to work, save, and spend
  - how firms decide how much to produce, how many workers to hire
  - how society decides how to divide its resources between national defense, consumer goods, protecting the environment, and other needs

*The principles of*

# HOW PEOPLE MAKE DECISIONS



# PRINCIPLE 1

## People Face Tradeoffs

All decisions involve tradeoffs. Examples:

- Going to a party the night before your midterm leaves less time for studying.
- Having more money to buy stuff requires working longer hours, which leaves less time for leisure.
- Protecting the environment requires resources that could otherwise be used to produce consumer goods.

# PRINCIPLE 1

## People Face Tradeoffs

- Society faces an important tradeoff:  
*efficiency vs. equality*
- **Efficiency**: when society gets the most from its scarce resources
- **Equality**: when prosperity is distributed uniformly among society's members
- Tradeoff: To achieve greater equality, could redistribute income from wealthy to poor. But this reduces incentive to work and produce, shrinks the size of the economic "pie."

Even though designating these parking spaces for disabled drivers may not be an efficient use of scarce parking spaces (because they are often not used), many believe it is fair to give these drivers a convenient spot. The debate between efficiency and equality is often heated.



## PRINCIPLE 2

# The Cost of Something Is What You Give Up to Get It

- Making decisions requires comparing the costs and benefits of alternative choices.
- The **opportunity cost** of any item is whatever must be given up to obtain it.
- It is the relevant cost for decision making.



## PRINCIPLE 2

# The Cost of Something Is What You Give Up to Get It

### Examples:

The opportunity cost of...

...waiting in line for “free” event.

...studying at university – not only tuition fee and living costs but also foregone wages.



### **Question:**

What are “best things” that are “free”? Are they really free?

## PRINCIPLE 3

# Rational People Think at the Margin

## Rational people

- systematically and purposefully do the best they can to achieve their objectives.
- make decisions by evaluating costs and benefits of **marginal changes**, incremental adjustments to an existing plan.

During rush hour some drivers will switch into and out of lanes if they perceive one lane is moving faster than another. This is a marginal adjustment. The same is true of lines in a supermarket. People are constantly weighing the marginal benefits and marginal costs of changing lanes and/or lines.



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## PRINCIPLE 3

# Rational People Think at the Margin

### Other Examples:

- When a student considers whether to go to college for an additional year, he compares the fees & foregone wages to the extra income he could earn with the extra year of education.
- When a manager considers whether to increase output, she compares the cost of the needed labor and materials to the extra revenue.



VS.



## PRINCIPLE 4

### People Respond to Incentives

- **Incentive**: something that induces a person to act, i.e. the prospect of a reward or punishment.
- Rational people respond to incentives.

#### Examples:

- When gas prices rise, consumers buy more hybrid cars.
- When cigarette taxes increase, teen smoking falls.

## ACTIVE LEARNING 1

### Applying the principles

You are selling your old car. You have already spent 15,000 CZK on repairs.

At the last minute, the transmission dies.

You can pay 10,000 CZK to have it repaired, or sell the car “as is.”

In each of the following scenarios, should you have the transmission repaired? Explain.

- A.** The value of the car is 40,000 CZK if the transmission works and 25,000 CZK if it doesn't
- B.** The value of the car is 45,000 CZK if the transmission works and 38,000 CZK if it doesn't

## ACTIVE LEARNING 1

### Answers

Cost of fixing transmission = 10,000 CZK

- A.** If transmission works, the value of the car is 40,000 CZK and is 25,000 CZK if it doesn't

Benefit of fixing transmission = 15,000 CZK  
(40,000 – 25,000).

Get the transmission fixed.

- B.** If transmission works, the value of the car is 45,000 CZK and is 38,000 CZK if it doesn't

Benefit of fixing the transmission is only 7,000 CZK.  
Do not pay 10,000 CZK to fix it.



## ACTIVE LEARNING 1

### Observations

- The 15,000 CZK you previously spent on repairs is irrelevant. What matters is the cost and benefit of the *marginal* repair (the transmission).
- The change in incentives from scenario A to scenario B caused your decision to change.

# *The principles of* **HOW PEOPLE INTERACT**



## PRINCIPLE 5

### Trade Can Make Everyone Better Off

- Rather than being self-sufficient, people can specialize in producing one good or service and exchange it for other goods.
- Countries also benefit from trade and specialization:
  - Get a better price abroad for goods they produce
  - Buy other goods more cheaply from abroad than could be produced at home

## PRINCIPLE 6

# Markets Are Usually A Good Way to Organize Economic Activity

- **Market:** a group of buyers and sellers (need not be in a single location)
- “Organize economic activity” means determining
  - what goods to produce
  - how to produce them
  - how much of each to produce
  - who gets them

## PRINCIPLE 6

# Markets Are Usually A Good Way to Organize Economic Activity

- A **market economy** allocates resources through the decentralized decisions of many households and firms as they interact in markets.
- Famous insight by Adam Smith in *The Wealth of Nations* (1776):  
Each of these households and firms acts as if “led by **an invisible hand**” to promote general economic well-being.

## PRINCIPLE 6

# Markets Are Usually A Good Way to Organize Economic Activity

- The invisible hand works through the price system:
  - The interaction of buyers and sellers determines prices.
  - Each price reflects the good's value to buyers and the cost of producing the good.
  - Prices guide self-interested households and firms to make decisions that, in many cases, maximize society's economic well-being.
  - In many cases better option than centralized economy.

## PRINCIPLE 7

# Governments Can Sometimes Improve Market Outcomes

- Important role for government: **enforce property rights**  
(with police, courts)
- People are less inclined to work, produce, invest, or purchase if large risk of their property being stolen.



## PRINCIPLE 7

# Governments Can Sometimes Improve Market Outcomes

- **Market failure:** when the market fails to allocate society's resources efficiently
- Causes of market failure:
  - **Externalities**, when the production or consumption of a good affects bystanders (e.g. pollution)
  - **Market power**, a single buyer or seller has substantial influence on market price (e.g. monopoly)
- Public policy may **promote efficiency**.

## PRINCIPLE 7

# Governments Can Sometimes Improve Market Outcomes

- Govt may alter market outcome to **promote equity**.
- If the market's distribution of economic well-being is not desirable, tax or welfare policies can change how the economic "pie" is divided.

# *The principles of* **HOW THE ECONOMY AS A WHOLE WORKS**



## PRINCIPLE 8

# A Country's Standard of Living Depends on Its Ability to Produce Goods & Services

- Huge variation in living standards across countries and over time:
  - Average income in rich countries is more than ten times average income in poor countries.
  - The U.S. standard of living today is about eight times larger than 100 years ago.

## PRINCIPLE 8

# A Country's Standard of Living Depends on Its Ability to Produce Goods & Services

- The most important determinant of living standards: **productivity**, the amount of goods and services produced per unit of labor.
- Productivity depends on the equipment, skills, and technology available to workers.
- Other factors (e.g., labor unions, competition from abroad) have far less impact on living standards.

## PRINCIPLE 9

# Prices Rise When the Government Prints Too Much Money

- **Inflation:** increases in the general level of prices.
- In the long run, inflation is almost always caused by excessive growth in the quantity of money, which causes the value of money to fall.
- The faster the govt creates money, the greater the inflation rate.

## PRINCIPLE 10

# Society Faces a Short-run Tradeoff Between Inflation and Unemployment

- In the short-run (1–2 years), many economic policies push inflation and unemployment in opposite directions.
- Other factors can make this tradeoff more or less favorable, but the tradeoff is always present.

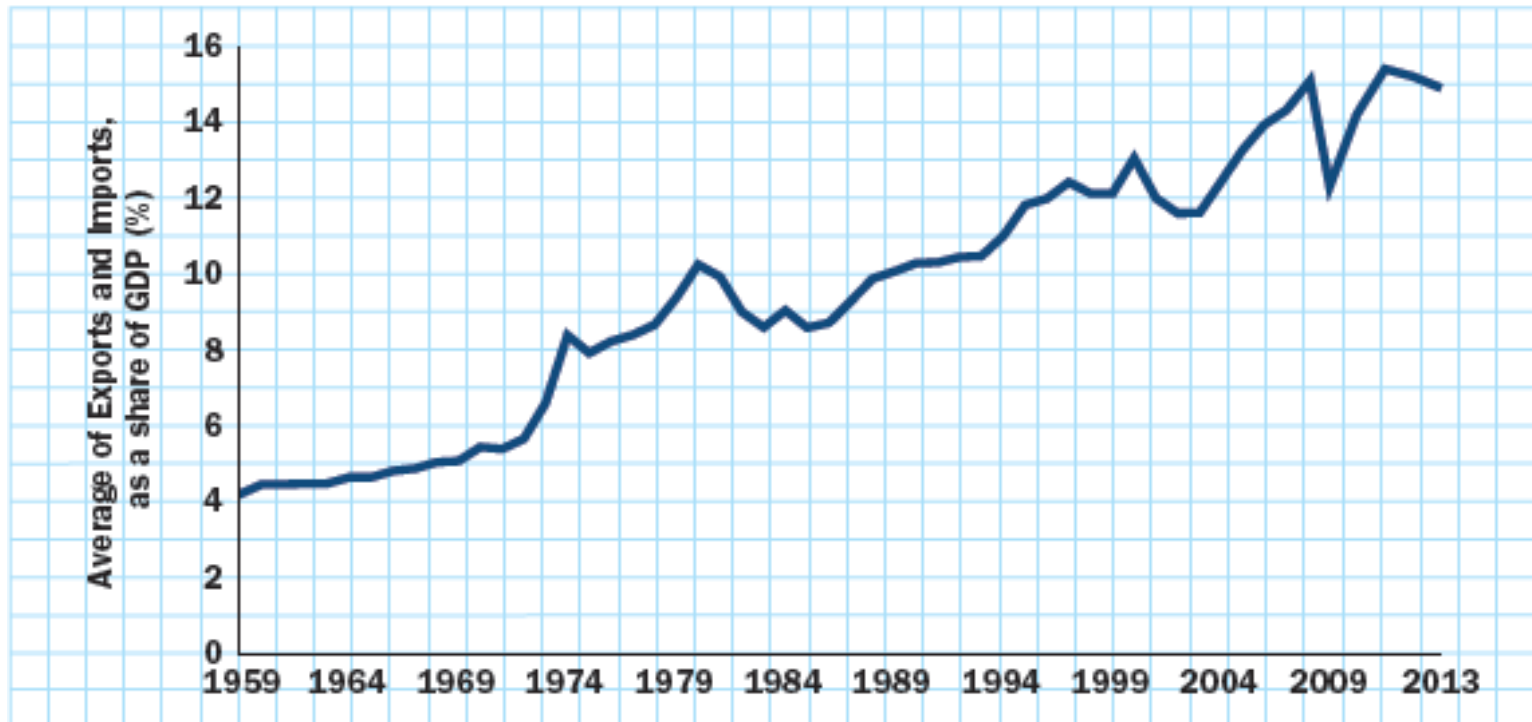


# The Economist as Scientist

- Economists play two roles:
  1. Scientists: try to explain the world
  2. Policy advisors: try to improve it
- In the first, economists employ the **scientific method**, the dispassionate development and testing of theories about how the world works.

# The Economist as Scientist

- Working with data



# The Economist as Scientist

- Providing explanations by building up models.
- Not these ones □



# Assumptions & Models

- **Model:** a highly simplified representation of a more complicated reality.  
Economists use models to study economic issues.
- Assumptions simplify the complex world, make it easier to understand.
- Example: To study international trade, assume two countries and two goods.  
Unrealistic, but simple to learn and gives useful insights about the real world.

# The Role of Assumptions

- Assumptions
  - Can simplify the complex world
    - Make it easier to understand
  - The art in scientific thinking: deciding which assumptions to make
- Different assumptions
  - To answer different questions

# Some Familiar Models

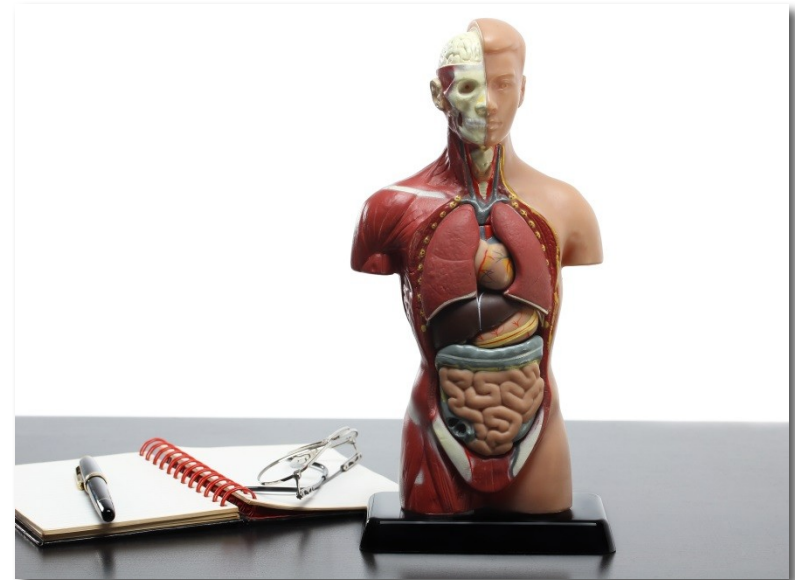


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A road map

# Some Familiar Models

A model of human anatomy from high school biology class



©Accord/Shutterstock.com

# Some Familiar Models



©Olga Rosi/Shutterstock.com

A model airplane



# Some Familiar Models

The model teeth at the dentist's office



© ittipon/Shutterstock.com

# Effective Models

- Includes characteristics that are essential to explore research question.
- Simplifies reality to increase our understanding – neglects redundant dimensions of reality.

## Most economic models

- Diagrams and equation

*Ceteris Paribus* analysis – concentrating in change only one variable fixing all others.

# Summary

The principles of decision making are:

- People face tradeoffs.
- The cost of any action is measured in terms of foregone opportunities.
- Rational people make decisions by comparing marginal costs and marginal benefits.
- People respond to incentives.

# Summary

The principles of interactions among people are:

- Trade can be mutually beneficial.
- Markets are usually a good way of coordinating trade.
- Govt can potentially improve market outcomes if there is a market failure or if the market outcome is inequitable.

# Summary

The principles of the economy as a whole are:

- Productivity is the ultimate source of living standards.
- Money growth is the ultimate source of inflation.
- Society faces a short-run tradeoff between inflation and unemployment.

# Next Lecture

- Demand and Supply Analysis
- Readings: Mankiw, Chapter 1; Production Possibility Frontier part and Appendix from Chapter 2



# The PPF

- Production possibilities frontier
  - A graph: combinations of output that the economy can possibly produce
  - Given the available
    - Factors of production and technology
  - Example:
    - Two goods: computers and wheat
    - One resource: labor (measured in hours)
    - Economy has 50,000 labor hours per month available for production

# PPF Example

Producing one computer requires 100 hours labor.

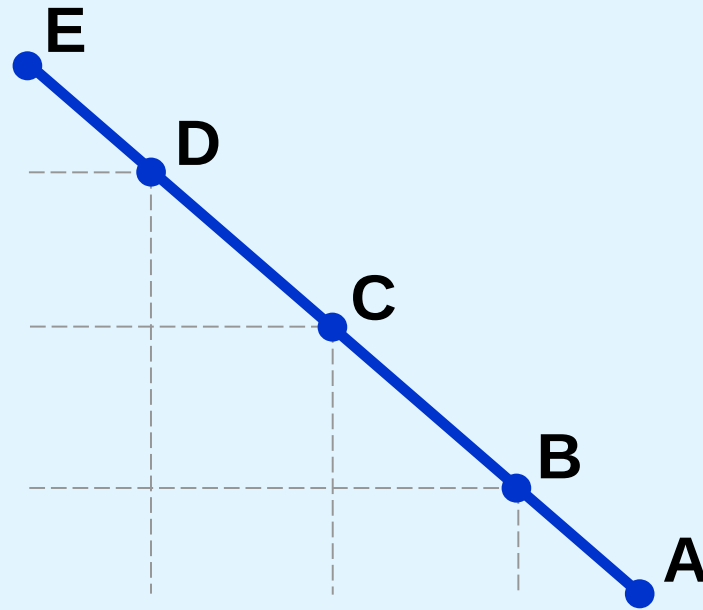
Producing one ton of wheat requires 10 hours labor.

	Employment of labor hours		Production	
	Computers	Wheat	Computers	Wheat
A	50,000	0	500	0
B	40,000	10,000	400	1,000
C	25,000	25,000	250	2,500
D	10,000	40,000	100	4,000
E	0	50,000	0	5,000



# PPF Example

Point on graph	Production	
	Com-puters	Wheat
A	500	0
B	400	1,000
C	250	2,500
D	100	4,000
E	0	5,000



On the graph above, find the point that represents (100 computers, 3000 tons of wheat), label it **F**.

- Would it be possible for the economy to produce this combination of the two goods? Why or why not?

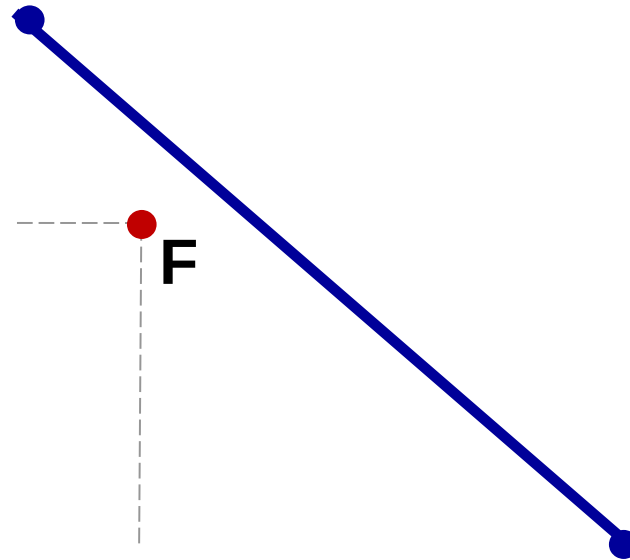
Next, find the point that represents (300 computers, 3500 tons of wheat), label it **G**.

- Would it be possible for the economy to produce this combination of the two goods?

# Active Learning 1

## Answers

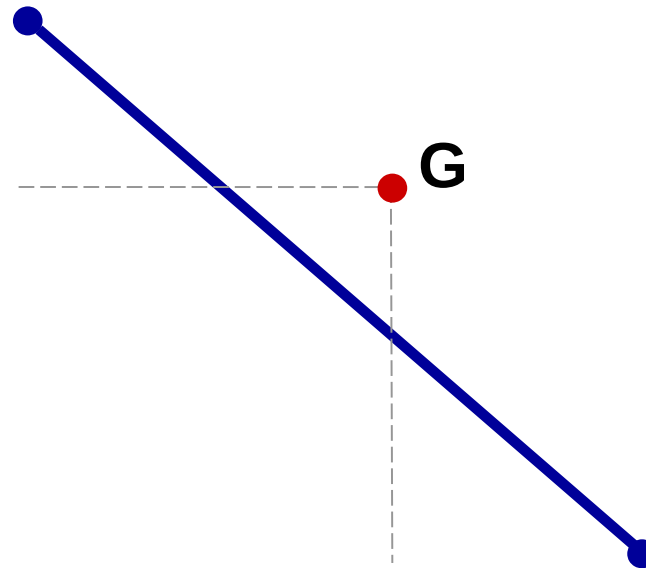
- **Point F:** 100 computers, 3000 tons wheat
- Requires 40,000 hours of labor
- Possible but not efficient: could get more of either good without sacrificing any of the other



# Active Learning 1

# Answers

- **Point G:** 300 computers, 3500 tons wheat
- Requires 65,000 hours of labor.
- Not possible because the economy only has 50,000 hours





# The PPF: What We Know So Far

- Points on the PPF (like A – E): possible
  - Efficient: all resources are fully utilized
- Points under the PPF (like F): possible
  - Not efficient: some resources are underutilized (e.g., workers unemployed, factories idle)
- Points above the PPF (like G)
  - Not possible

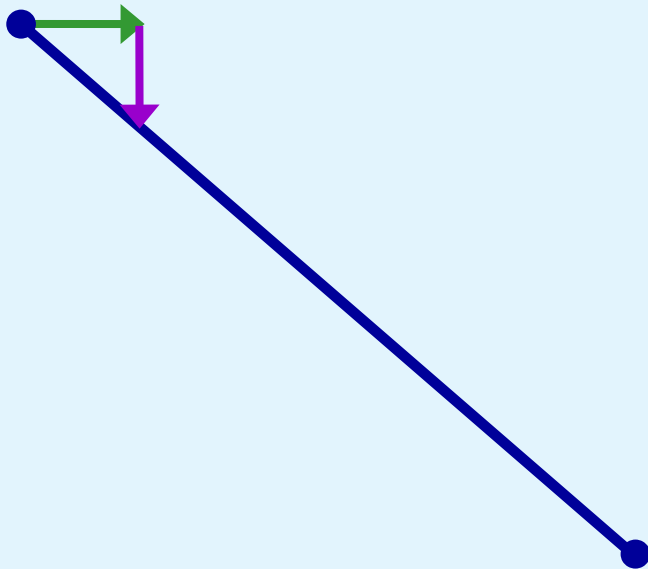


# The PPF

- Moving along a PPF
  - Involves shifting resources from the production of one good to the other
- Society faces a tradeoff
  - Getting more of one good requires sacrificing some of the other
- The slope of the PPF
  - The opportunity cost of one good in terms of the other

# The PPF and Opportunity Cost

$$\text{slope} = \frac{-1000}{100} = -10$$



The slope of a line equals the “**rise** over the **run.**”

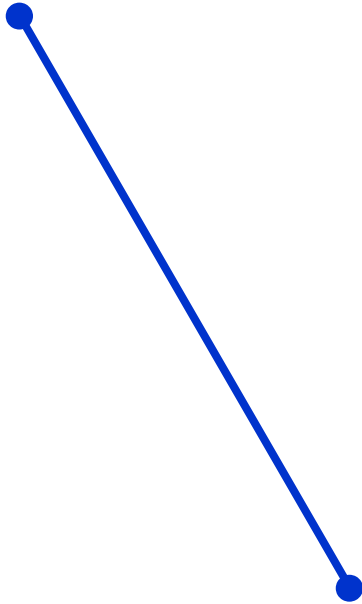
**Opportunity cost** of  
1 computer =  
10 tons of wheat.

## Active Learning 2

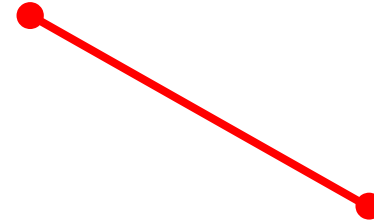
## PPF and Opportunity Cost

In which country is the opportunity cost of cloth lower?

**FRANCE**



**ENGLAND**



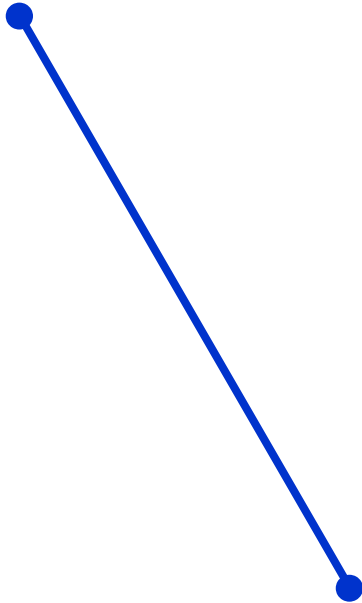


# Active Learning 2

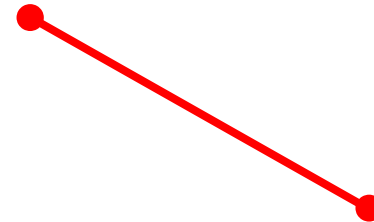
# Answers

England, because its PPF is not as steep as France's

**FRANCE**

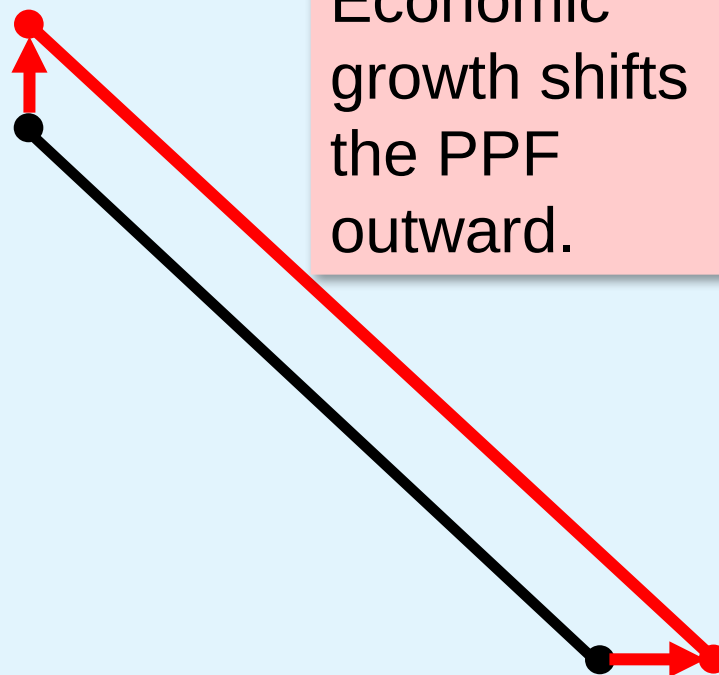


**ENGLAND**



# Economic Growth and the PPF

With additional resources or an improvement in technology, the economy can produce more computers, more wheat, or any combination in between.



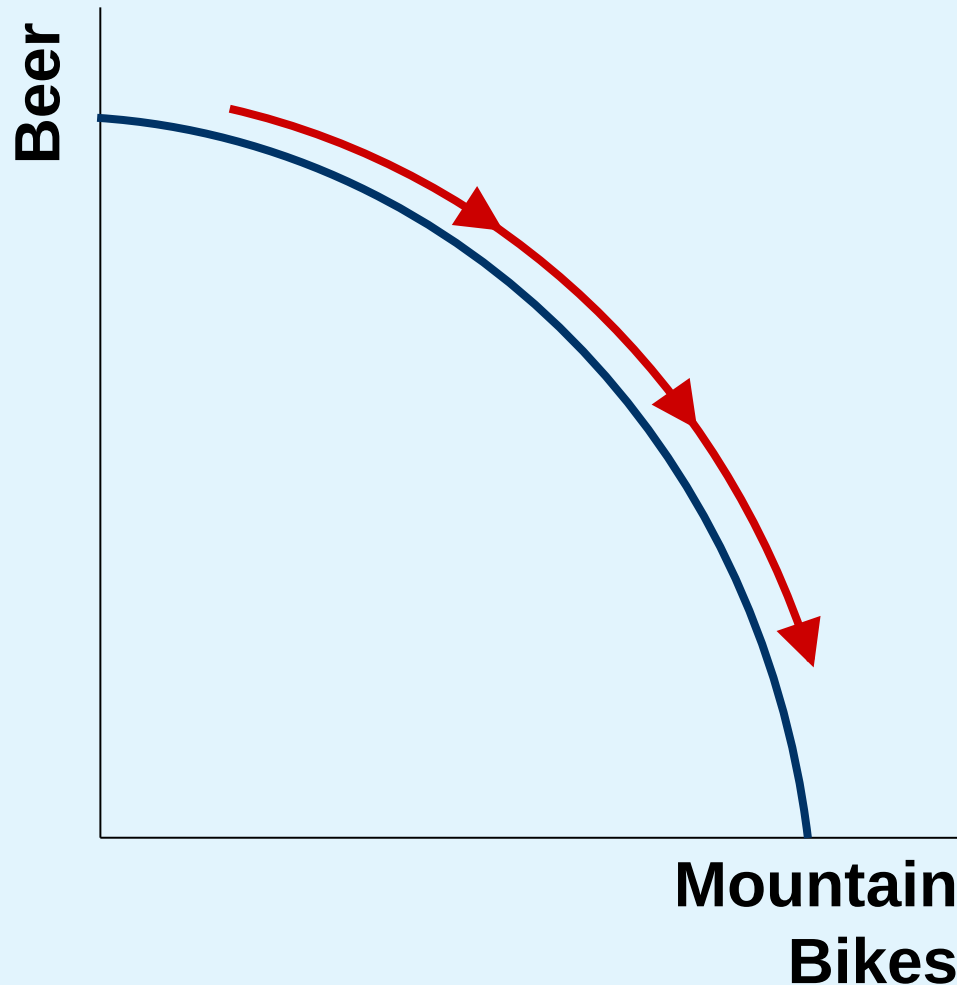
Economic growth shifts the PPF outward.



# The Shape of the PPF

- Shape of the PPF
  - Straight line: constant opportunity cost
    - Previous example: the opportunity cost of 1 computer is 10 tons of wheat
  - Bowed outward: increasing opportunity cost
    - As more units of a good are produced, we need to give up increasing amounts of the other good produced

# Why the PPF Might Be Bowed Outward

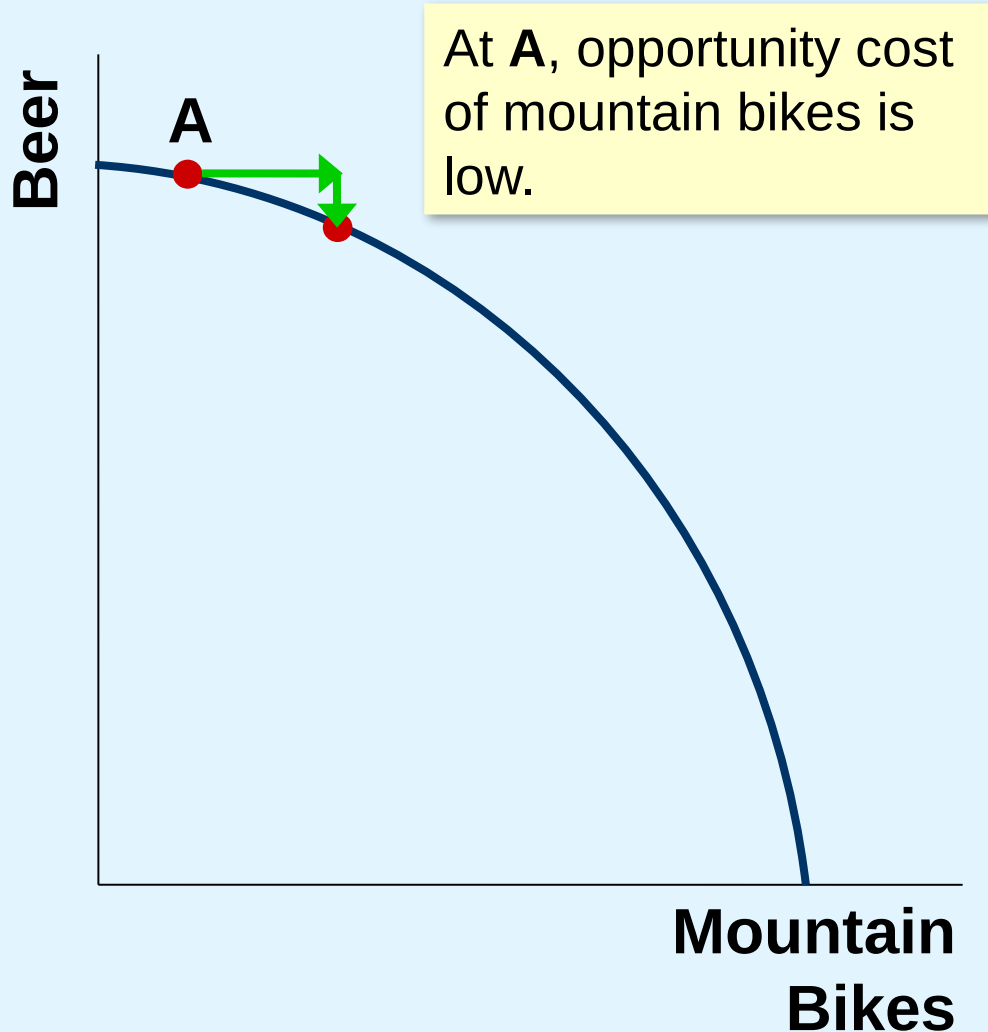


As the economy shifts resources from beer to mountain bikes:

PPF becomes steeper

and the opportunity cost of mountain bikes increases.

# Why the PPF Might Be Bowed Outward

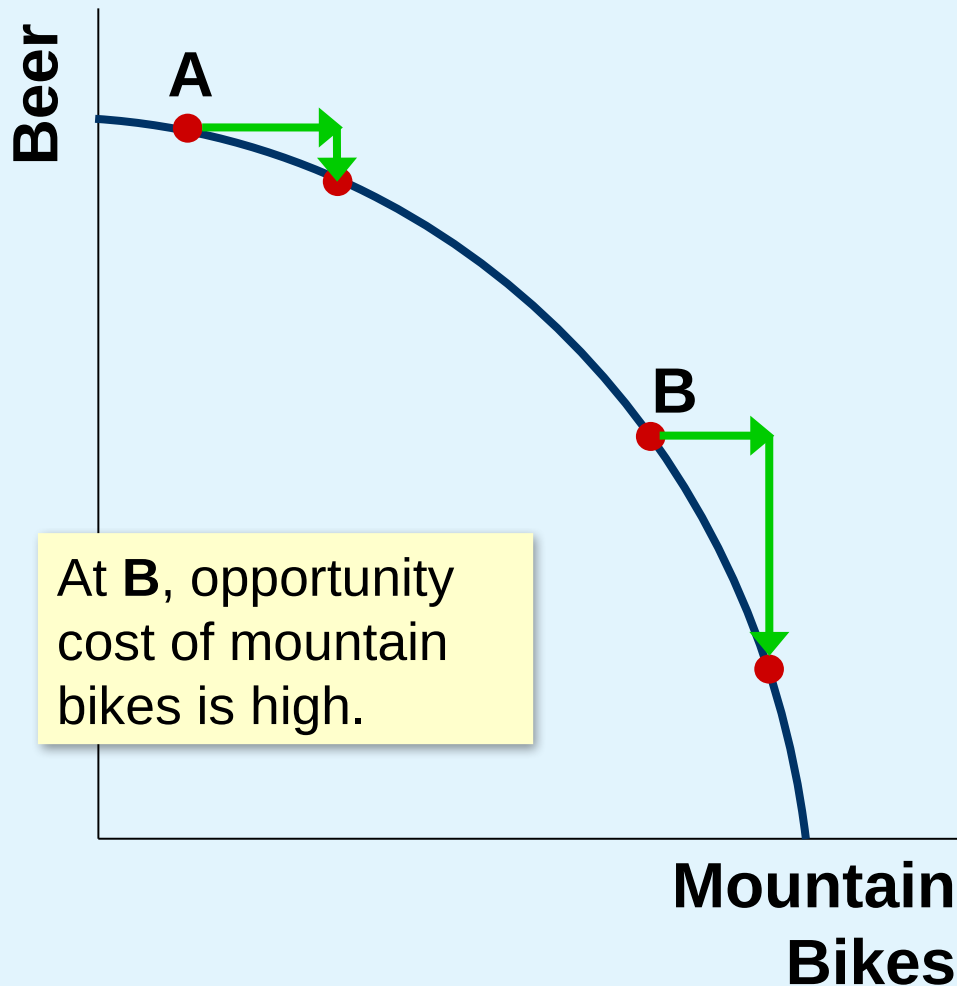


At point **A**, most workers are producing beer, even those who are better suited to building bikes.

So, do not have to give up much beer to get more bikes.



# Why the PPF Might Be Bowed Outward



At B, most workers are producing bikes.

The few left in beer production are the best brewers.

Producing more bikes would require shifting some of the best brewers away from beer production

causing a big drop in beer output



# Why the PPF Might Be Bowed Outward

- The PPF is bowed outward when:
  - Different workers have different skills
  - Different opportunity costs of producing one good in terms of the other
  - There is some other resource, or mix of resources with varying opportunity costs
    - E.g., different types of land suited for different uses



# The Economist as Policy Adviser

- **Positive statements: descriptive**
  - Attempt to describe the world as it is
  - Confirm or refute by examining evidence:  
“Minimum-wage laws cause unemployment”
- **Normative statements: prescriptive**
  - Attempt to prescribe how the world should be: “The government should raise the minimum wage”



Which of these statements are “positive” and which are “normative”? How can you tell the difference?

- a. Prices rise when the government increases the quantity of money.
- b. The government should print less money.
- c. A tax cut is needed to stimulate the economy.
- d. An increase in the price of burritos will cause an increase in consumer demand for music downloads.

a. Prices rise when the government increases the quantity of money.

*Positive – describes a relationship, could use data to confirm or refute.*

b. The government should print less money.

*Normative – this is a value judgment, cannot be confirmed or refuted.*

c. A tax cut is needed to stimulate the economy.  
*Normative – another value judgment.*

d. An increase in the price of burritos will cause an increase in consumer demand for music downloads

*Positive – describes a relationship.*

*Note that a statement need not be true to be positive.*