

Chapter 2 - Assumptions & Models

- 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.
- **Model:** a highly simplified representation of a more complicated reality.
Economists use models to study economic issues.

Our First Model:

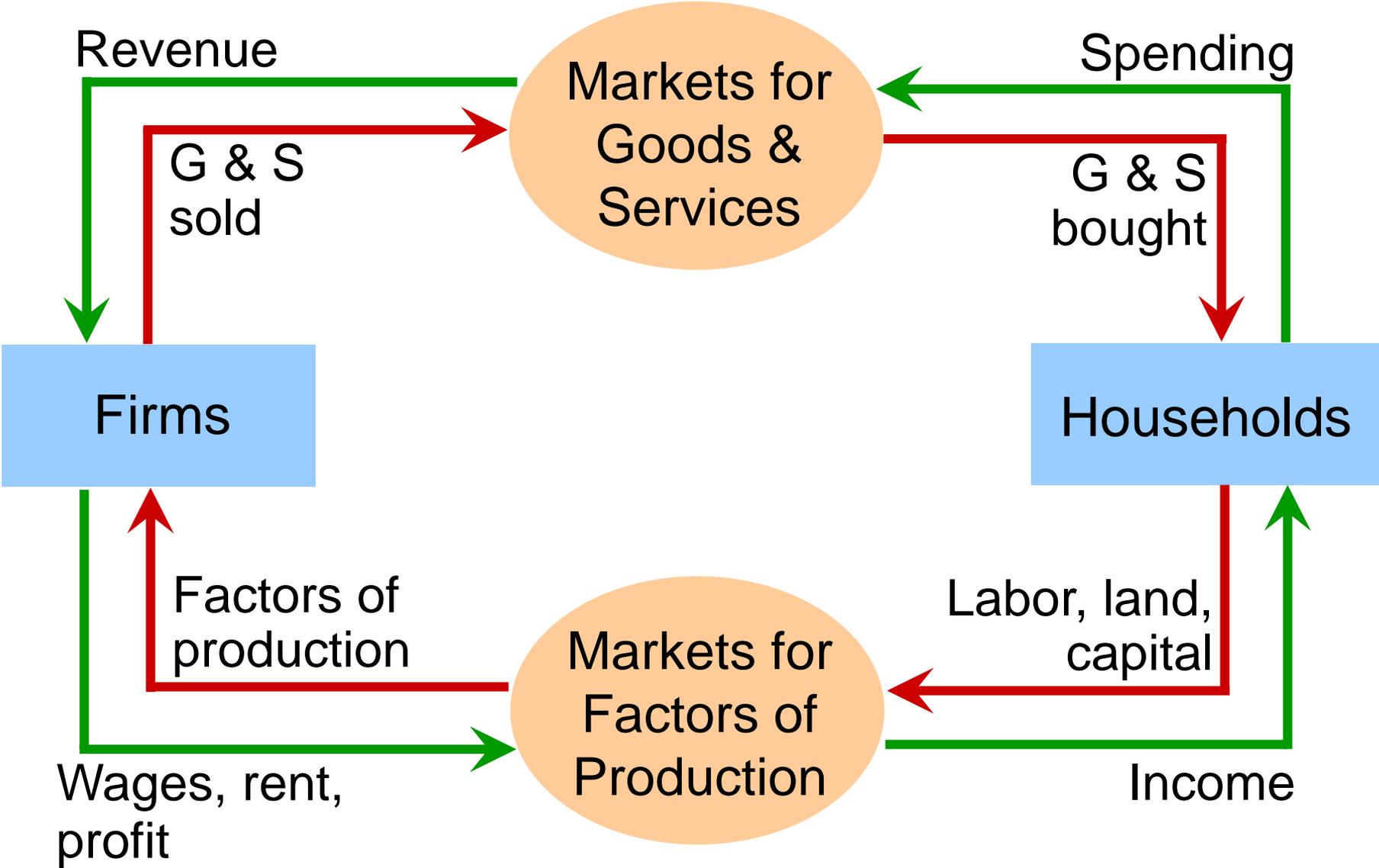
The Circular-Flow Diagram

- The **Circular-Flow Diagram**: a visual model of the economy, shows how dollars flow through markets among households and firms
- Two types of “actors”:
 - households
 - firms
- Two markets:
 - the market for goods and services
 - the market for “factors of production”

Factors of Production

- **Factors of production:** the resources the economy uses to produce goods & services, including
 - labor
 - land
 - capital (buildings & machines used in production)

FIGURE 1: The Circular-Flow Diagram



Our Second Model:

The Production Possibilities Frontier

- The **Production Possibilities Frontier (PPF)**:
a graph that shows the combinations of two goods the economy can possibly produce given the available resources and the available technology
- Example:
 - Two goods: computers and wheat
 - One resource: labor (measured in hours)
 - Economy has 50,000 labor hours per month available for production.

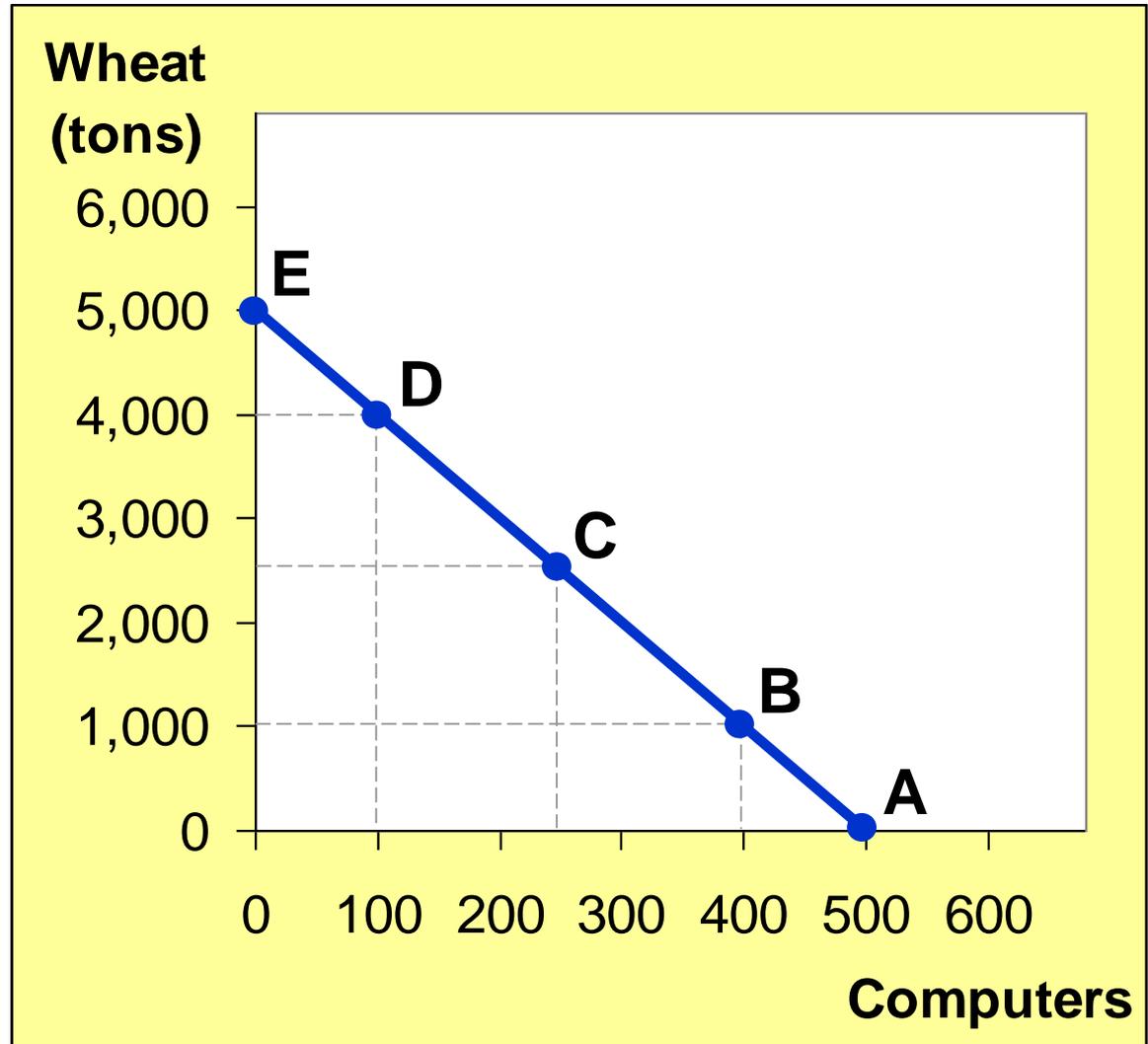
PPF Example

- 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

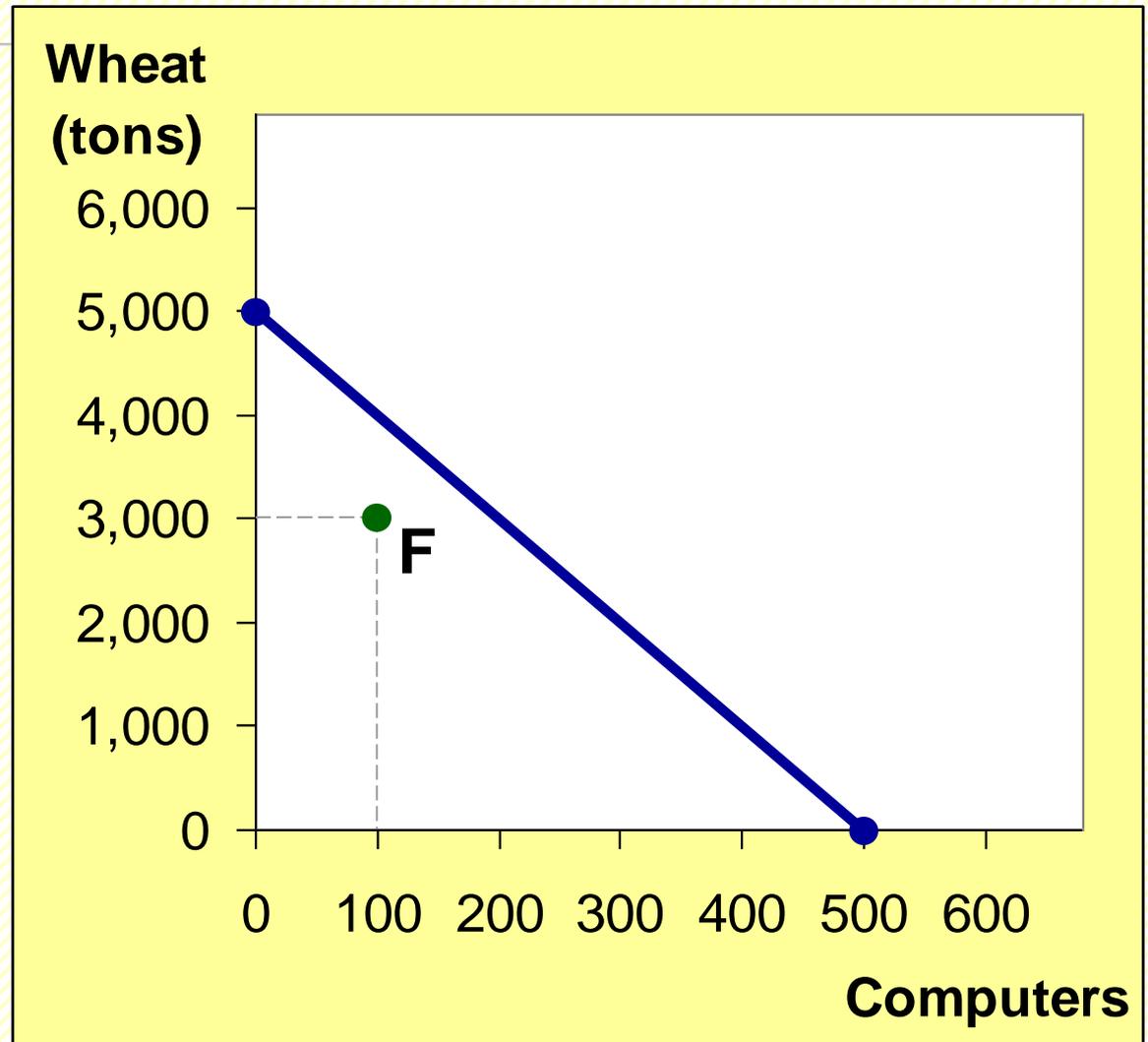
Point on graph	Production	
	Com-puters	Wheat
A	500	0
B	400	1,000
C	250	2,500
D	100	4,000
E	0	5,000



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- A.** On the graph, 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?
- B.** 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?

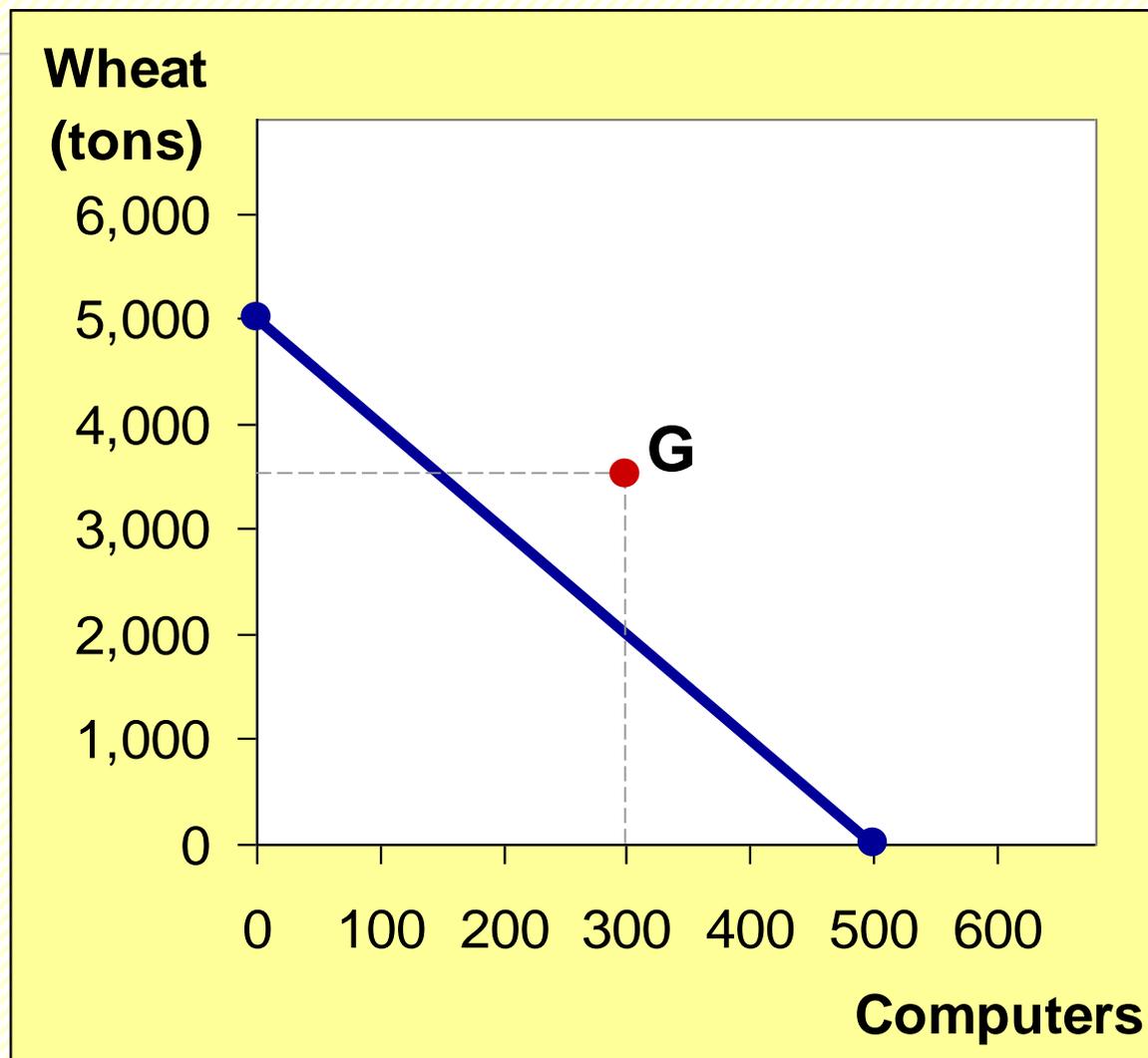
Answers

- Point **F**:
100 computers,
3000 tons wheat
- Point **F** requires
40,000 hours
of labor.
Possible but
not efficient:
could get more
of either good
w/o sacrificing
any of the other.



Answers

- Point **G**:
300 computers,
3500 tons wheat
- Point **G** requires
65,000 hours
of labor.
Not possible
because
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 underutilized
(*e.g.*, workers unemployed, factories idle)

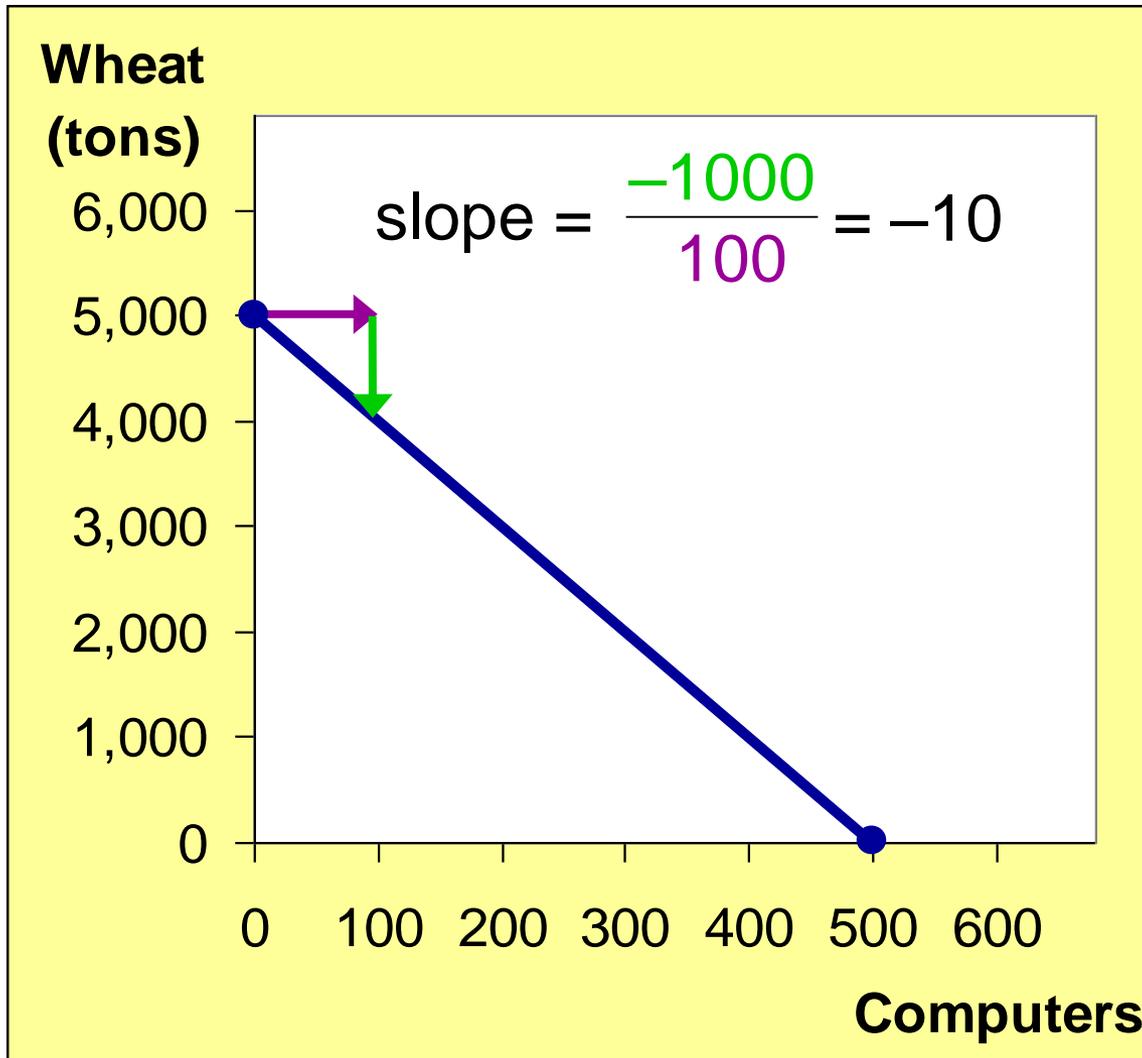
Points above the PPF (like **G**)

- not possible

The PPF and Opportunity Cost

- Recall: The **opportunity cost** of an item is what must be given up to obtain that item.
- Moving along a PPF involves shifting resources (*e.g.*, labor) 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 tells you the opportunity cost of one good in terms of the other.

The PPF and Opportunity Cost

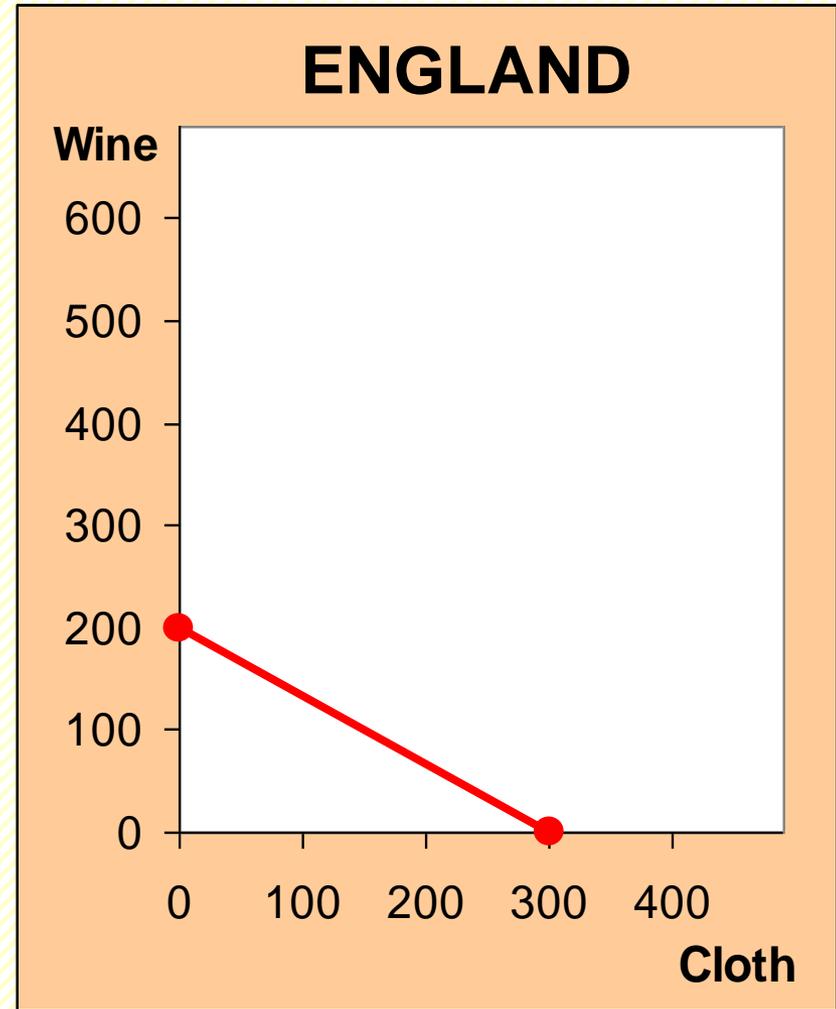
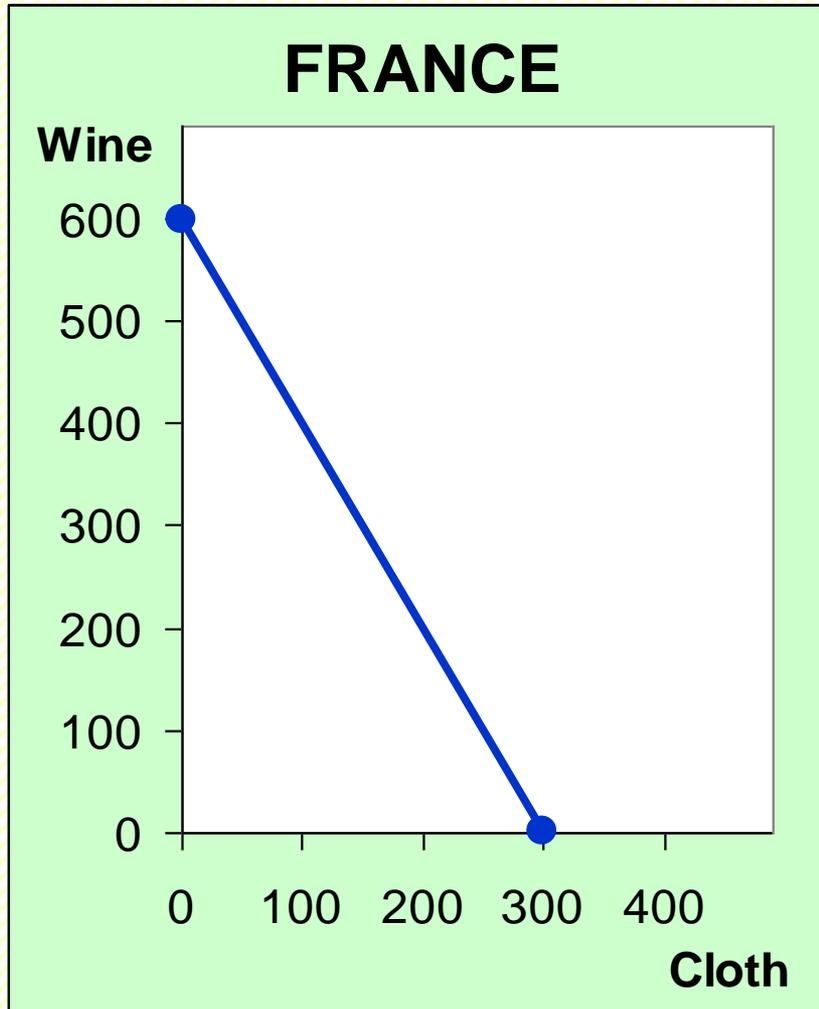


The slope of a line equals the “rise over the run,” the amount the line rises when you move to the right by one unit.

Here, the opportunity cost of a computer is 10 tons of wheat.

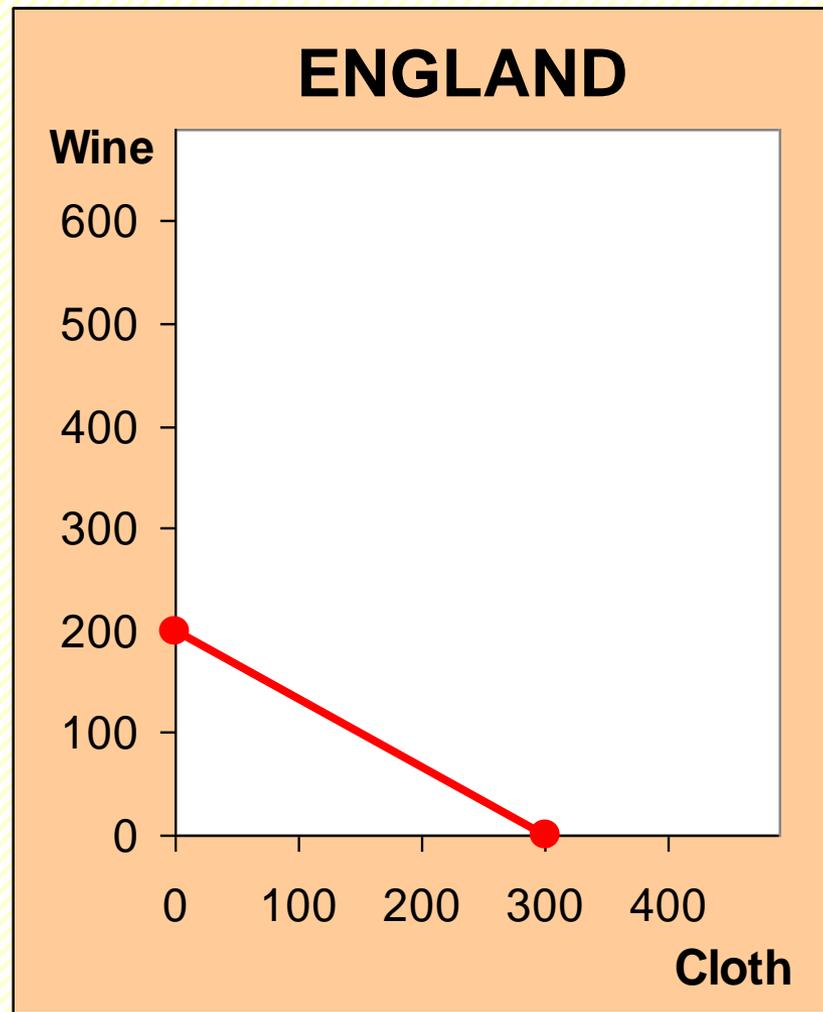
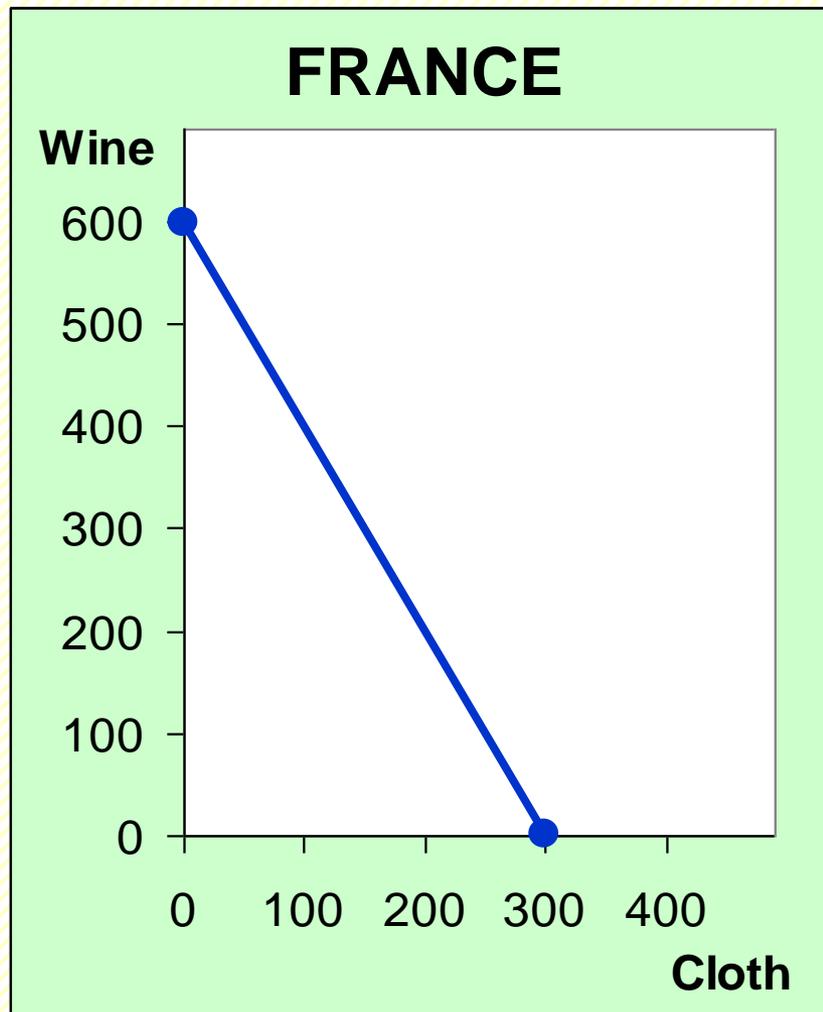
PPF and Opportunity Cost

In which country is the opportunity cost of cloth lower?



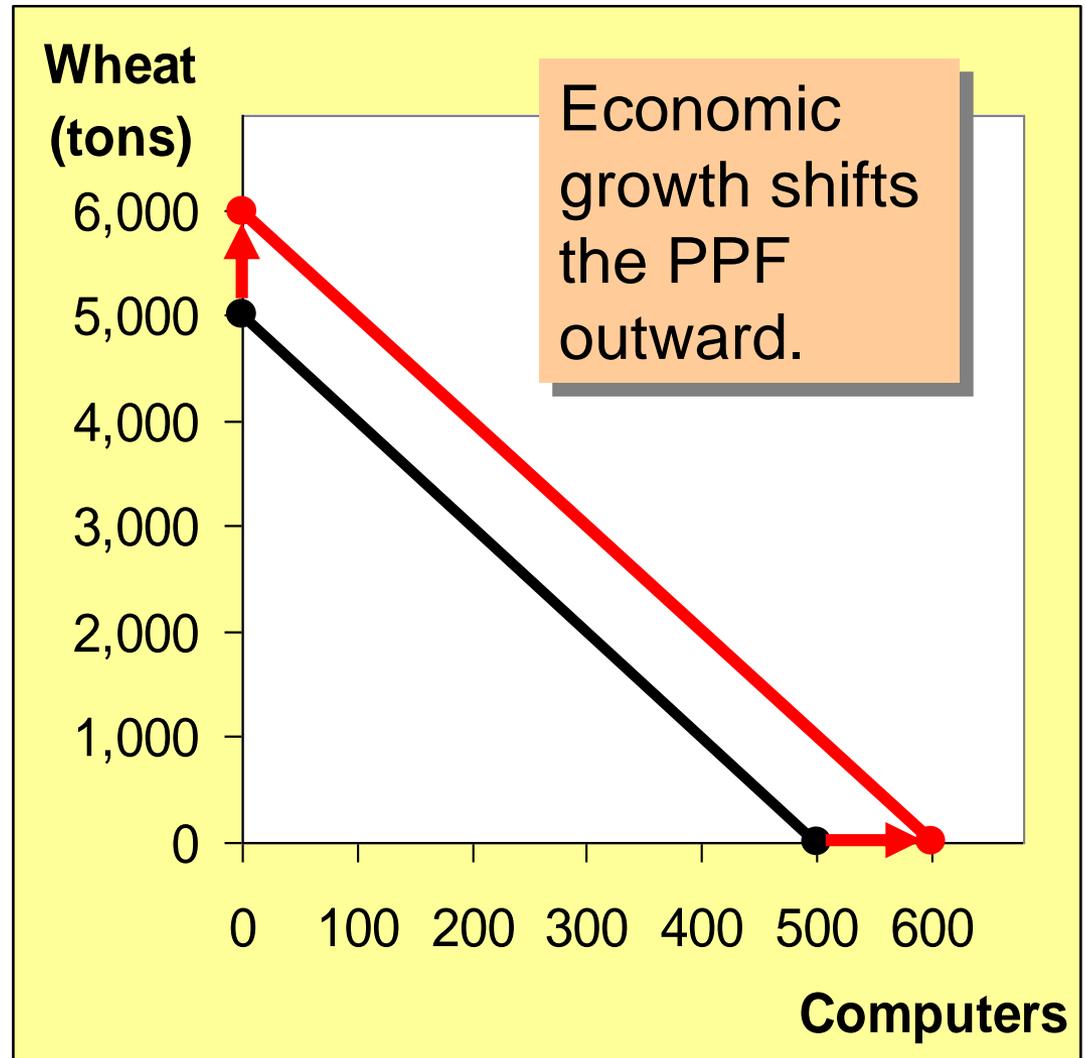
Answers

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



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.



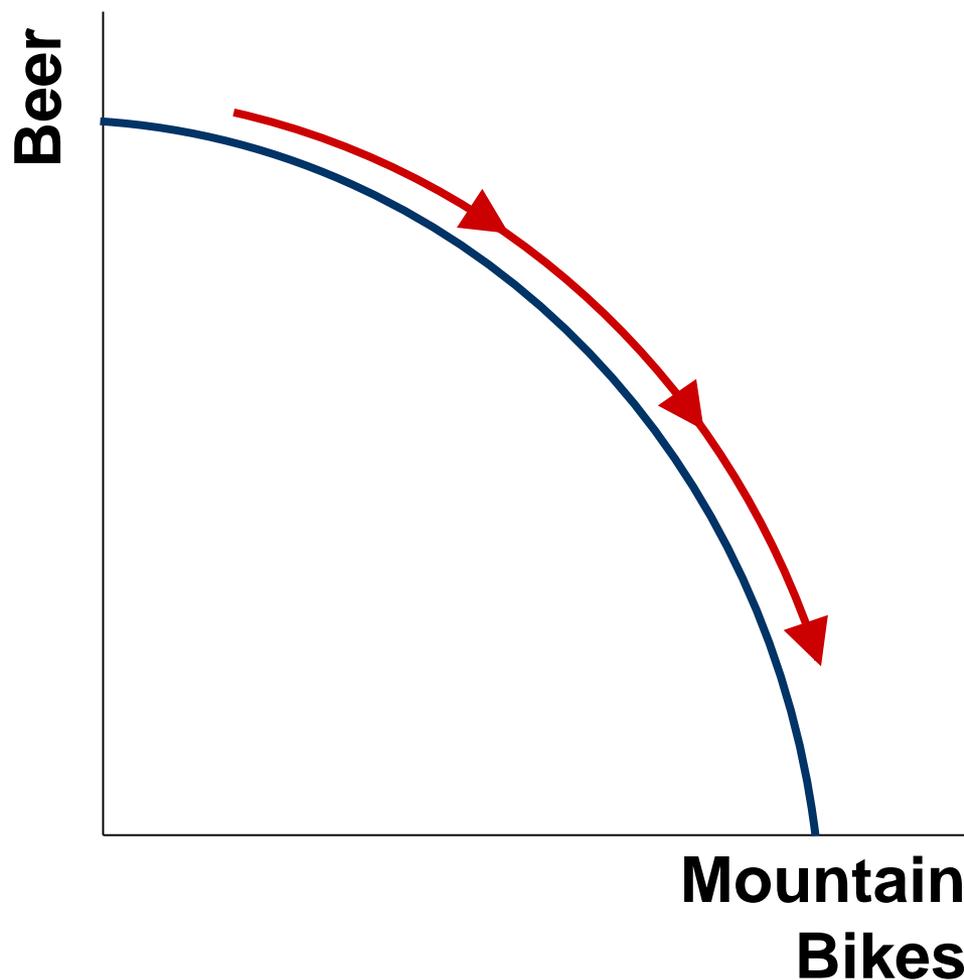
The Shape of the PPF

- The PPF could be a straight line, or bow-shaped
- Depends on what happens to opportunity cost as economy shifts resources from one industry to the other.
 - If opp. cost remains constant, PPF is a straight line.
(In the previous example, opp. cost of a computer was always 10 tons of wheat.)
 - If opp. cost of a good rises as the economy produces more of the good, PPF is bow-shaped.

Why the PPF Might Be Bow-Shaped

As the economy shifts resources from beer to mountain bikes:

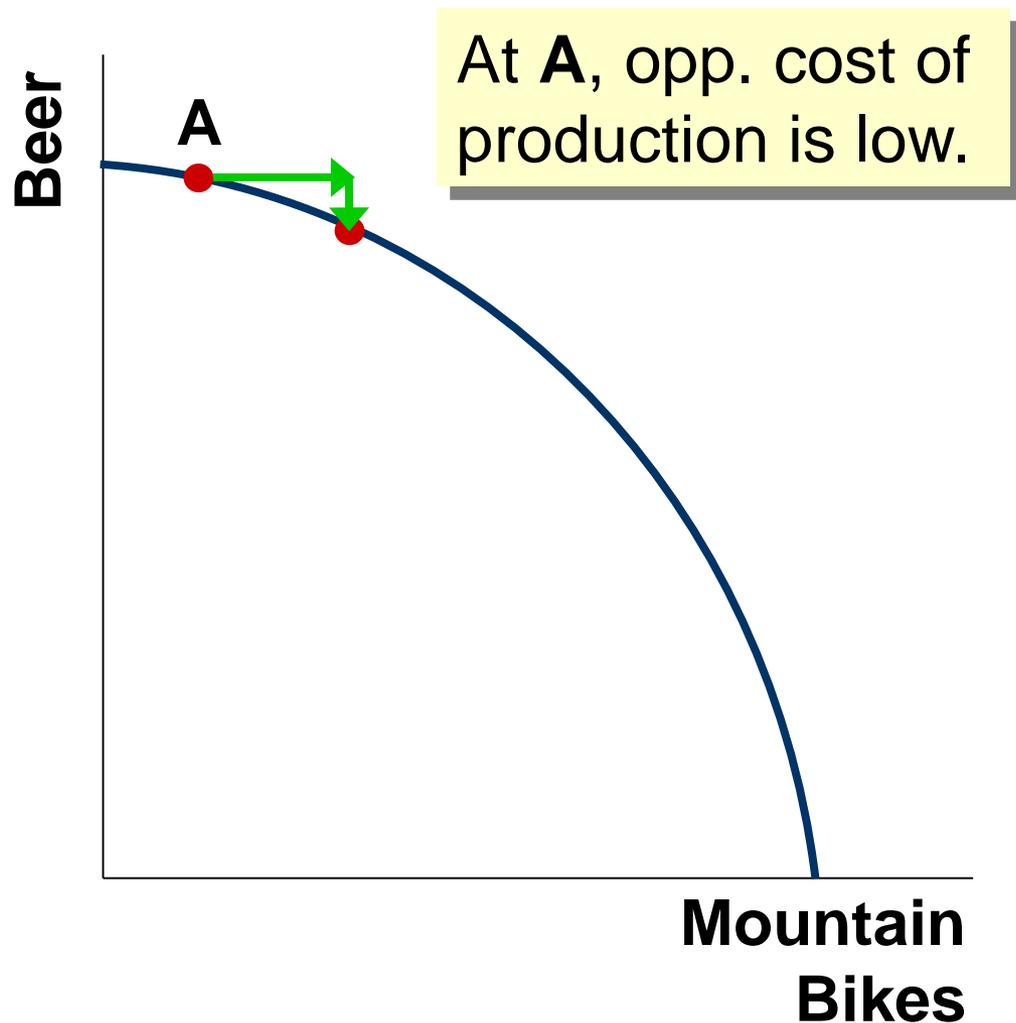
- PPF becomes steeper
- opp. cost of mountain bikes increases



Why the PPF Might Be Bow-Shaped

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

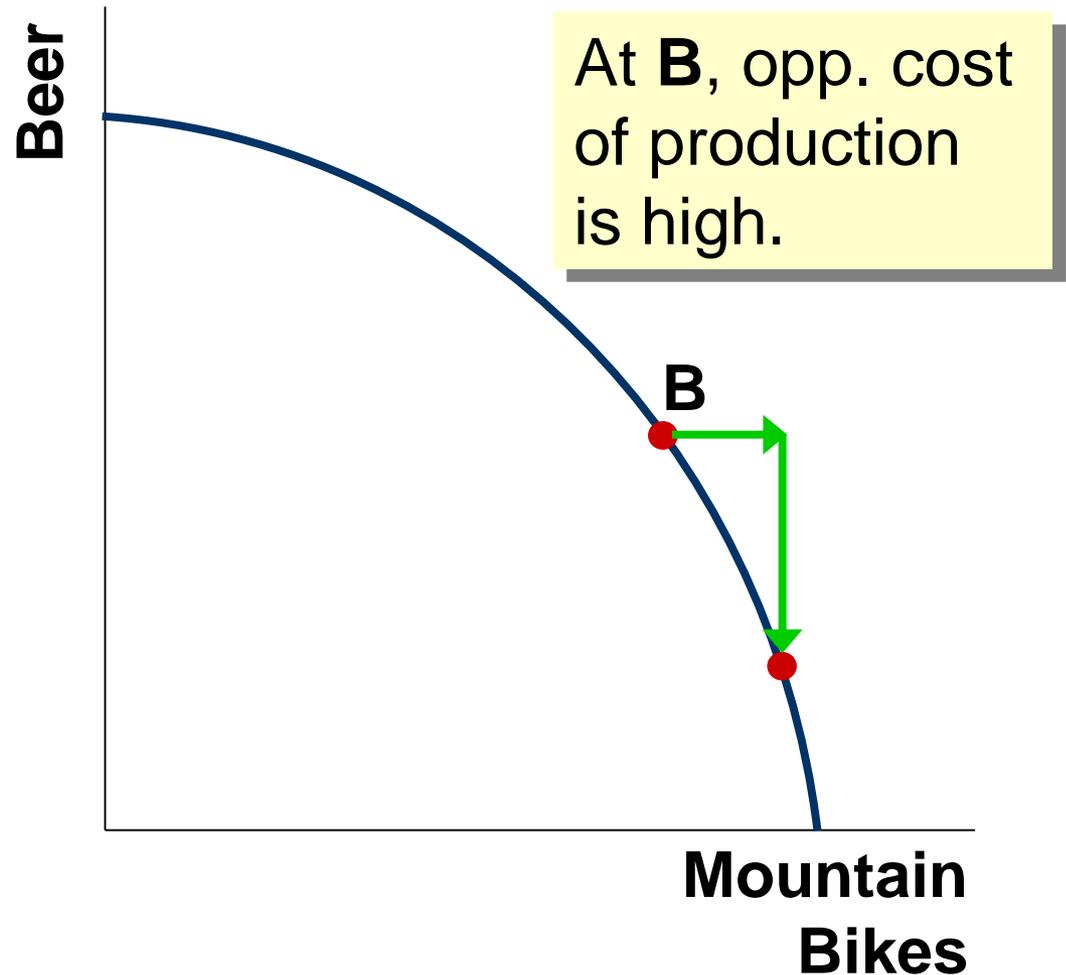
So, do not have to give up much beer to get more bikes.



Why the PPF Might Be Bow-Shaped

At **B**, most workers are producing bikes. The few left in beer are the best brewers.

Producing more bikes would require shifting some of the best brewers away from beer production, would cause a big drop in beer output.



Why the PPF Might Be Bow-Shaped

- So, PPF is bow-shaped when different workers have different skills, different opportunity costs of producing one good in terms of the other.
- The PPF would also be bow-shaped when there is some other resource, or mix of resources with varying opportunity costs (*E.g.*, different types of land suited for different uses).