Review of Economic Principles

- Explain relationship between scarcity and choices
- Differentiate between price and cost
- Differentiate between consumer and capital goods
- Define tradeoffs
- Define opportunity cost
- Define marginal thinking
- How do incentives relate to marginal thinking?

Thomas Malthus

Partner

Production Possibility Curves

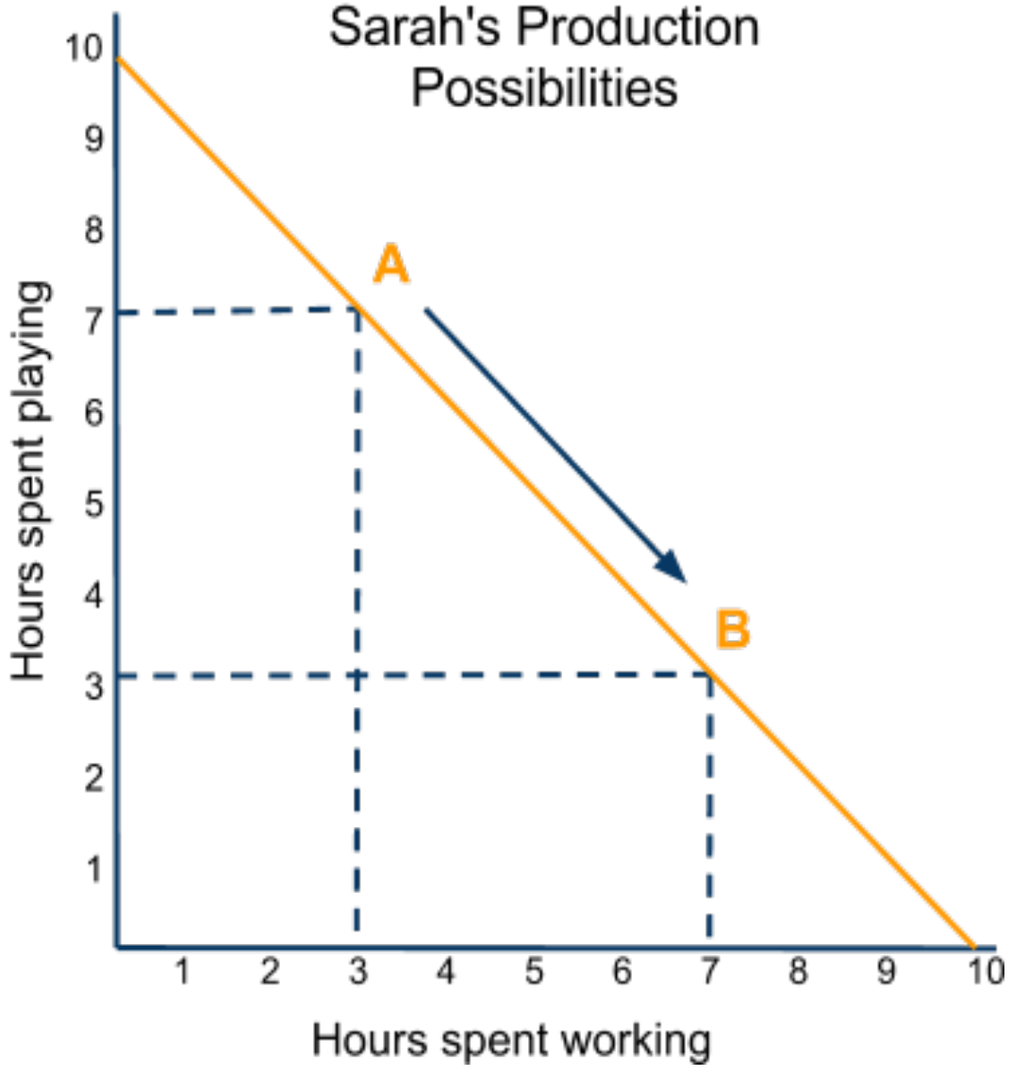
The PPC basics

Opportunity Cost in the Production Possibilities Model

The tradeoff we face between the use of our scarce resources (or even time) can be modeled in a simple Economic graph known as the Production Possibilities Curve (the PPC). Study the graph below:

Tradeoffs in the PPC: Sarah faces two tradeoffs. She can either work or play with her limited amount of time.

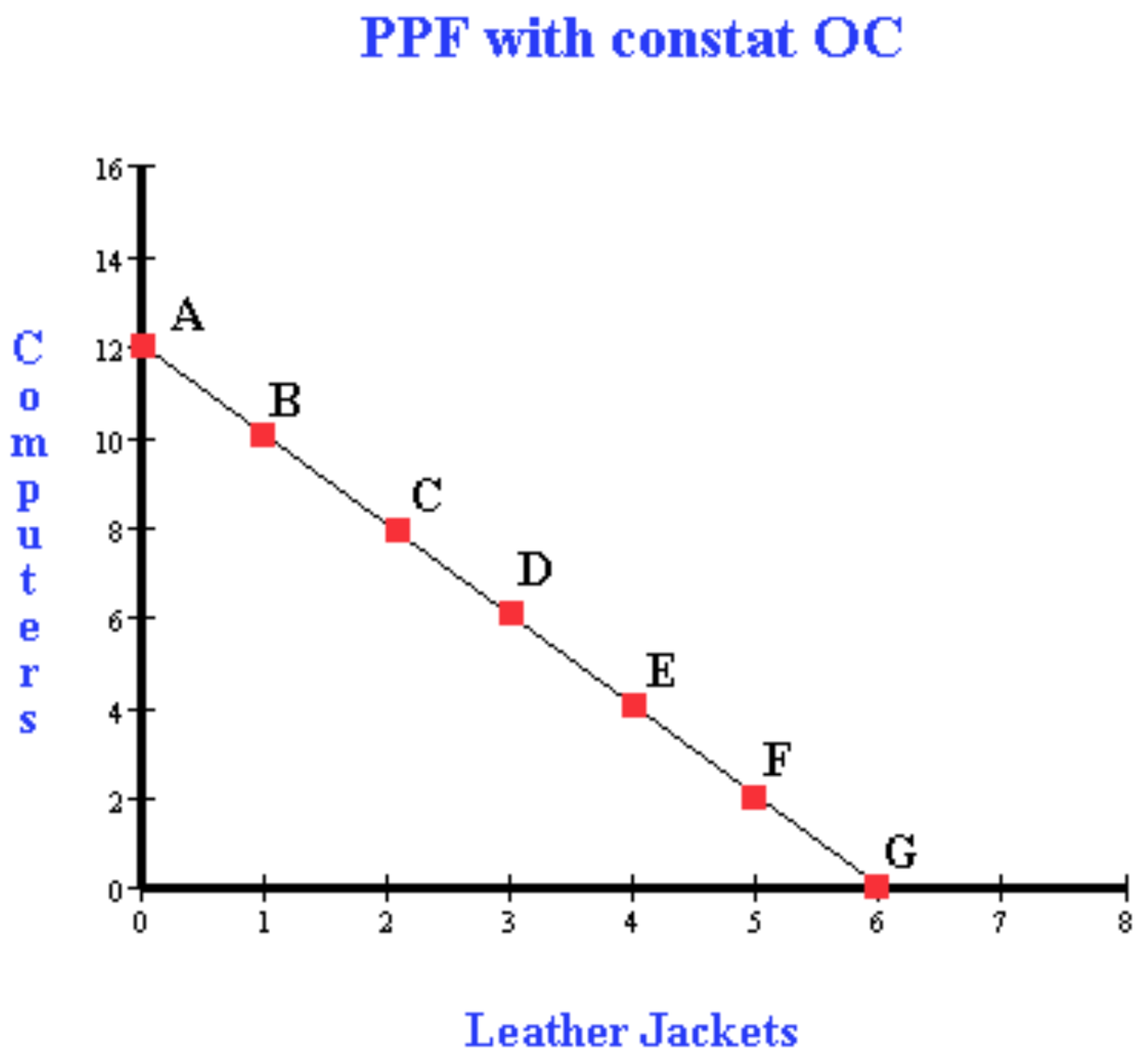
- The opportunity cost of an hour of work is an hour of play
- As she goes from 3 hours of work to 7 hours of work, she gives up 4 hours of play.
- She cannot spend 10 hours working AND 10 hours playing, so Sarah has to make **CHOICES**



4 Key Assumptions

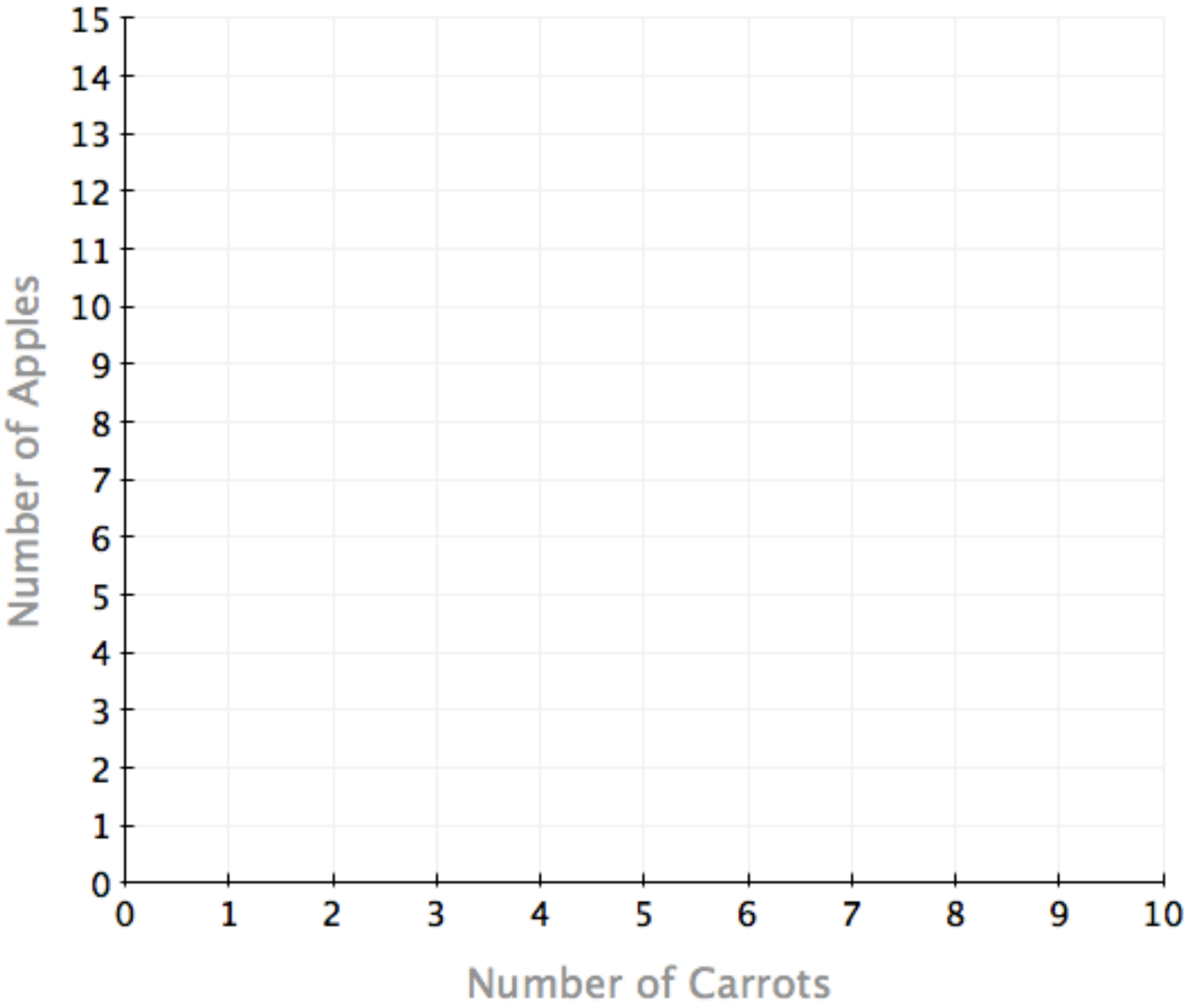
1. Only two goods can be produced
2. Full employment of resources
3. Fixed Resources (Ceteris Paribus)
4. Fixed Technology (Ceteris Paribus)

Curve we just looked at, and this curve too, are called Constant Cost PPC Curves.



Are people equally productive in producing different real goods and services?

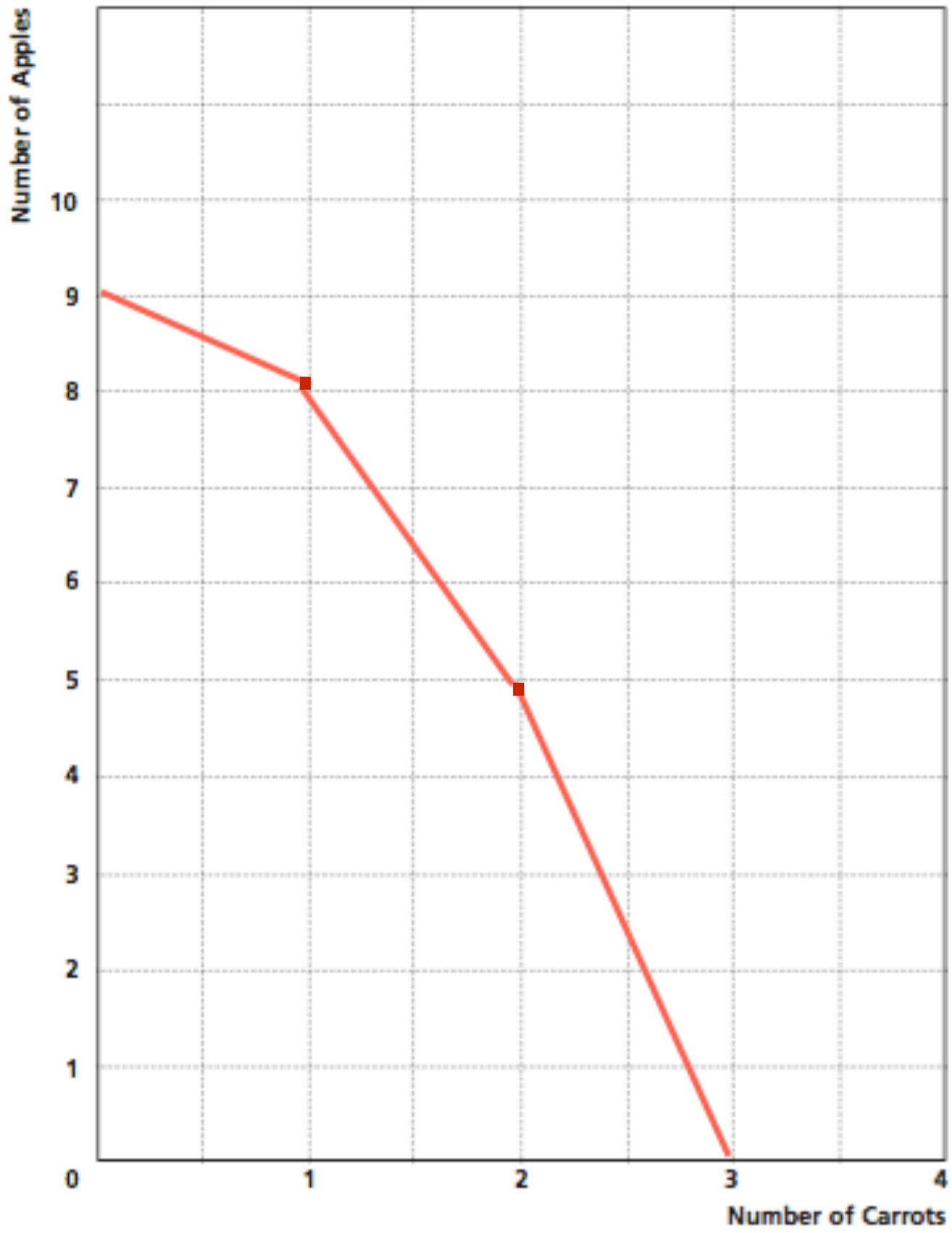
Increasing Cost PPC Curves - Apples and Carrots Simulation


Number of Apples
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0
1
2
3
4
5
6
7
8
9
10
Number of Carrots

3 Volunteers

Plot the curve based on what we now know

Production Possibilities Graph

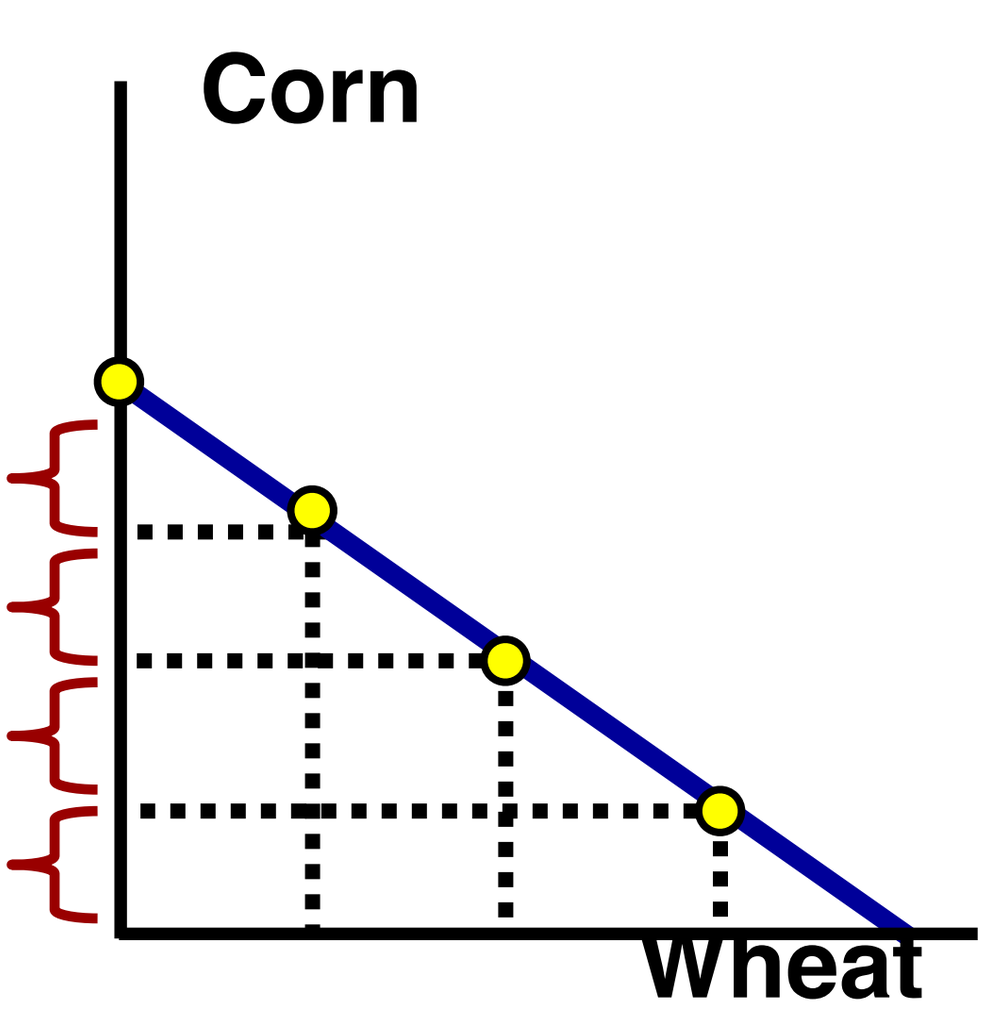


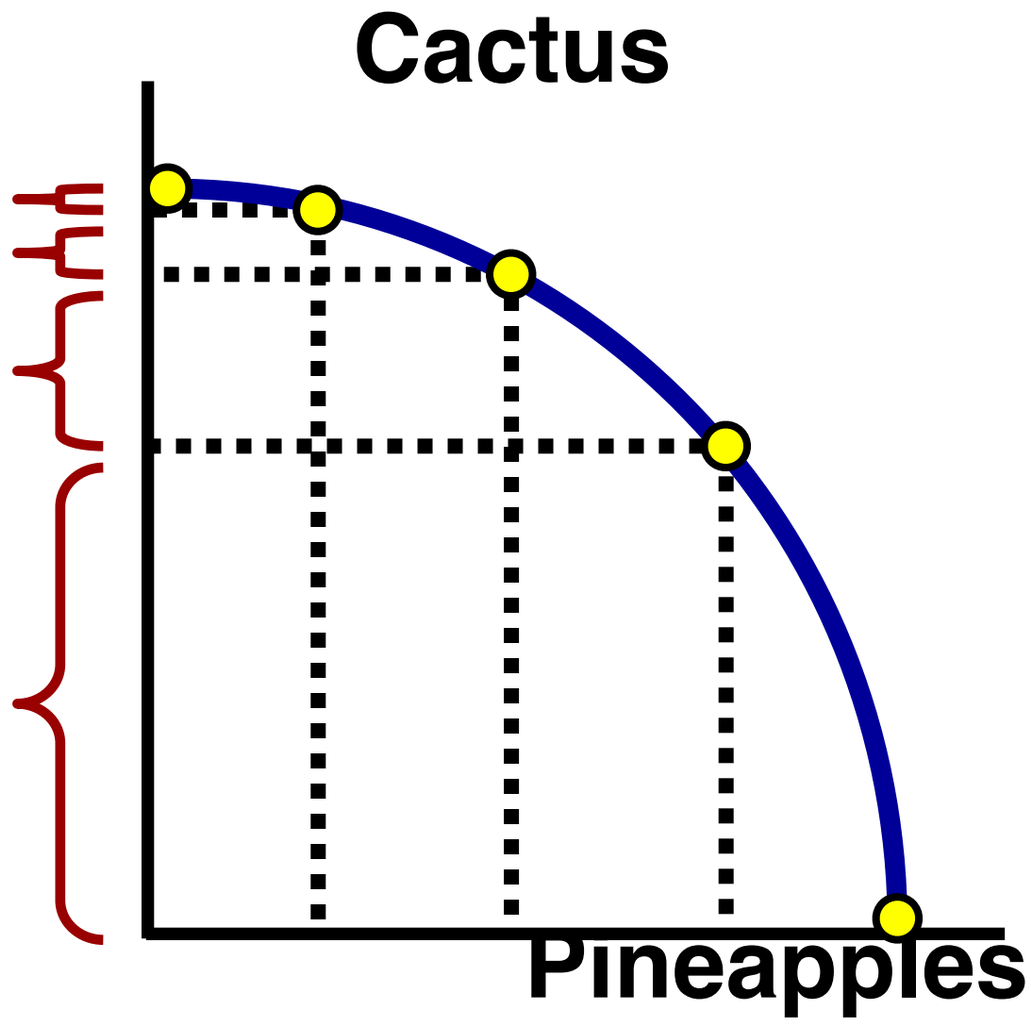
Law of Increasing Opportunity Cost- As you produce more of any good, the opportunity cost (foregone production of another good), will increase.

Why?

Constant vs. Increasing Opportunity Cost

Identify which product would have a straight line PPC and which would be bowed out?





Types of PPCs

There are two types of PPCs

	Constant Cost PPC	Increasing Cost PPC
Shows scarcity	Yes	Yes
Shows efficiency	Yes	Yes
Shows tradeoffs	Yes	Yes
Opportunity cost	Constant	Increasing

4 Key Assumptions

1. Only two goods can be produced
2. Full employment of resources
3. **Fixed Resources (Ceteris Paribus)**
4. Fixed Technology

Variation 1 - Increasing **Quality** of the Factors of Production

If each of the three workers harvesting apples and carrots were trained to jump higher so that they each could increase the probability of getting an apple on each jump, how would this likely change the total amount of apples they could pick each day?

Plot the new curve using a different color

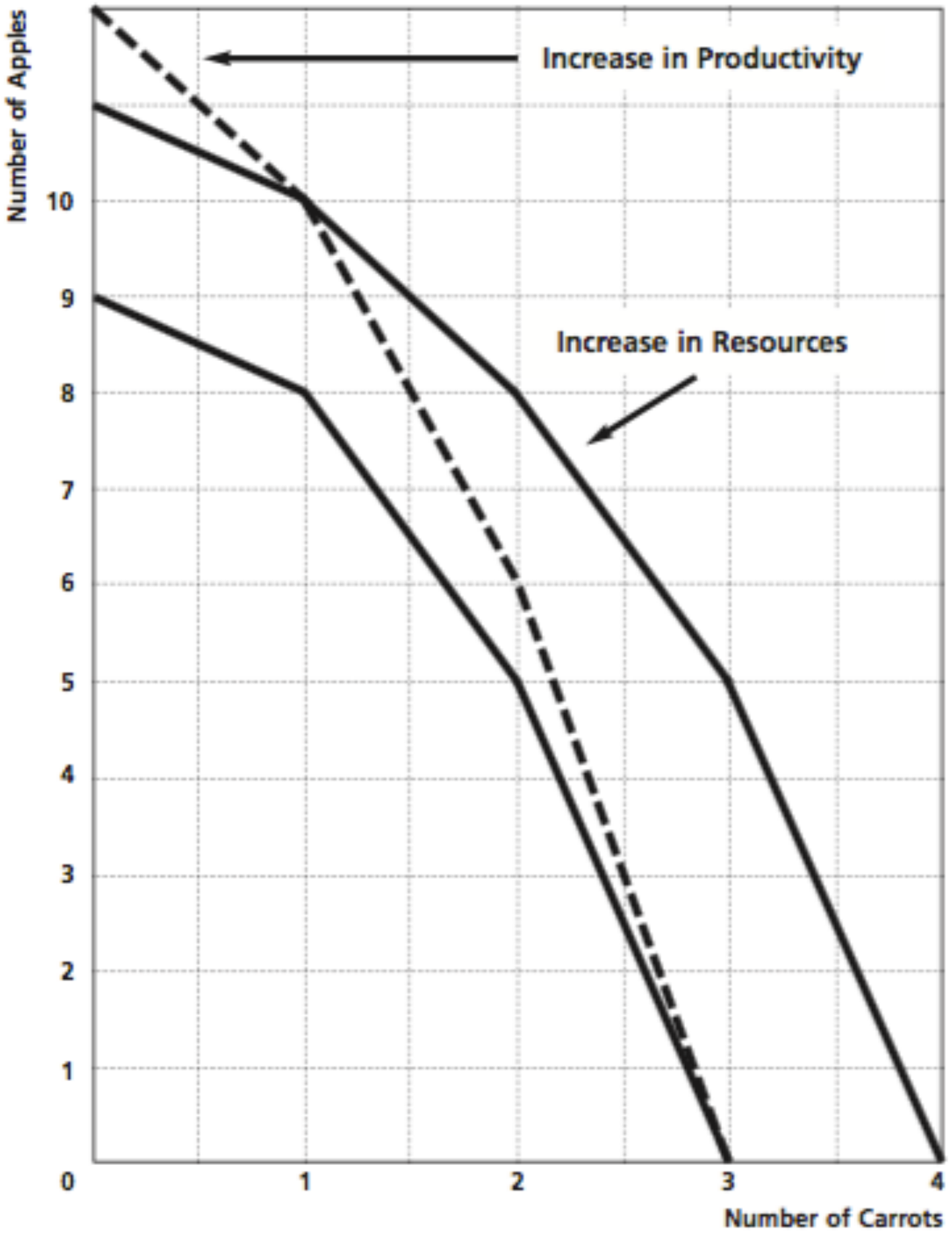
4 Key Assumptions

1. Only two goods can be produced
2. Full employment of resources
3. **Fixed Resources (Ceteris Paribus)**
4. Fixed Technology

Variation 2 - Increasing **Quantity** of the Factors of Production

What would happen to the production possibilities curve with the addition of a fourth resource?

Plot the new curve using a different color


Number of Apples
10
9
8
7
6
5
4
3
2
1
0
1
2
3
4
Number of Carrots
Increase in Productivity
Increase in Resources

What have we learned so far?

- What are the four assumptions regarding PPC Model?
- What additional assumption do we have for a constant cost PPC Curve?
- What are two ways we can shift the curve?
- How does this learning apply in our own lives?

4 Key Assumptions

1. Only two goods can be produced
2. Full employment of resources
3. Fixed Resources (Ceteris Paribus)
4. **Fixed Technology**

Variation 3 - New technology allows 3 workers together to pick 15 apples or 6 carrots.

What would happen to the PPC Curve in this situation?

Plot the new curve using a different color

2 Shifters of the PPC

1. Change in quantity or quality of the factors of production

2. Change in Technology

Unpacking what the PPC Curve Tell Us

Thomas Malthus

Partner

Production "Possibilities" Table

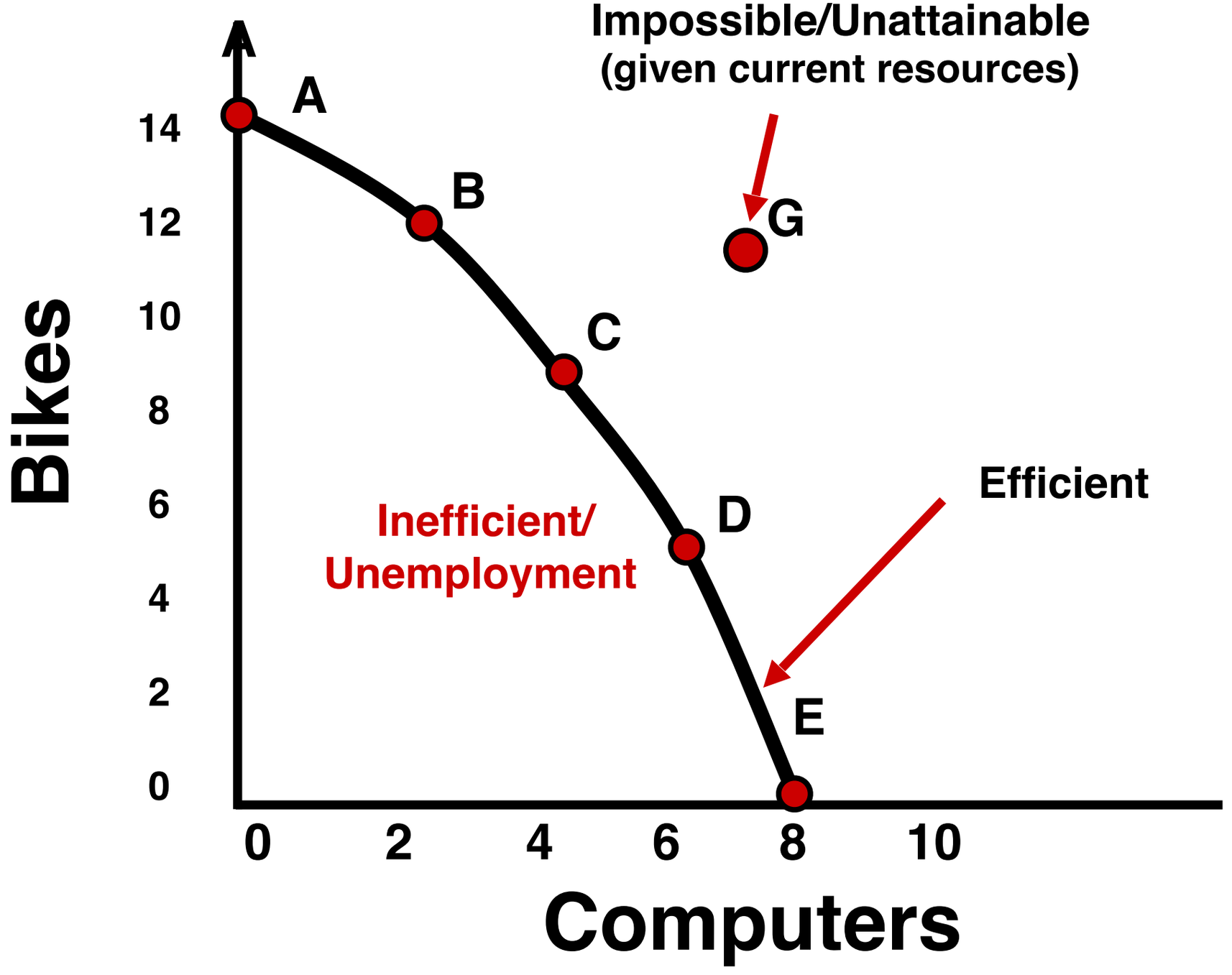
	A	B	C	D	E	F
Bike	14	12	9	5	0	0
Computer	0	2	4	6	8	10

Each point represents a specific combination of goods that can be produced given full employment of resources.

NOW GRAPH IT: Put bikes on y-axis and computers on x-axis

Production Possibilities

How does the PPC curve graphically demonstrate scarcity, trade-offs, opportunity costs, and efficiency?



Opportunity Cost

Example:

1. The opportunity cost of moving from a to b is…

2 Bikes

2.The opportunity cost of moving from b to d is…

7 Bikes

3.The opportunity cost of moving from d to b is…

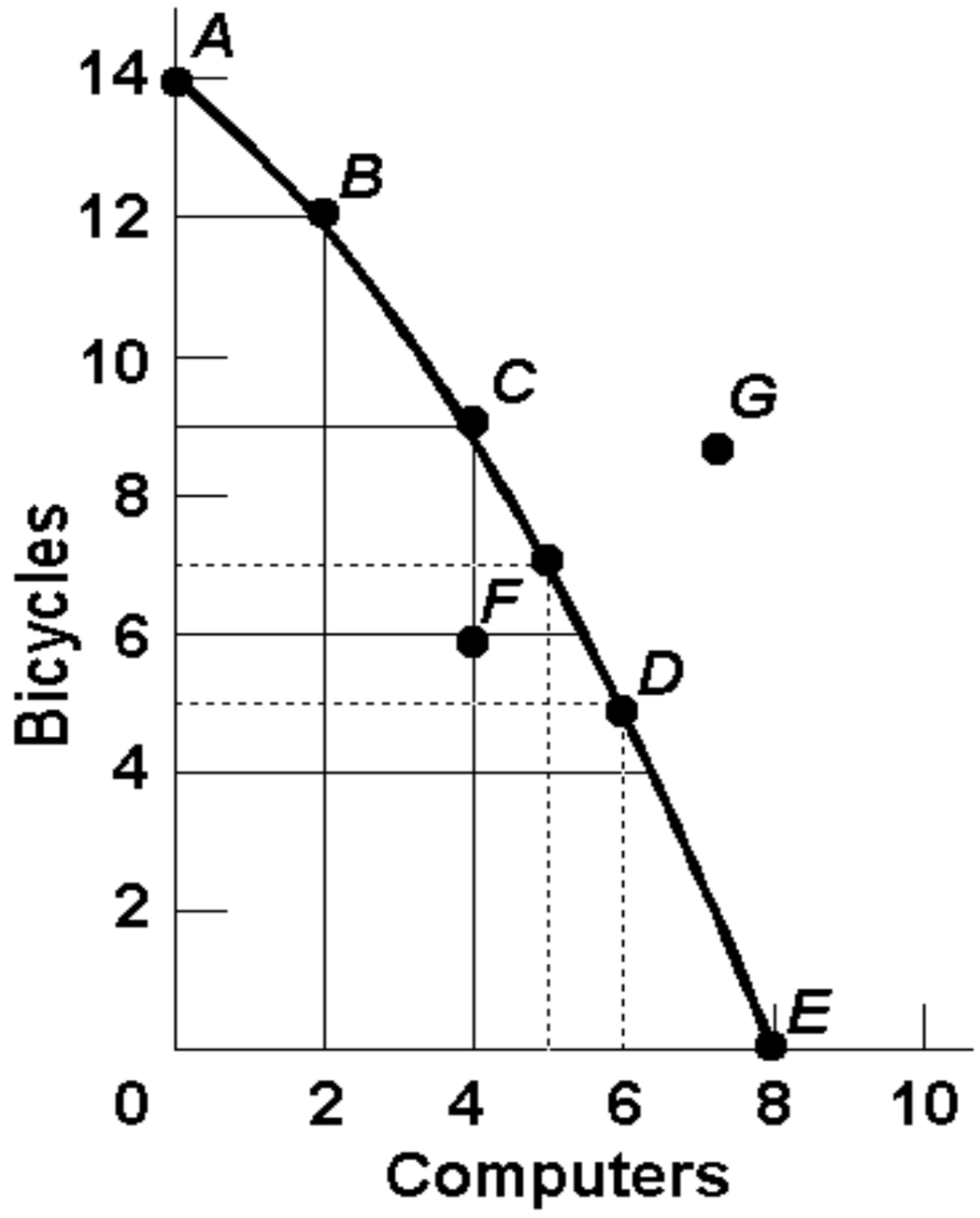
4 Computers

4.The opportunity cost of moving from f to c is…

0 Computers

5.What can you say about point G?

Unattainable



Two Types of Efficiency

Productive Efficiency-

- Products are being produced in the least costly way.
- This is any point ON the Production Possibilities Curve

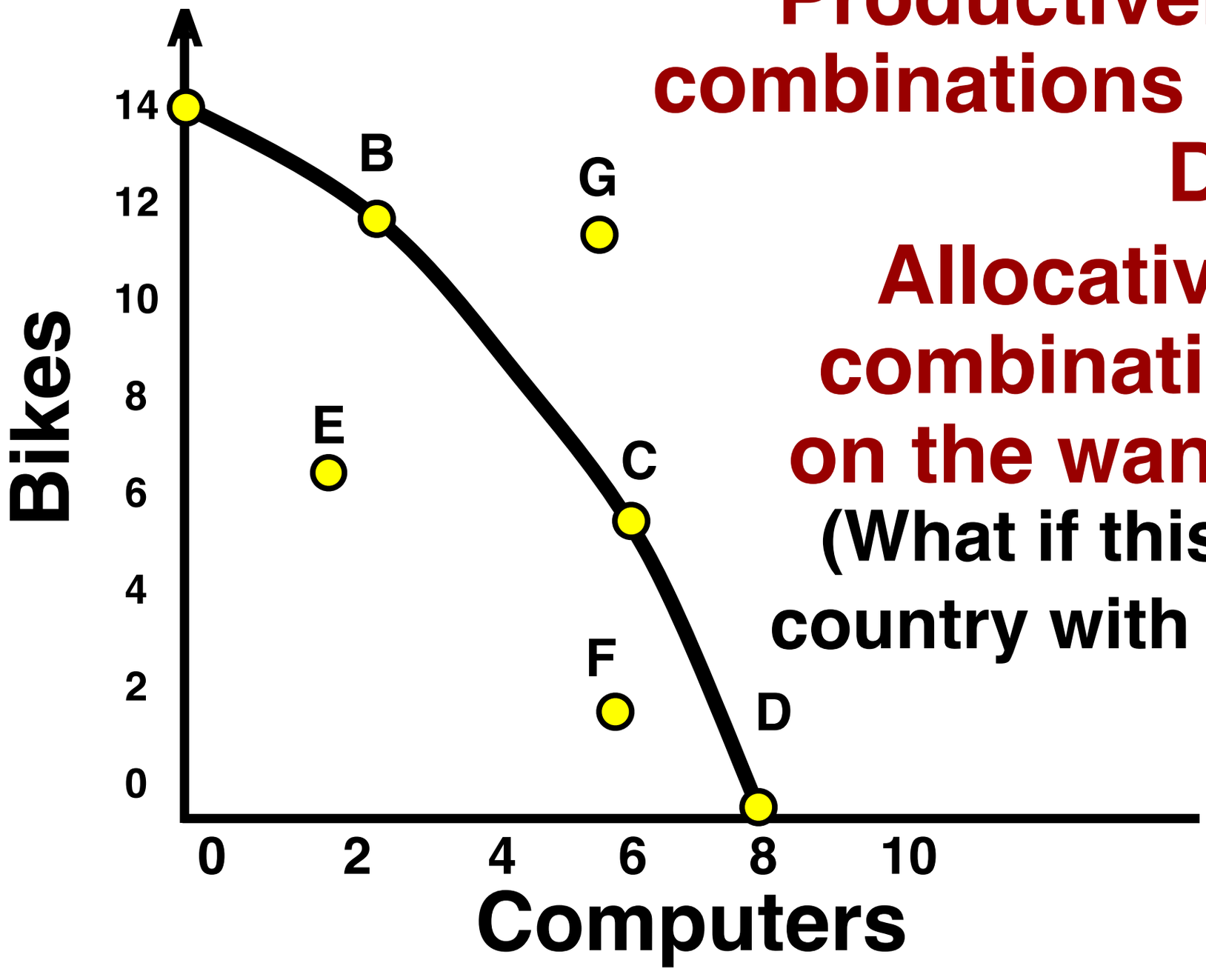
Allocative Efficiency-

- The products being produced are the ones most desired by society.
- This *optimal* point on the PPC depends on the desires of society.

Productive and Allocative Efficiency

Which points are productively efficient?

Which are allocatively efficient?



Productively Efficient combinations are A through D

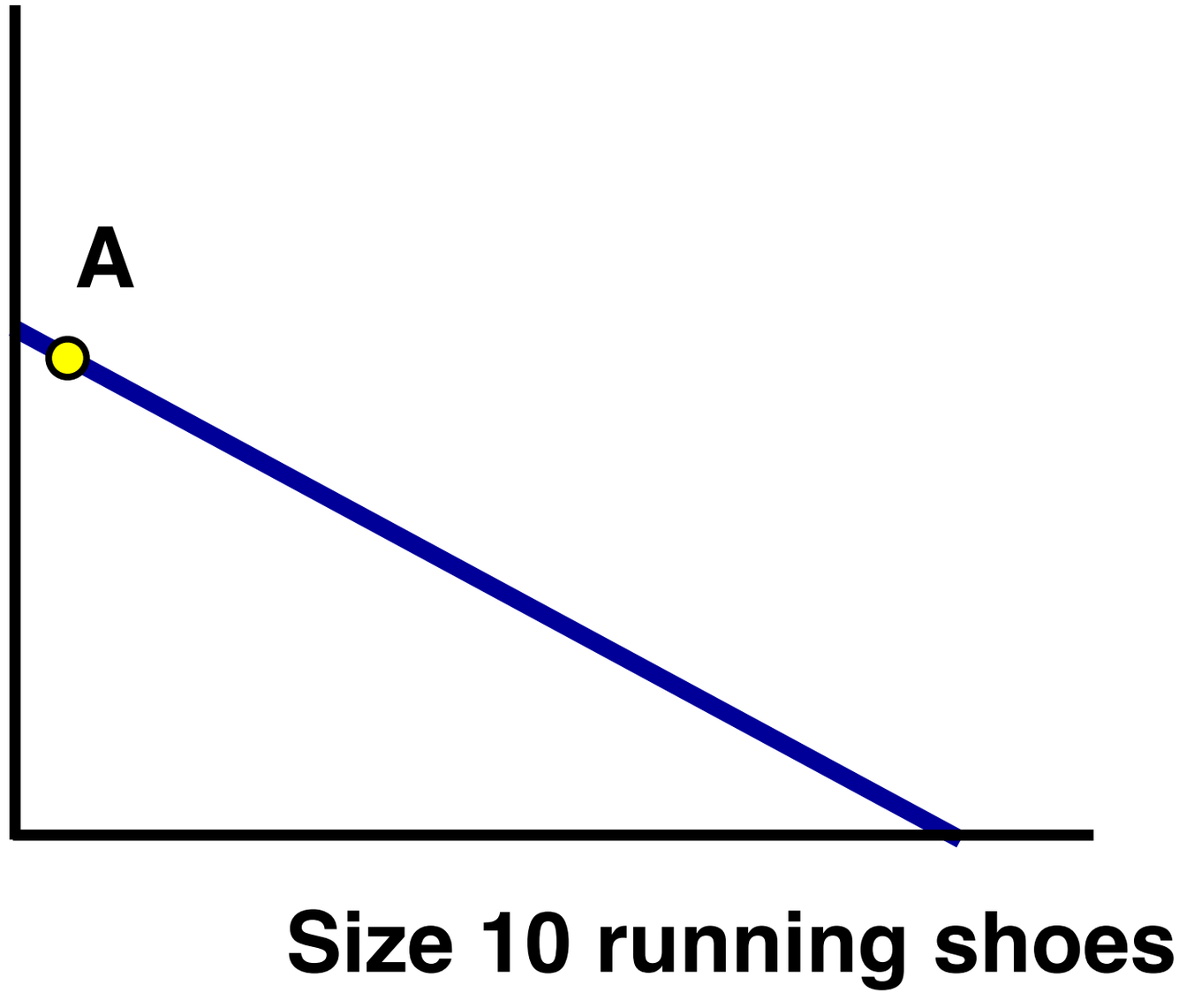
Allocative Efficient combinations depend on the wants of society

(What if this represents a country with no electricity?)

Why two types of efficiency?

Is combination "A" efficient?

Yes and No. It is productively efficient but it is not the combination society wants



Paul Solman PPC Curves

Part 1

Paul Solman - PPC

Curves Part 2

More on Shifts Using Whiteboards

4 Key Assumptions Revisited

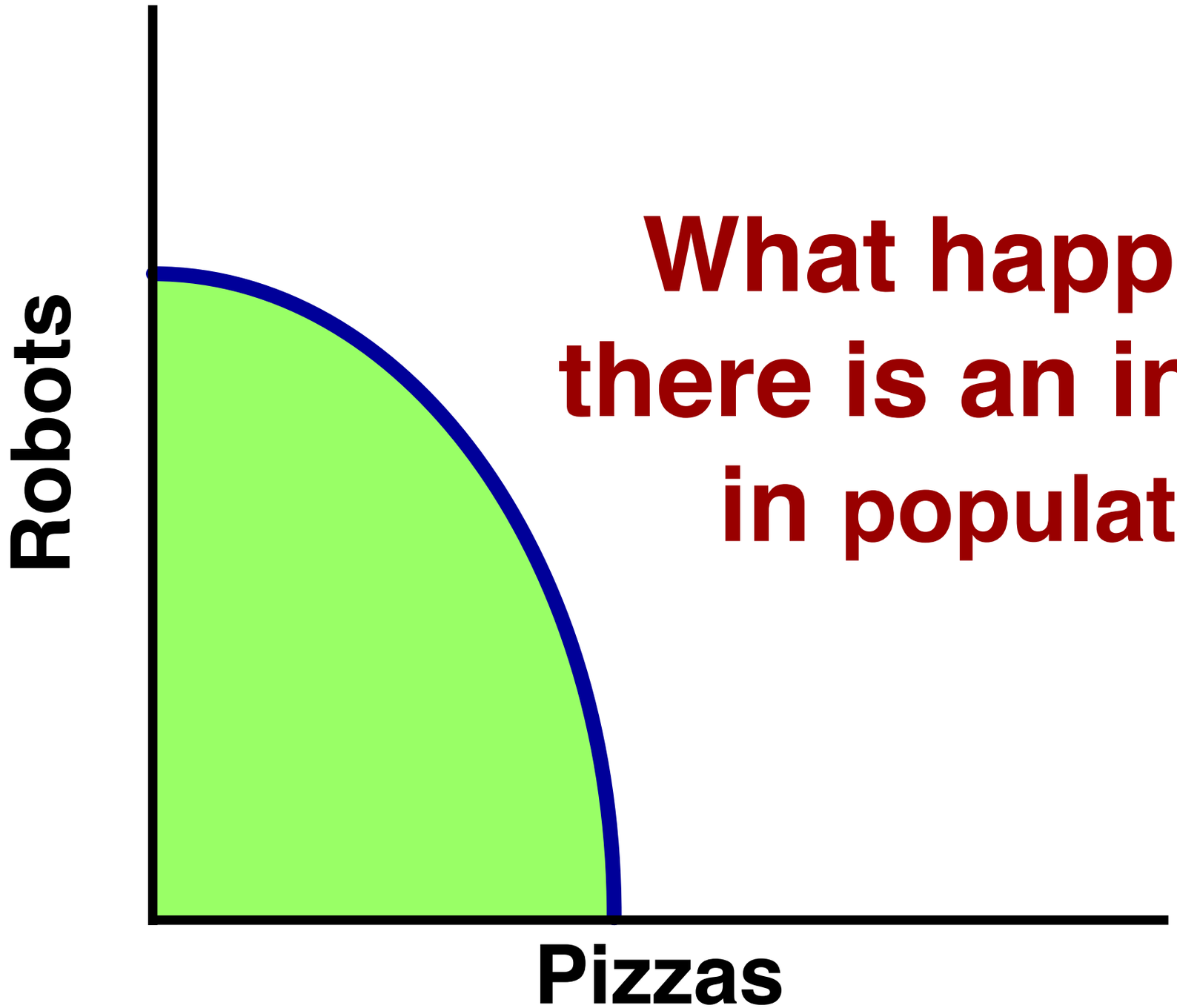
1. **Only two goods can be produced**
2. **Full employment of resources**
3. **Fixed Resources (4 Factors)**
4. **Fixed Technology**

2 Shifters of the PPC

1. Change in quantity or quality of the factors of production

2. Change in Technology

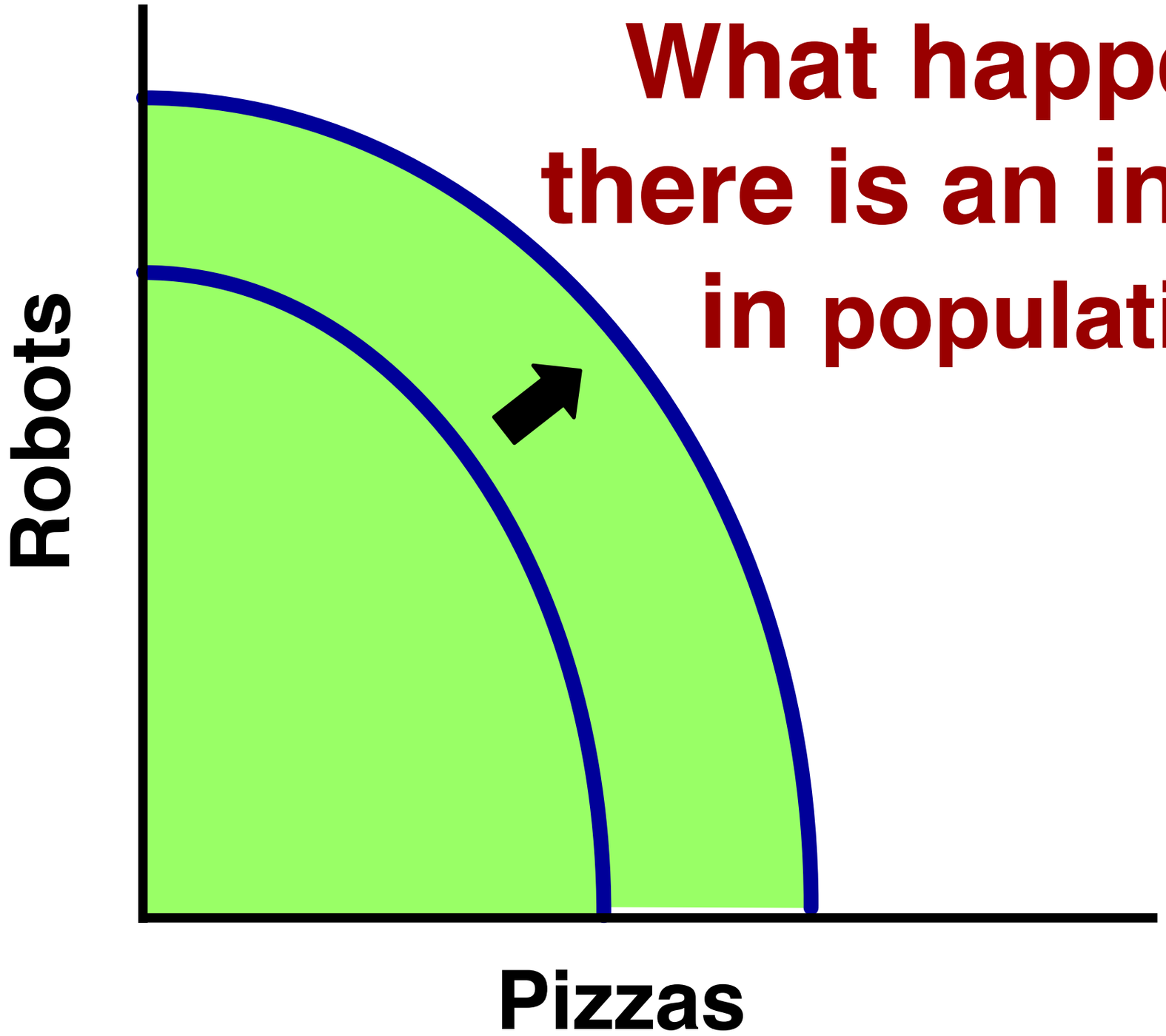
Production Possibilities



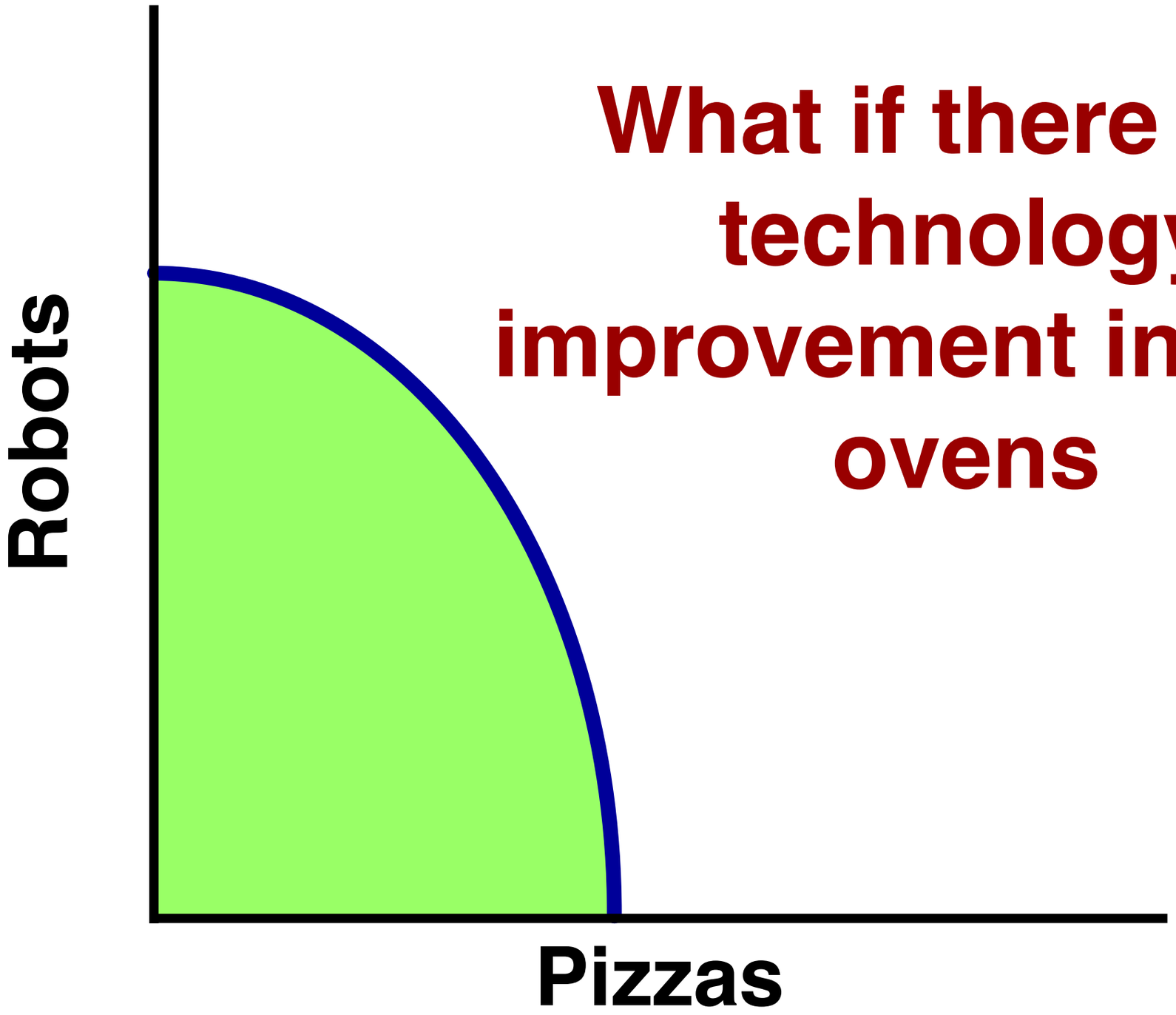
What happens if there is an increase in population?

Production Possibilities

What happens if there is an increase in population?



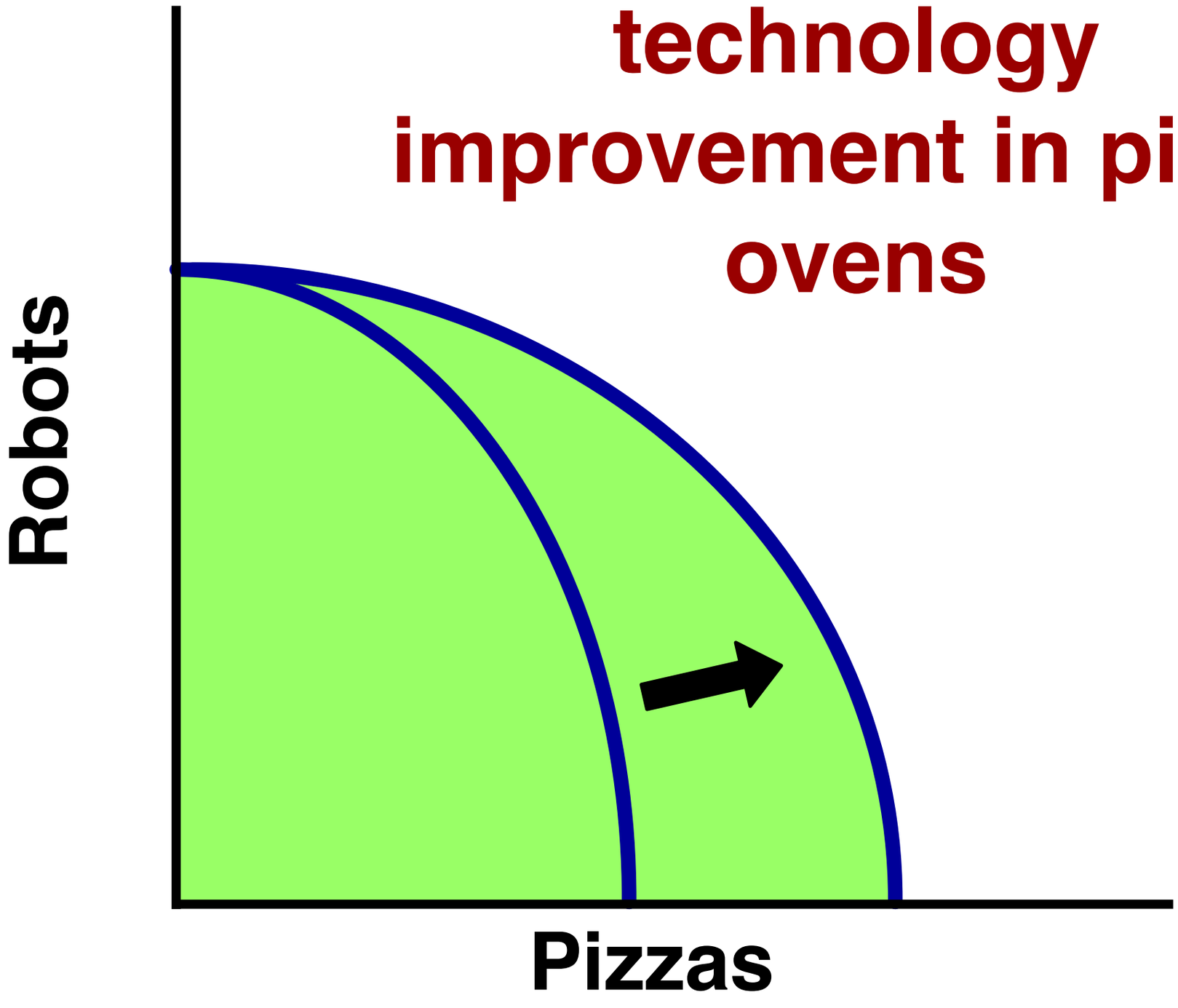
Production Possibilities



What if there is a technology improvement in pizza ovens

Production Possibilities

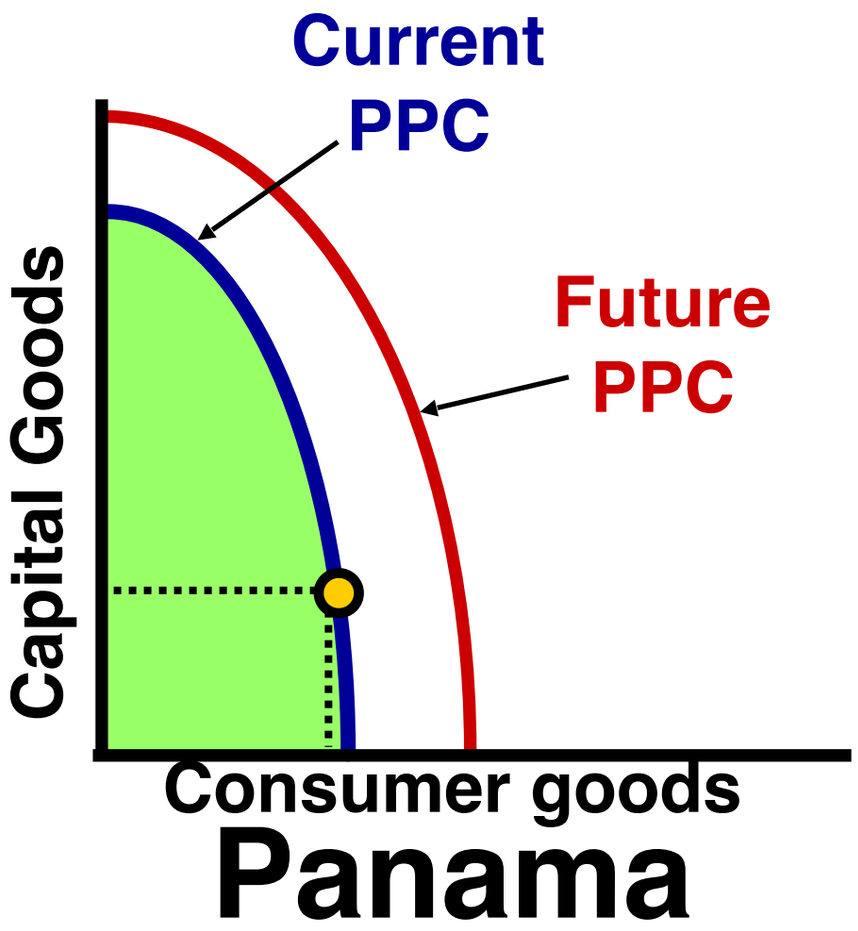
What if there is a technology improvement in pizza ovens



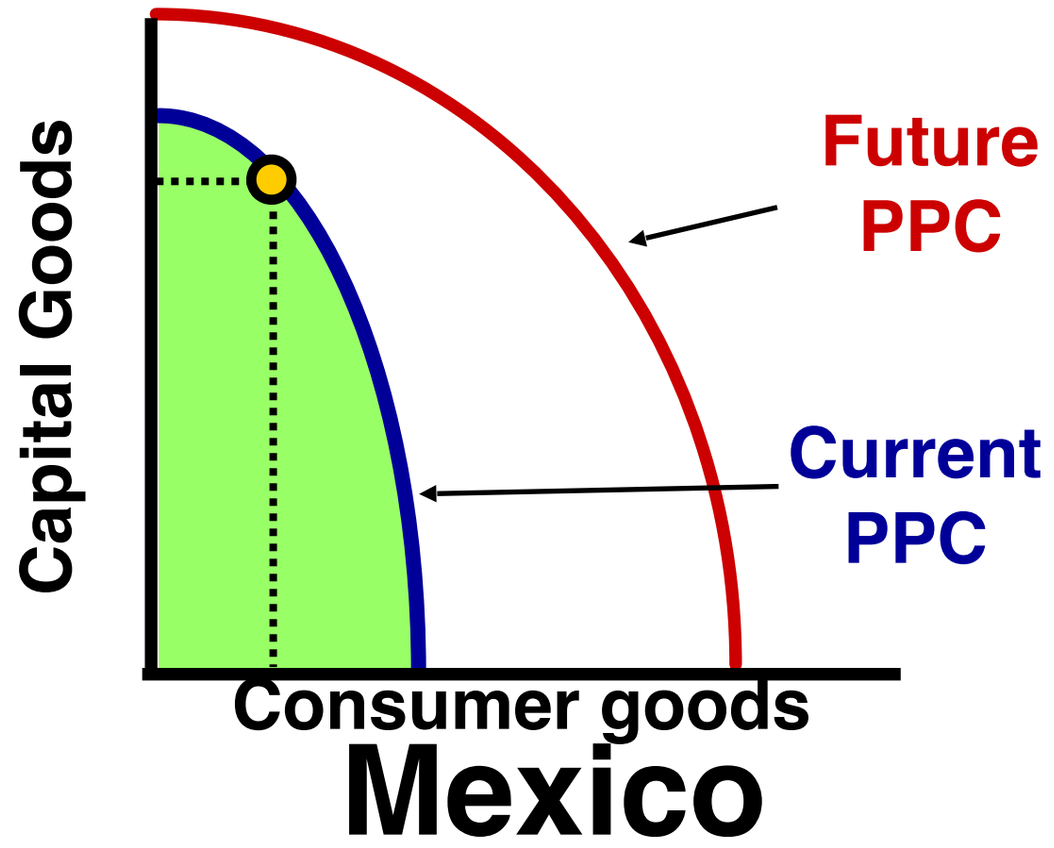
Capital Goods and Future Growth

Countries that produce more capital goods will have more growth in the future.

Panama – Favors Consumer Goods



Mexico – Favors Capital Goods



PPC Practice

Draw a PPC showing changes for each of the following:

Pizza and Robots (3)

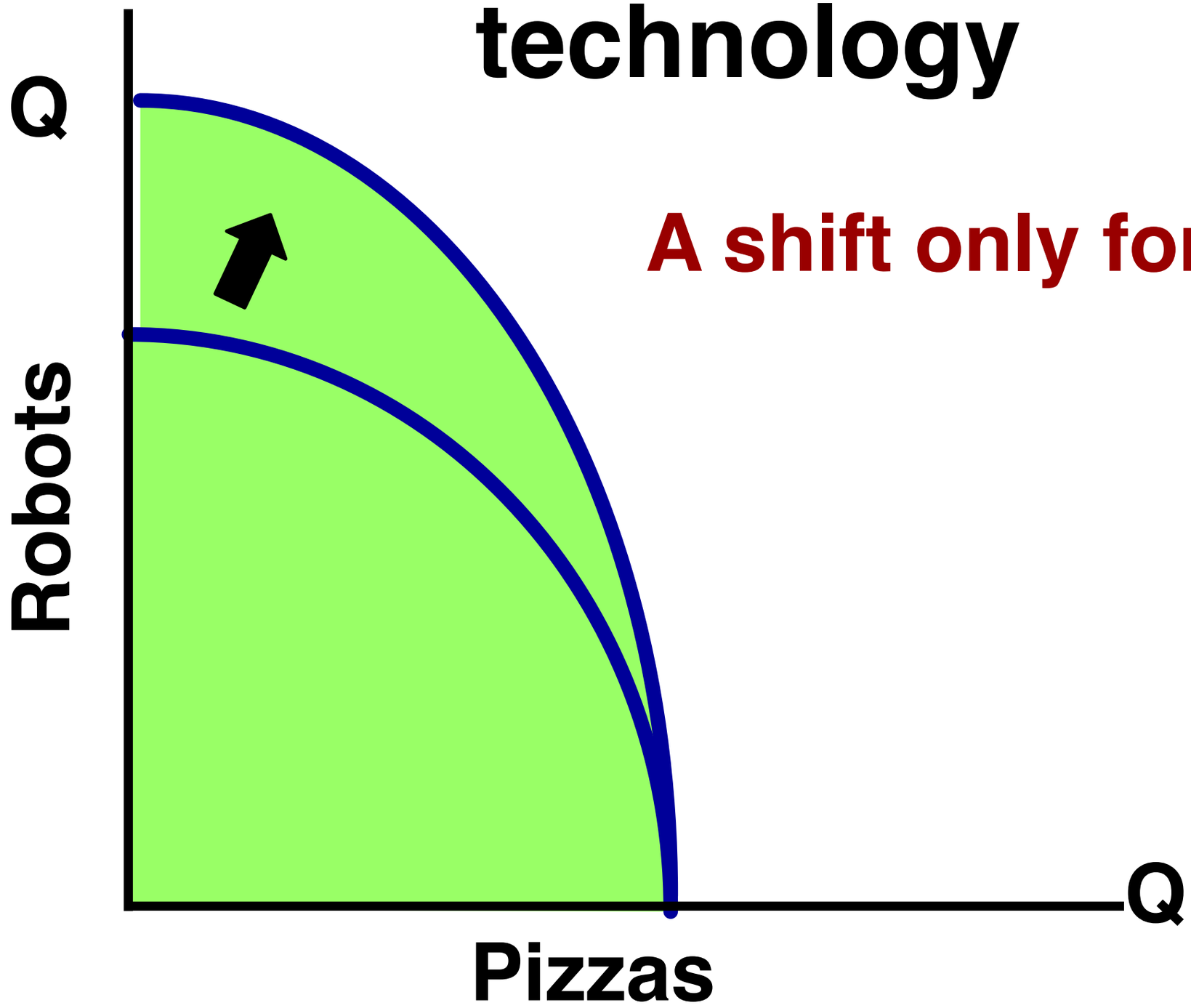
1. **New robot making technology**
2. **Decrease in the demand for pizza**
3. **Mad cow disease kills 85% of cows**

Consumer goods and Capital Goods (4)

4. **BP Oil Spill in the Gulf**
5. **Faster computer hardware**
6. **Many workers unemployed**
7. **Significant increases in education**

Question #1

New robot making technology

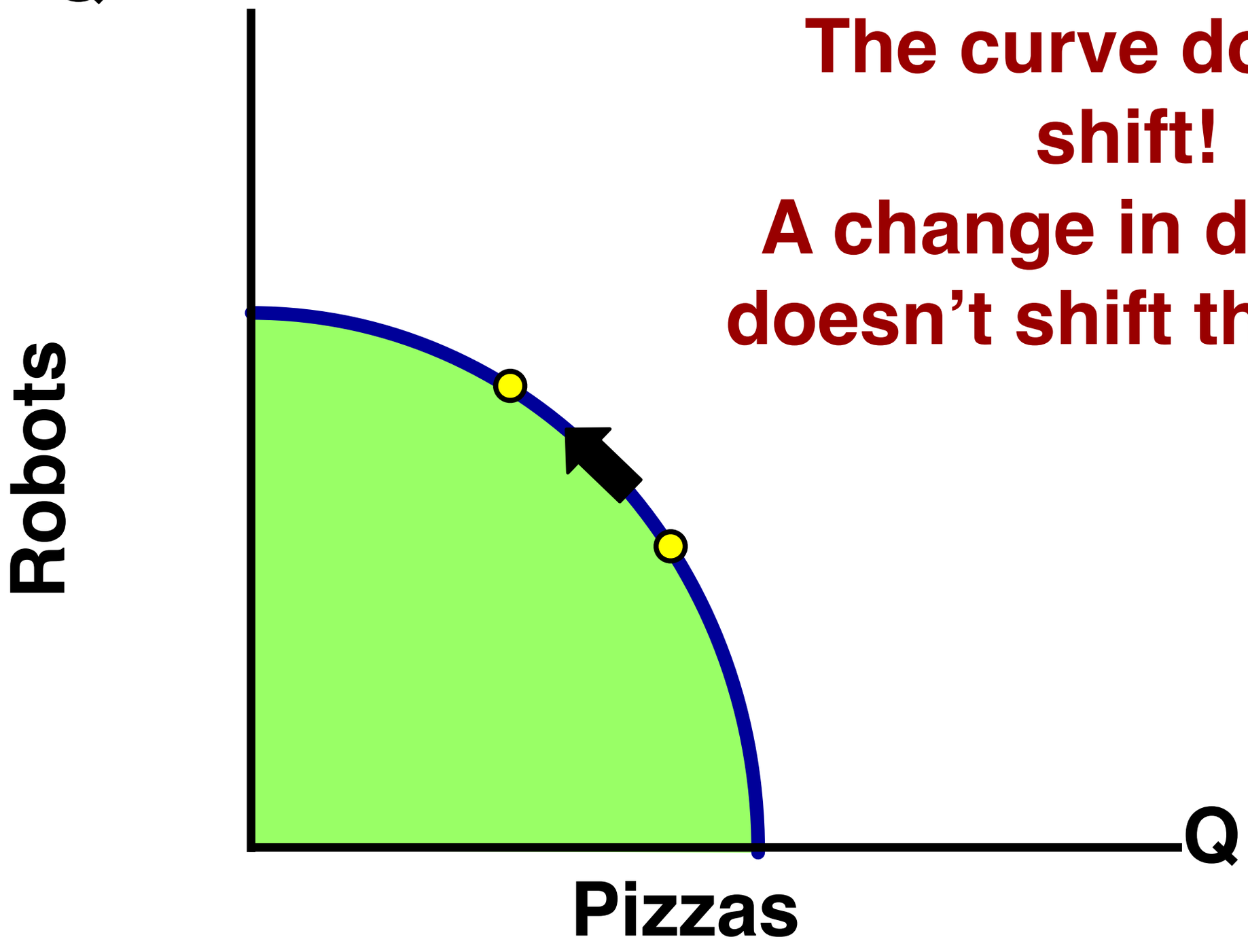


A shift only for Robots

Question #2

Decrease in the demand for pizza

Q

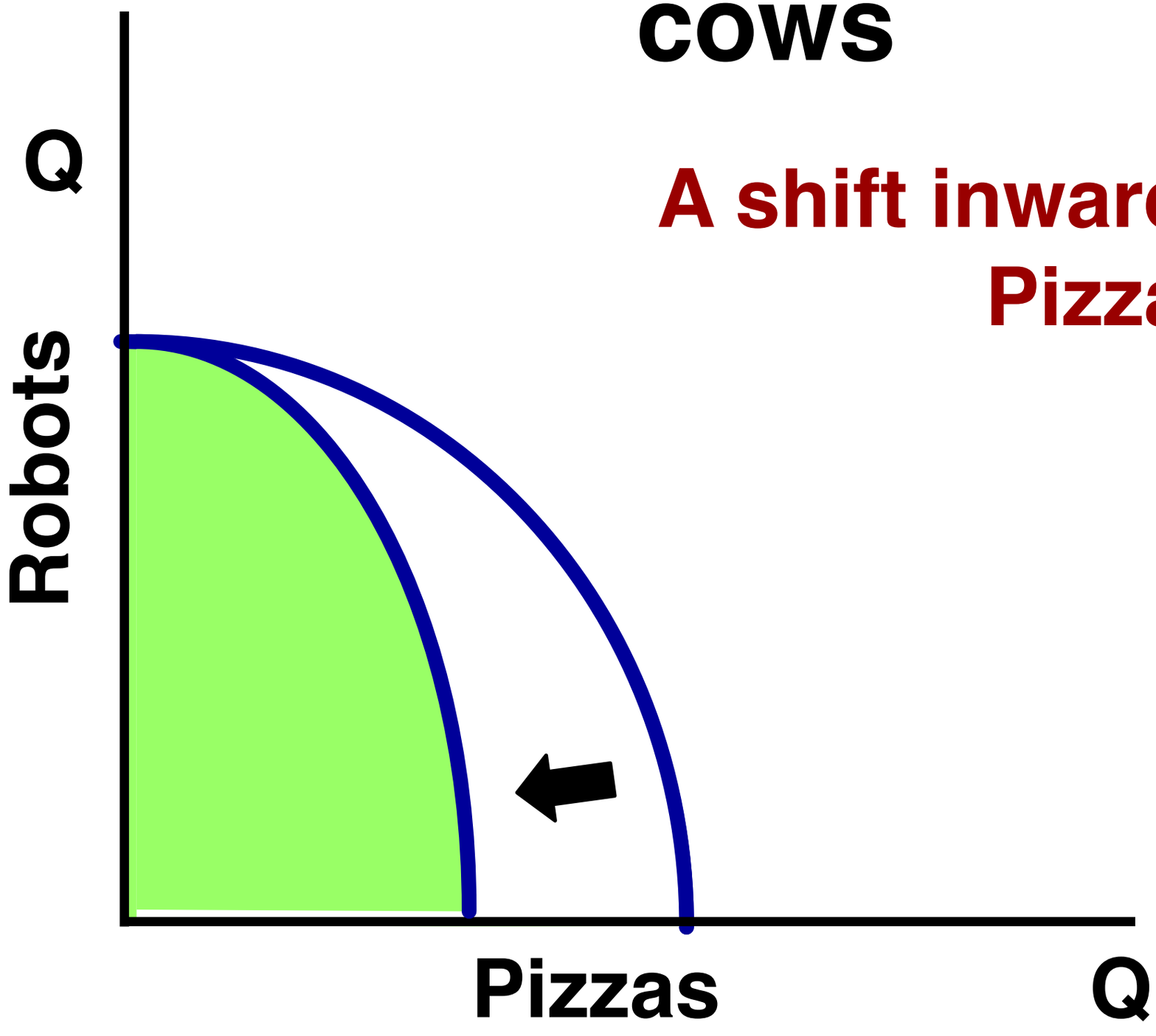


The curve doesn't shift!

A change in demand doesn't shift the curve

Question #3

Mad cow disease kills 85% of cows

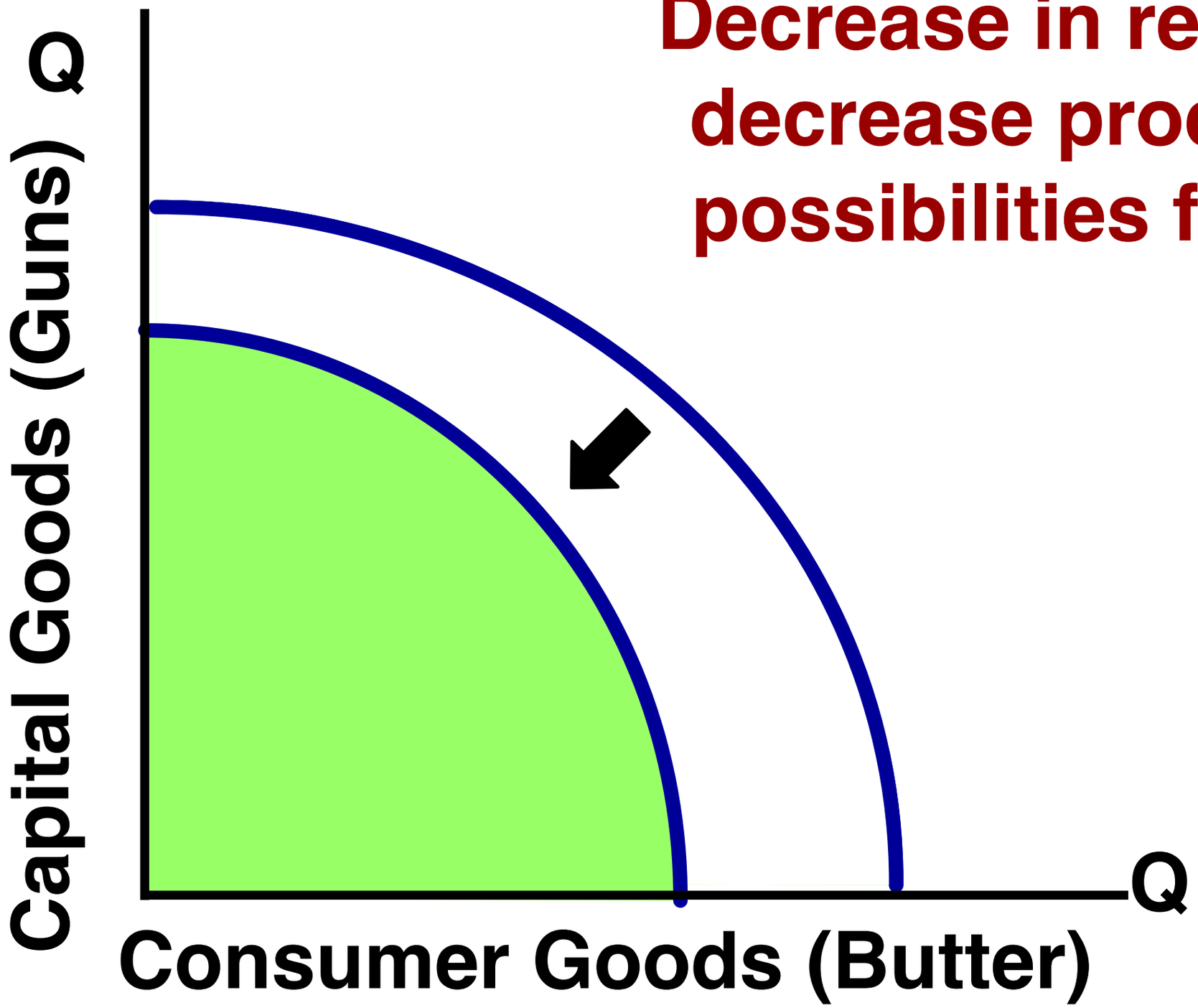


A shift inward only for Pizza

Question #4

BP Oil Spill in the Gulf

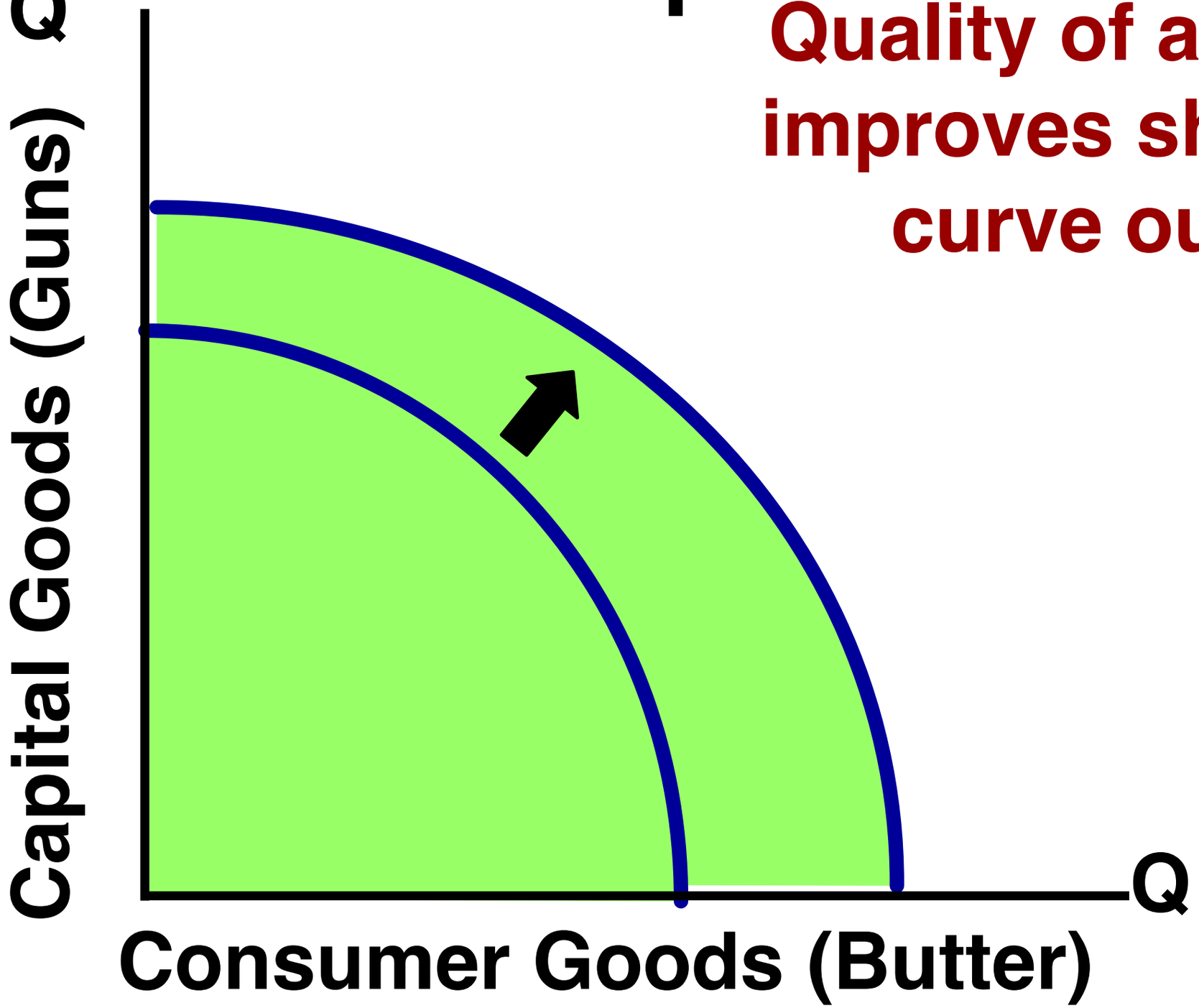
Decrease in resources
decrease production
possibilities for both



Question #5

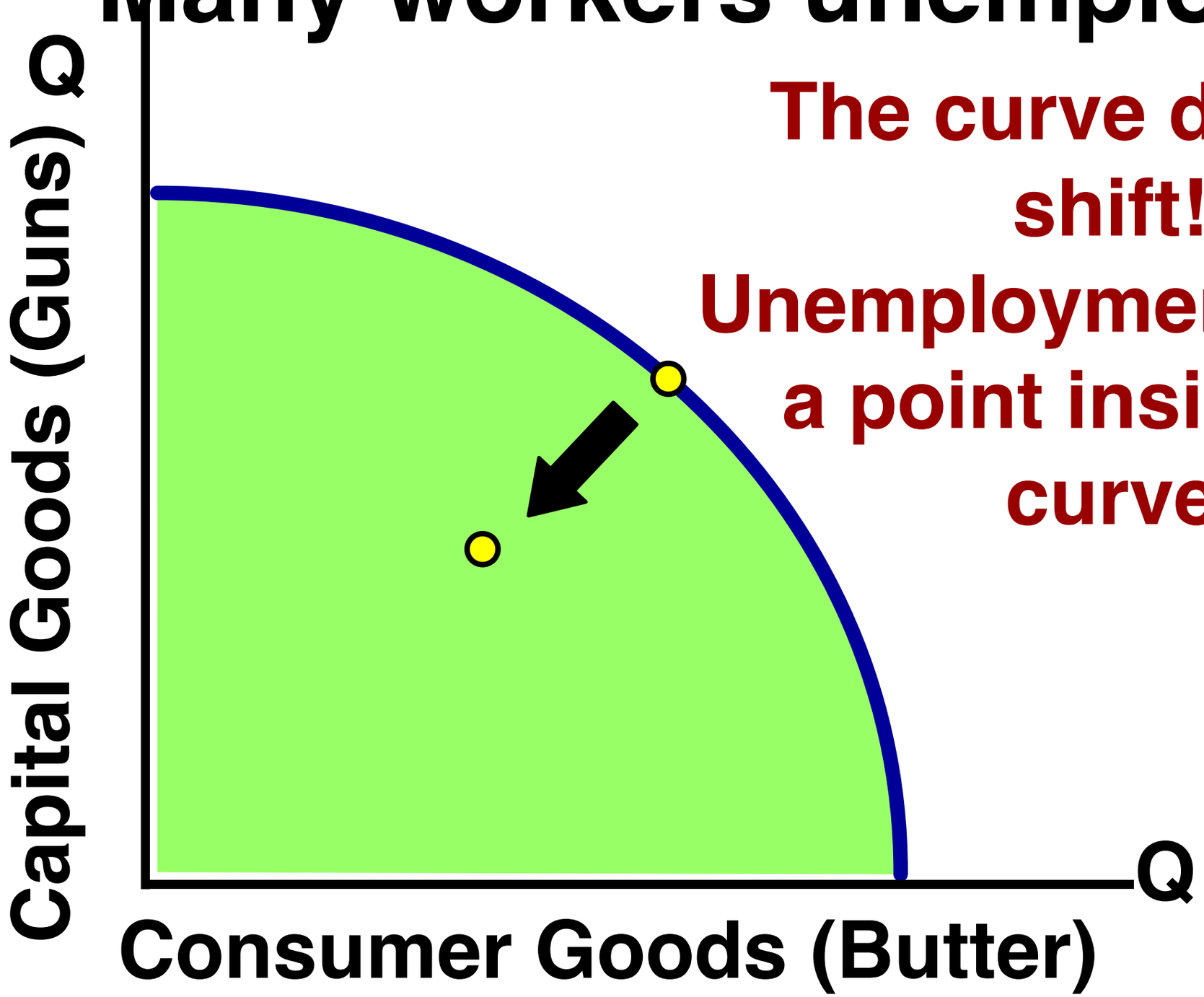
Faster computer hardware

Quality of a resource improves shifting the curve outward



Question #6

Many workers unemployed

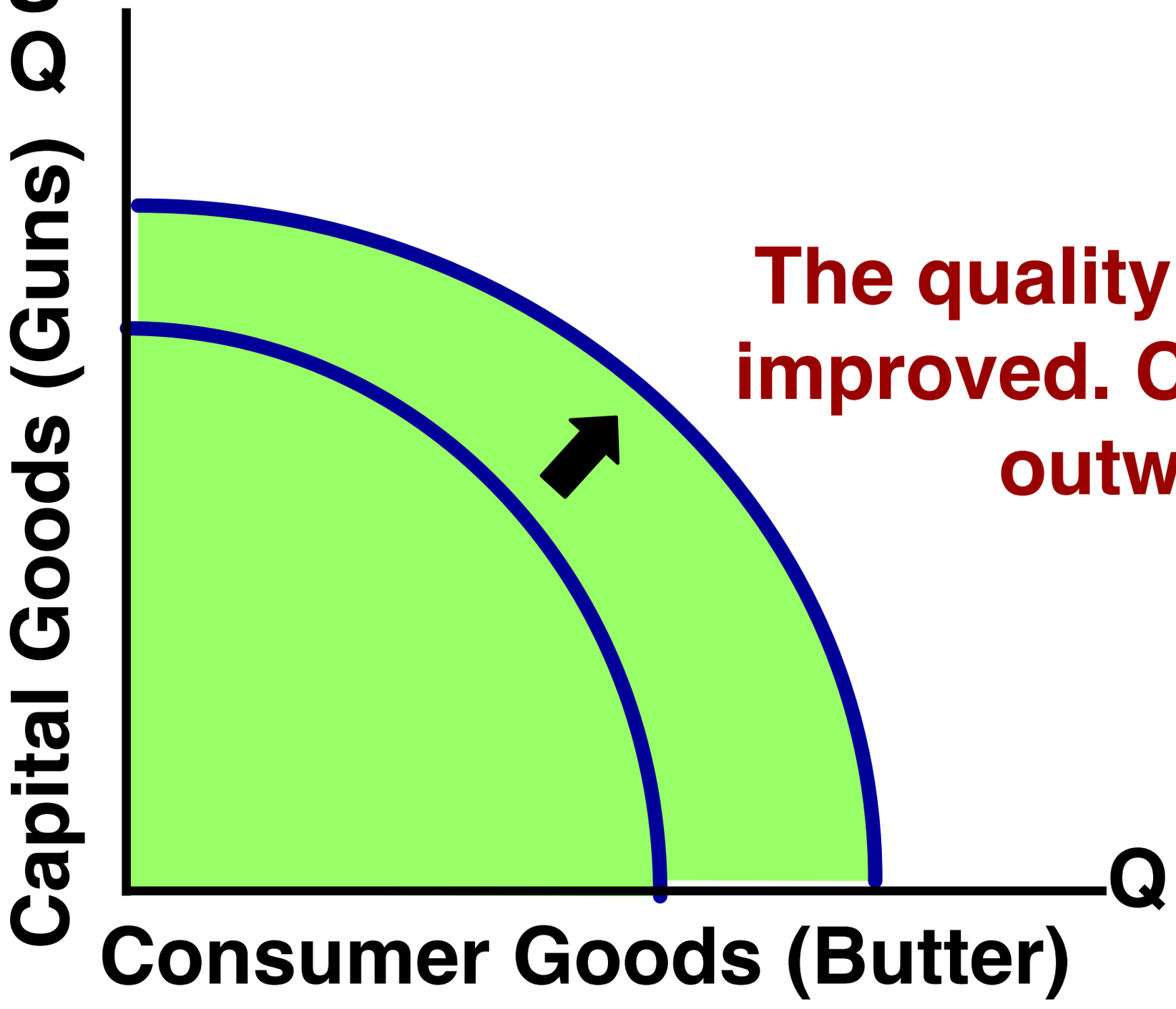


The curve doesn't shift!

Unemployment is just a point inside the curve

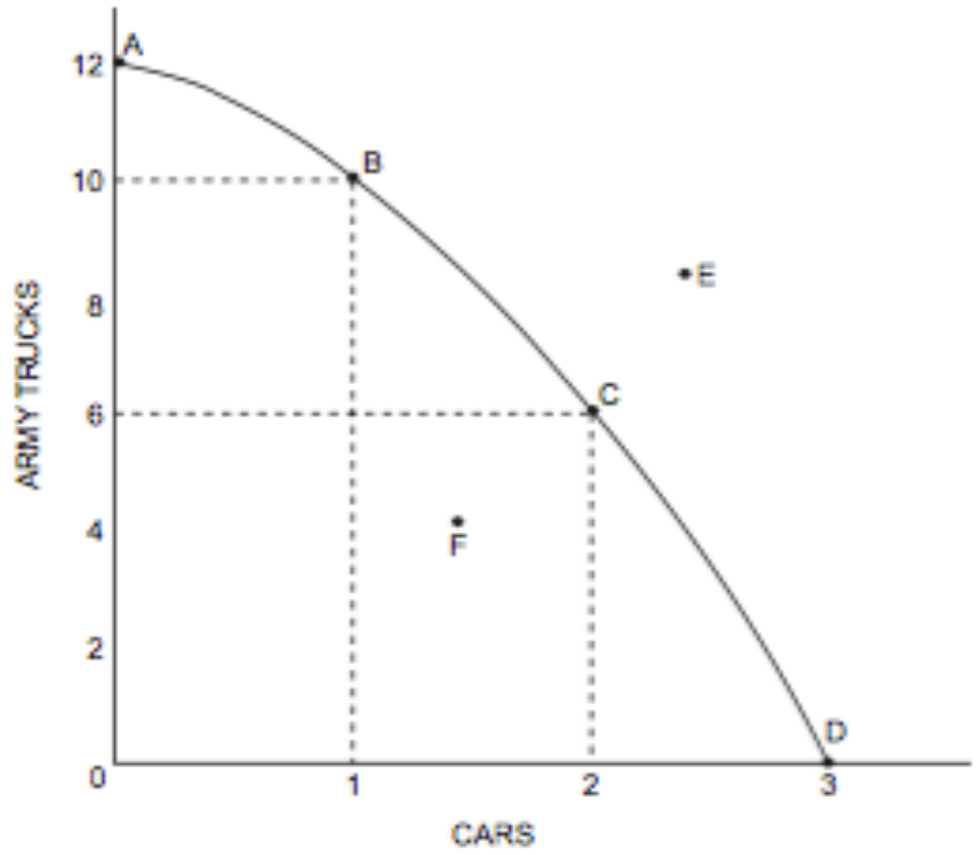
Question #7

Significant increases in education



The quality of labor is improved. Curve shifts outward.

Production Possibilities Curve



(1) What trade-offs are involved?

(2) Why is the PPC concave, or bowed out, from the origin?

(3) What does a point inside the PPC illustrate?

(4) What is a historical example of a point inside the PPC?

(5) What is the significance of a point outside the PPC?

(6) Under what conditions can a point outside the PPC be reached?

(7) What would a country's PPC look like if it did not have a scarcity of resources?

Review 1

- The relationship between choice and scarcity is one of cause and effect. Which is the cause? Which is the effect? Explain.
- Define opportunity costs. Explain why every choice has a cost.
- Consumer Sovereignty is an integral part of a democratic society. Why?
- What assumptions are required to draw a production possibility curve?
- Using a production possibility curve, illustrate the effect of a war that reduces the capital stock of a country.
- Why do opportunity costs generally increase as we produce more of a good?

Review 2

- What shifts the production possibilities curve outward?
- Suppose you were advising the government of China. What policies would you recommend to achieve increased economic growth?
- What is the difference between capital goods and consumption goods? Does it make any difference whether an economy devotes more resources to the production of capital goods, as opposed to the production of consumer goods?
- Explain why goods must be rationed according to some discriminatory criteria.
- What is the difference between a normative and positive economic statements? Provide examples of each.
- How does the market system answer the three economic questions?

Review 3

- Explain what it means "to think at the margin." Water is necessary for life. Is the marginal benefit of a glass of water large or small? What about the marginal benefit of watering a lawn?

- Why do economists tend to avoid the word "need"?

- Why do both individuals gain when they exchange goods or services?

- Most systems of hospitalization insurance substantially reduce the cost to the patient of hospitalization, sometimes to zero. How does this affect hospital use? Why? Evaluate the argument that it does not affect hospital use since "no one gets sick just because the hospitals are cheap, or avoids getting sick because they're expensive."

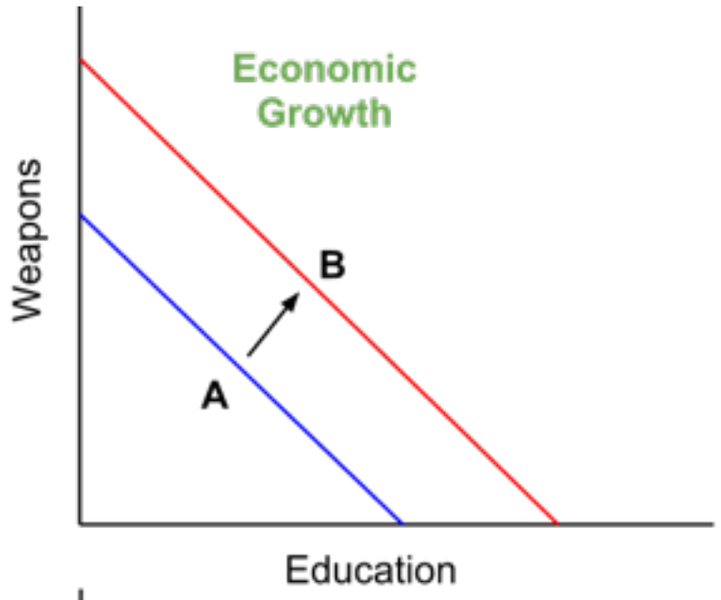
- What is the difference between scarcity and shortage?

Economic Growth vs. Economic Development

Two of the key areas of study in economics are those of growth and development. Sometimes these concepts are thought of as the same, but they are not.

Economic Growth: This refers to the increase in the total output of goods and services by a nation over time.

- It is also sometimes defined as an increase in household income over time.
- It is purely a monetary measure of the increases in the material well being of a nation.
- On a PPC growth can be shown as an outward shift of the curve.



Economic Development: This refers to the improvement in peoples' standard of living over time.

- Measured by improvements in health, education, equality, life expectancy and so on
- Incorporate income as well, but is a much broader measure than growth
- On a PPC development can be shown by a movement towards the production of goods that improve peoples' lives