Economics For Today 9th edition Tucker Solutions Manual

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Chapter 2
Production Possibilities, Opportunity Cost, and Economic Growth

CHAPTER SUMMARY

The *What*, *How* and *For Whom* questions are introduced as the fundamental economic questions that must be addressed by all societies. Because any nation's resources are scarce and its wants are unlimited then all nations are faced with scarcity. Therefore, we must all try to do the best with what we have---to maximize production given limited resources. This is shown in terms of the production possibilities model. There are only two general types of products which can be produced. These are consumer and capital products. Consumer products satisfy our wants directly and in the present. Capital products satisfy our wants indirectly and in the future. If we are efficient with our use of resources then we are producing a combination of consumer and capital products shown by a point on the production possibilities curve. Inefficiency is shown by a point inside the curve. A point outside is a combination of output which is currently unobtainable. However, the greater the investment in capital production, then the greater the rate of economic growth and therefore the larger the rightward shifts of the production possibilities curve and the sooner the nation will be able to produce any point which is currently outside its curve. But, the opportunity cost of greater rates of economic growth over time is foregone consumer goods production today, and therefore current satisfaction.

Indeed, there is an increasing opportunity cost associated with producing ever larger quantities of any one good. Marginal analysis enables us to make more rational decisions by concentrating on the marginal, or extra, benefits and costs associated with a decision to see if that activity or good "is worth it."

NEW CONCEPTS INTRODUCED

What, *How* and *For Whom* Questions	marginal analysis	law of increasing opportunity cost
investment	opportunity cost	economic growth
production possibilities curve	technology	

LEARNING OBJECTIVES

After completing this chapter, you should be able to:

1. Explain the three fundamental economic questions.
2. Explain opportunity cost using examples..
3. Explain marginal analysis using examples.
4. Understand a production possibilities curve.
5. Illustrate economic growth using a production possibilities curve.
6. Define investment.

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CHAPTER OUTLINE

2-1 Three Fundamental Economic Questions
- a. What To Produce?
- b. How To Produce?
- c. For Whom To Produce?

2-2 Opportunity Cost

Exhibit 1 "The Links between Scarcity, Choice, and Opportunity Cost"

2-3 Marginal Analysis

2-4 The Production Possibilities Curve

Exhibit 2 "The Production Possibilities Curve for Military Goods and Consumer Goods"

2-5 The Law of Increasing Opportunity Costs

Exhibit 3 "The Law of Increasing Opportunity Costs"

2-6 Sources of Economic Growth
- a. Changes in Resources
- b. Technological Change

Exhibit 4 "An Outward Shift of the Production Possibilities Curve for Computers and Pizzas"

Checkpoint: *"What Does a War of Terrorism Really Mean?"*

You're The Economist: Analyze the Issue
"FedEx Wasn't an Overnight Success" Applicable Concept: entrepreneurship.

2-7 Present Investment and Future Production Possibilities Curve

Exhibit 5 "Alpha's and Beta's Present and Future Production Possibilities Curves"

Global Economics: Analyze the Issue
"How Does Public Capital Affect a Nation's Curve?" Applicable Concept: economic growth.

Summary of Conclusion Statements
- a. Scarcity limits an economy to points on or below its production possibilities curve.
- b. The production possibilities curve consists of all efficient output combinations where an economy can produce more of one good only by producing less of the other good.
- c. The lack of perfect interchangeability between workers is the cause of increasing opportunity costs and the bowed-out shape of the production possibilities curve.
- d. A nation can accelerate economic growth by increasing its production of capital goods in excess of the capital being worn out in the production process.

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HINTS FOR EFFECTIVE TEACHING

1. Some instructors prefer to teach comparative advantage with the concepts in this chapter. These instructors should assign the first few pages of Chapter 28 which covers this topic.

2. You may want to elaborate on the three fundamental economic questions ("How", "What" and "For Whom") which any society must address. These fundamental questions are related to the desire to maximize production, to produce a combination of products most desired by society, and to distribute products in some equitable manner. All nations have to grapple with these issues as a result of scarcity. You may have alluded to this in the first chapter. You may want to ask students what they think the answers are to these questions. In the process point out that in a capitalist system consumer demand (sovereignty) predominately determines what gets produced. The "How" question is predominately answered by businesses when they determine the resource mix used in the production process subject to their desire to limit their costs and to maximize their profits. For whom goods and services are produced is largely determined by the distribution of income. If you have more money you get more goods and services.

   Moreover, you may want to reiterate that social and political forces, in addition to economic forces also help to determine the answers to the fundamental economic questions. Ask students to provide examples of how social and political forces can impact these fundamental economic questions.

3. Because opportunity cost is such a fundamental economic concept you should make sure that students understand what it is through the use of several examples. Ask them what their opportunity cost is for being in class today.

4. Point out that opportunity costs are associated with *every* decision. Sometimes they are not so obvious--they are often implicit costs.

5. Point out that *all* costs are opportunity costs. *Note that opportunity costs cannot always be measured in dollars and cents.*

6. You may wish to elaborate on marginal analysis, which is at the heart of *rational* decision making. Note that if the marginal benefits exceed the marginal costs of a decision, then it is rational to do more of that activity because "its worth it"---you are adding more in benefits than in costs; and vice versa. Point out, however, that benefits and costs of a decision are not always clear. You don't always know what they are going to be. Moreover, they may not be easily measured or quantified. Instead, they often must be subjectively estimated. Therefore, what may appear as rational to one person may not appear as rational to someone else because of the different subjective estimates of benefits and costs.

   After discussing a consumption decision, you may want to drive the point home by pointing out that reasonable people can disagree over whether government involvement in a particular situation is "worth it" or not, because of their differing subjective measures of the benefits and costs associated with that government involvement.

7. Stress that all nations attempt to produce on their production possibilities curves---to maximize production given their limited resources. To do so will require employing all their resources. This is why *full employment is a universal national economic (macroeconomic) goal.* Because full employment *is illustrated as a point on the curve*, then all nations attempt to be on their production possibilities curves. If some unemployment and/or underemployment is experienced, then it is illustrated as a combination of output shown by a point inside the curve.

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A point outside the curve is *currently* unattainable. However, with enough economic growth that combination of consumer and capital products may be feasible.

8. In terms of the production possibilities model, stress that there are only two general types of products which can be produced---consumer and capital products. Consumer products satisfy our wants directly and in the present. Capital products satisfy our wants indirectly and in the future. It may appear tempting to produce a lot of consumer products now because this will satisfy us more now. However, the opportunity cost is fewer capital goods production which is necessary for future growth. (Explain that investment in capital goods will increase future production possibilities because workers are more productive the more plant and equipment they have to work with. Emphasize that greater growth is illustrated as a rightward shift of the production possibilities curve.) Therefore, if we choose a lot of consumer goods production now it will be at the expense of not so much later on. In short, *our present location on the production possibilities curve will determine the future location of the curve.*

   Moreover, emphasize that *economic growth is another one of the three major macroeconomic goals.* It is a major macroeconomic goal because it increases the size of the "economic pie." Assuming no change in the distribution of income, growth ensures that everyone gets "a bigger piece of the pie." Otherwise stated, *economic growth is desired because it increases the nation's average absolute standard of living.* But, higher standards of living require the sacrifice of current consumption in order to free up resources to be devoted to the production of capital products. *We need less consumption and more investment for greater growth and higher standards of living.*

CRITICAL THINKING/GROUP DISCUSSION QUESTIONS

1. How does government affect the answer to the "What" fundamental economic question?
   Whenever it taxes or spends money, or when it bans the production of some products...
2. How does government affect the answer to the "How" fundamental economic question?
   By setting government standards and regulatory guidelines...
3. How does government affect the answer to the "For Whom" fundamental economic question?
   By redistributing income via the personal income tax system...
4. What is the opportunity cost of attending college?
   The foregone income which could have been earned working full time.
5. What is the cost of a new car?
   The amount of other goods and services which could have been purchased but now must be given up.
6. What is the profit-maximizing quantity of output for a firm to produce?
   That output in which the marginal benefits from production no longer exceed the marginal cost (where MR = MC).
7. Under what conditions would a nation be able to *currently* produce more of both consumer and capital products?
   If production is currently occurring at a point inside its production possibilities curve---if there is currently some unemployment and/or underemployment.
8. What are the necessary ingredients for a nation to experience greater rates of economic growth, higher average standards of living, and a greater ability to compete in the global economy? That is, what could the U.S. do to achieve all this?
   Need: 1) investment in private capital; 2) investment in public capital (infrastructure); 3) investment in human capital---people (e.g. education); 4) growth in technology; 5) entrepreneurship; 6) stable political environment.
9. What are some problems associated with economic growth?
   Environmental problems...Note, one needs to weigh the benefits against the costs to determine whether more growth is worth it.

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CLASSROOM GAMES

Approximately 170 non-computerized economic games (experiments) for use in the classroom are available for free at http://www.marietta.edu/~delemeeg/games/. The following games are recommended to help teach some of the concepts in this chapter:

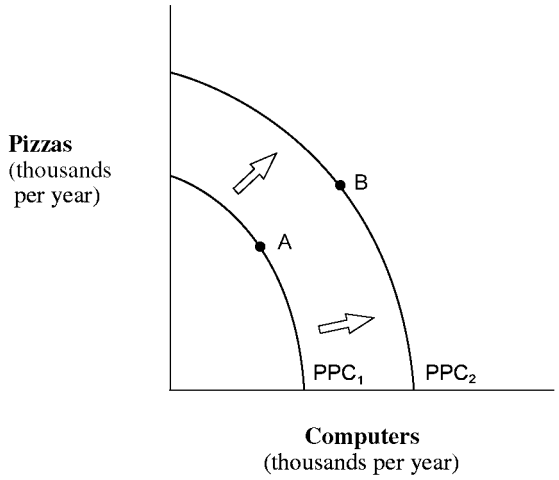
Game #107—Objective: To illustrate a production process subject to diminishing returns and illustrate the construction of a production possibilities frontier.
Games #117— Objective: To illustrate the impact of specialization of resources on the construction of a production possibilities frontier.

ANSWERS TO: *"You're the Economist" and "Global Economics:" "Analyze the Issue"*

FEDEX WASN'T AN OVERNIGHT SUCCESS

Draw a production possibilities curve for an economy producing only pizzas and computers. Explain how Fred Smith and other entrepreneurs affect the curve.

Suppose the economy produces only pizzas and computers at point A on the production possibilities curve PPC_1. Holding all other factors constant, the impact of an entrepreneur is to shift the curve outward to PPC_2. The reason is that the entrepreneur provides a new way to produce more output with the same resources and technology. In the case of Fred Smith, overnight mail service speeded up the delivery of vital parts and communications needed to operate businesses. As a result, the economy can move from point A to point B and produce more pizzas and computers in the same period of time.



HOW DOES PUBLIC CAPITAL AFFECT A NATION'S CURVE?

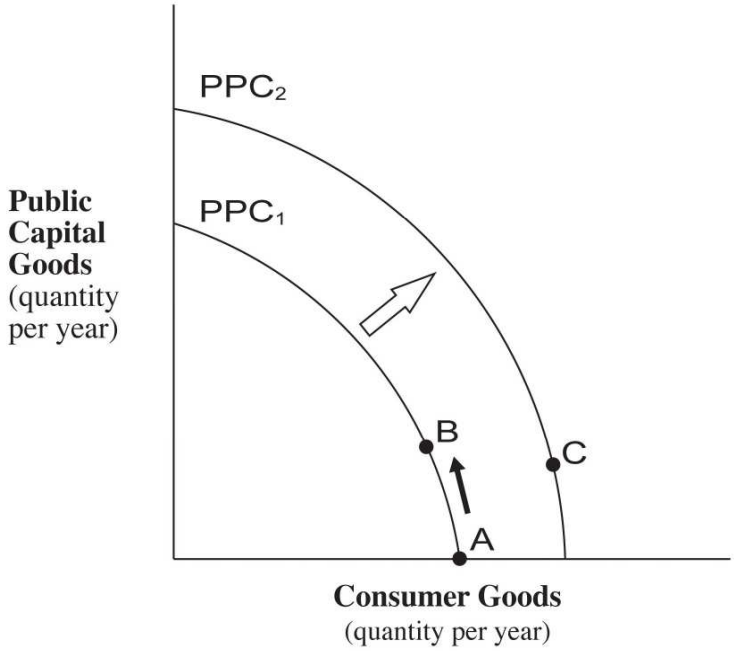
Construct a production possibilities curve for a hypothetical country. Put public capital goods per year on the vertical axis and consumer goods per year on the horizontal axis. Not shown directly in your graph, assume that this country produces just enough private capital per year to replace its depreciated capital. Assume further that this country is without public capital and is operating at point A where consumer goods are at a maximum. Based on the above research and using a production possibilities curve show

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and explain what happens to this country's private capital, production possibilities curve, and standard of living if it increases its output of public capital.

> *At point A, this country's production possibilities curve will remain at PPC_1 and achieve no growth because its private capital output only replaces its depreciated capital used to produce consumer goods. Now assume an increase in public capital goods output as a tradeoff for less output of consumer goods, as shown as movement from point A to point B. The predicted result would be an increase in the production of new private capital stock because of the benefits from infrastructure. Since private capital output increases, the economy grows from PPC_1 to PPC_2 and the standard of living rises because this country can produce greater consumer goods per year at point C on PPC_2.*



ANSWERS TO EVEN-NUMBERED *"Study Questions and Problems"*

2. *The cost of the car is independent of the price charged for the car. The true cost is the opportunity cost of producing it. For example, the same resources could have been used to produce a truck for the military.*

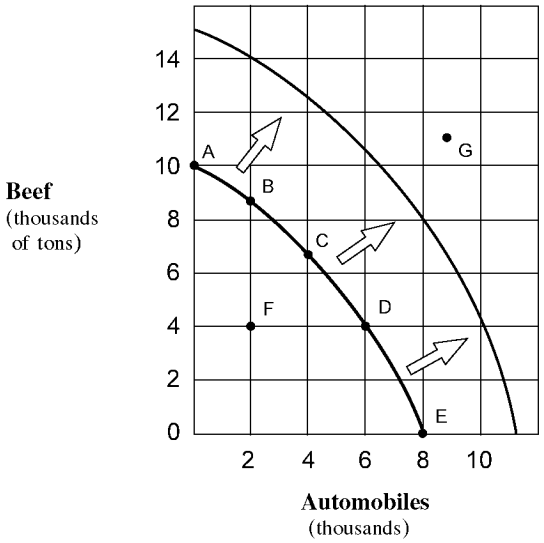
4. *Decision (a) produces the greatest opportunity cost because the alternative use of a lot in Tokyo is much more valuable than the use of a square mile of desert.*

6. *See the figure below.*

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(a) (Points A-B) 1 thousand tons of beef, (Points D-E) 4 thousand tons of beef, and (Points B-A) 2 thousand automobiles.



(b) Point F is an inefficient point because it is possible to produce either more automobiles or more beef without producing less of the other output. Point G is impossible to produce, given the definition of the production possibilities curve as the maximum combinations that can be produced with existing resources and technology. Points A through E are efficient because more of one of the products can be produced only by incurring an opportunity cost in terms of the other product.

(c) The law of increasing costs is reflected. Moving from the origin along the horizontal axis, each 2 thousand unit increase in the output of automobiles results in greater declines in beef production, measured along the vertical axis. Beef declines (in thousands of units) between points A-B, B-C, C-D, and D-E are -1, -2, -3, and -4, respectively. These values reflect the changing slope that determines the bowed-outward shape of the production possibilities curve.

(d) Any one of the four factors of production could be increased or improved, and this would expand the economy's production capacity. An advance in technology would also shift the curve outward. A decline in the quantity or the quality of resources would shift the production curve to the left. Students should be able to translate a 50 percent increase in the production combinations into their graph.

8. *The production possibilities curve is convex, looking down from above, because of the law of increasing costs. This law states that resources are not perfectly interchangeable from production of one type of output to another.*

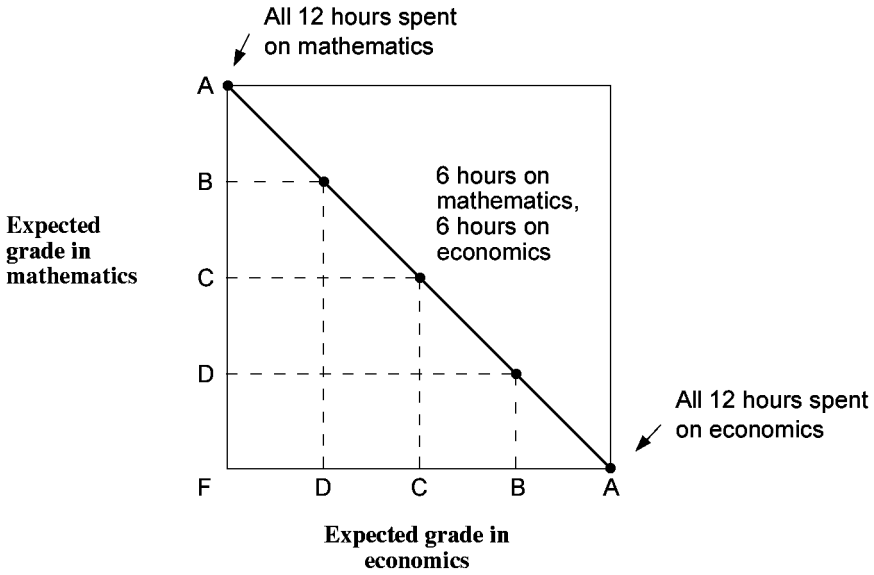
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10. (a) **Maximum Production Possibilities for Expected Grades in Mathematics and Economics**

Number of hours studied	*Expected grade in economics*	*Number of hours studied*	*Expected grade in mathematics*
0	*F*	*12*	*A*
3	*D*	*9*	*B*
6	*C*	*6*	*C*
9	*B*	*3*	*D*
12	*A*	*0*	*F*

(b) Figure 2A-2



One assumption is that the number of hours does not vary. Another is that the student has correctly determined that there is a one-to-one trade off. One letter grade in economics is always exchanged for one letter grade in mathematics.

(c) The curve is not bowed outward and, instead, is a downward-sloping straight line reflecting constant opportunity costs. Selecting any of the output combinations requires shifting 3 hours study time from one subject to another. Each change in 3 hours of study time reflects a constant slope of one letter grade gain for one letter grade loss.

12. *Investment is the act of increasing an economy's stock of capital. This process means that an economy is replacing worn-out capital and producing a net gain in new factories, equipment, and other capital goods that increase the productivity of the other factors of production. The increased quantity of capital results in additional capacity of the economy to produce goods and services. Thus, the production possibilities curve shifts rightward, and economic growth is achieved.*

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CHAPTER 2 SUMMARY QUIZ

1. Which of the following statements is true?
   a. An opportunity cost is what must be given up in order to get something else.
   b. The three fundamental economic questions refer to What to produce? How to produce? and When to produce?
   c. The term "investment" refers to the purchase of stocks and bonds and other financial securities.
   d. The law of increasing opportunity cost implies that as production of one type of good is expanded then fewer and fewer of other goods must be given up.

2. Which of the following statements is *false*?
   a. Marginal analysis is an examination of the effects of additions or subtractions from a current situation.
   b. The production possibilities curve shows the maximum combination of two outputs that an economy can produce, given its available resources and technology.
   c. Technology is the body of knowledge and skills applied to how goods are produced.
   d. Economic growth is illustrated as an inward shift of the production possibilities curve.

3. Given a production possibilities curve, a point:
   a. inside the curve represents unemployment.
   b. on the curve represents full employment.
   c. outside the curve is currently unattainable.
   d. all of the above.

4. A rightward (an outward) shift of a nation's production possibilities curve could be caused by:
   a. a decrease in technology.
   b. an increase in resources.
   c. producing more consumer and fewer capital goods.
   d. a decline in the labor force's level of education and skills.

ANSWERS TO CHAPTER 2 SUMMARY QUIZ

1. a
2. d
3. d
4. b

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Chapter 2
Production Possibilities, Opportunity Cost, and Economic Growth

CHAPTER IN A NUTSHELL

In this chapter, you continue your quest to learn the economic way of thinking. The chapter begins with the three basic questions each economy must answer: (1) What to produce? (2) How to produce? and (3) For whom to produce? The chapter then introduces concepts which economists use to analyze choice-the production possibilities curve and opportunity costs. The production possibilities curve indicates various maximum combinations of the output of two goods a simple economy can produce. The economy can achieve economic growth by pushing the production possibilities curve outward. This shift in the curve can be caused by increasing resources and/or advances in technology.

KEY CONCEPTS

Economic growth
Investment
Law of increasing opportunity costs
Marginal analysis
Opportunity cost
Production possibilities curve
Technology
What, How, and For Whom questions

LEARNING OBJECTIVES

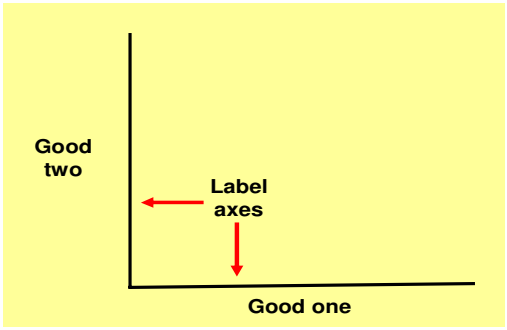
After completing this chapter, you should be able to:

1. Explain how capitalism answers the *What*, *How*, and *For Whom* fundamental economic questions.
2. Understand what is meant by an opportunity cost and give some examples.
3. Explain why an opportunity cost is an implicit cost incurred in making all decisions.
4. Explain why marginal analysis can give rise to more rational decisions.
5. Graphically express a production possibilities model.
6. Understand that the production possibilities model illustrates the problem of scarcity, therefore choices have to made, and when choices are made that an opportunity cost is incurred.
7. Illustrate production efficiency and inefficiency in the context of the production possibilities graph.
8. Describe what is meant by the law of increasing opportunity cost and why it exists.
9. Explain what is meant by investment.

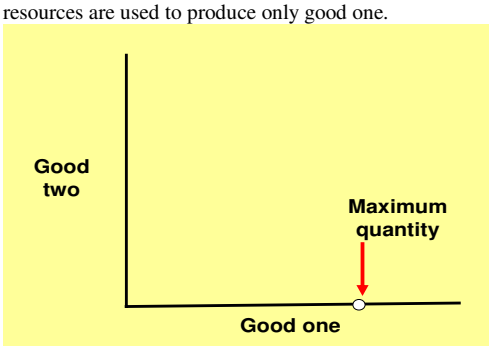
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THE ECONOMIST'S TOOL KIT
Plotting the Production Possibilities Curve

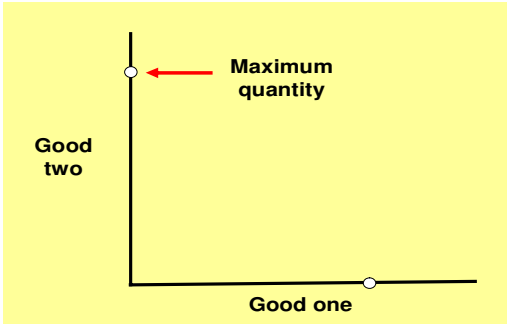
Step one: Draw and label a set of coordinate axes.



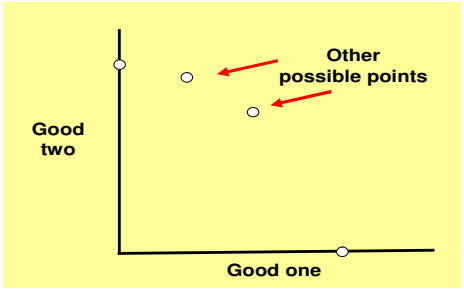
Step two: Plot the maximum quantity that can be produced if all resources are used to produce only good one.



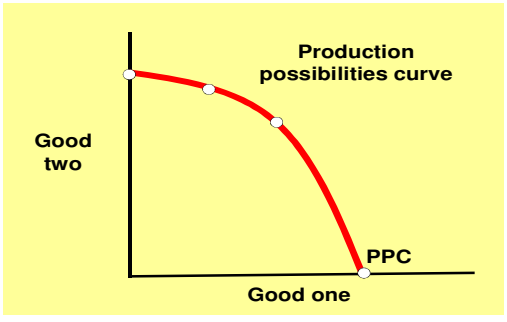
Step three: Plot the maximum quantity that can be produced if all resources are used to produce only good two.



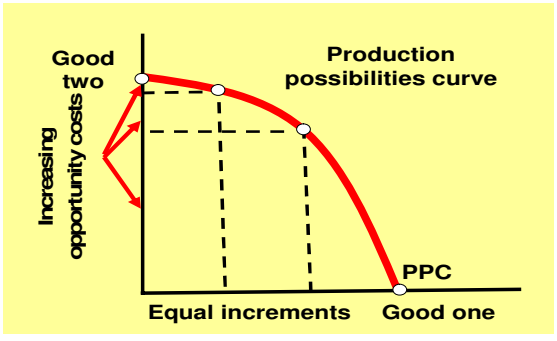
Step four: Plot other maximum possible combinations of both goods that can be produced if all resources are used to produce only two goods.



Step five: Draw a smooth curve connecting these points and label it PPC. This curve is the production possibilities curve.



Step six: Verify that increasing opportunity, measured on the vertical axis, occurs as equal increments of good one are produced along the horizontal axis and the slope gets steeper.



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COMPLETION QUESTIONS

1. The _____ problem concerns the division of output among society's citizens. The _____ question asks exactly which goods are to be produced and in what quantities. The _____ question requires society to decide the resource mix used to produce goods.

2. _____ is the best alternative forgone for a chosen option.

3. The basic approach that compares additional benefits of a change against the additional costs of the change is called _____.

4. The _____ represents the maximum possible combinations of two outputs that can be produced in a given period of time. Inefficient production occurs at any point inside the curve and all points along the curve are efficient points.

5. The _____ states that the opportunity cost increases as production of an output expands.

6. _____ occurs when the production possibilities curve shifts outward as the result of changes in the resource base or advance in technology.

7. Factories, equipment, and inventories produced in the present are called _____which can be used to shift the production possibilities curve outward in the future.

8. The body of knowledge and skills applied to how goods are produced is _____.

MULTIPLE CHOICE

1. Which of the following is *not* one of the three fundamental economic questions?
   a. What happens when you add to or subtract from a current situation?
   b. For whom to produce?
   c. How to produce?
   d. What to produce?

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2. Which of the following does *not* illustrate opportunity cost?
   a. If I study, I must give up going to the football game.
   b. If I buy a computer, I must do without a 35" television.
   c. *More* consumer spending now means *more* spending in the future.
   d. If I spend more on clothes, I must spend less on food.

3. Which of the following would be *most* likely to cause the production possibility curve for computers and education to shift outward?
   a. A choice of more computers and less education.
   b. A choice of more education and less computers.
   c. A reduction in the labor force.
   d. An increase in the quantity of resources.

Exhibit 1 Production possibility curve data

	A	B	C	D	E	F
Capital goods	15	14	12	9	5	0
Consumer goods	0	2	4	6	8	10

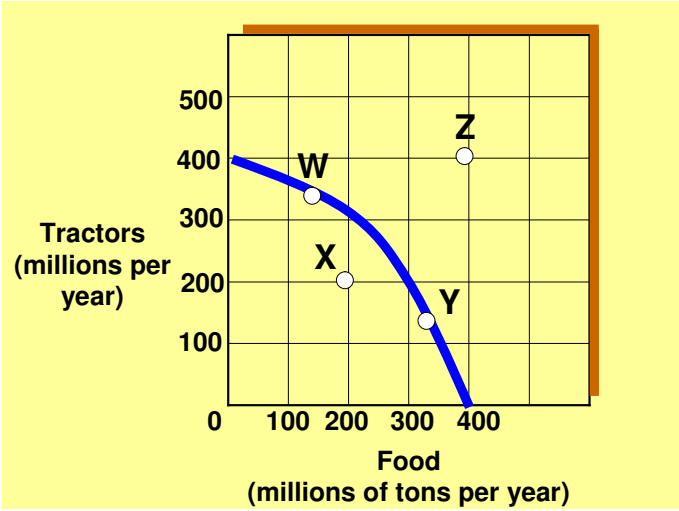
4. As shown in Exhibit 1, the concept of increasing opportunity costs is reflected in the fact that:
   a. the quantity of consumer goods produced can never be zero.
   b. the labor force in the economy is homogeneous.
   c. greater amounts of capital goods must be sacrificed to produce an additional 2 units of consumer goods.
   d. a graph of the production data is a downward-sloping straight line.

5. As shown in Exhibit 1, a total output of 0 units of capital goods and 10 units of consumer goods is:
   a. the maximum possible output of capital goods for this economy.
   b. an inefficient way of using the economy's scarce resources.
   c. the result of efficient use of the economy's resources.
   d. unobtainable in this economy.

6. As shown in Exhibit 1, a total output of 14 units of capital goods and 0 units of consumer goods is:
   a. the result of maximum use of the economy's labor force.
   b. an efficient way of using the economy's scarce resources.
   c. unobtainable in this economy.
   d. less than the maximum rate of output for this economy.

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Exhibit 2 Production possibilities curve



7. If the economy represented in Exhibit 2 is operating at Point W:
   a. no tractor production must be forgone to produce more food in the current period.
   b. resources are not fully used.
   c. some tractor production must be forgone to produce more food in the current period.
   d. increased food production would be impossible.

8 Which of the following moves from one point to another in Exhibit 2 would represent an increase in economic efficiency?
   a. Z to W
   b. W to Y
   c. W to X
   d. X to Y

9. Movement along the production possibilities curve shown in Exhibit 2 indicates:
   a. that labor is not equally productive or homogeneous.
   b. declining opportunity costs.
   c. all inputs are homogeneous.
   d. All of the answers above are correct.

10. In order for the economy shown in Exhibit 2 to reach point Z, it must:
   a. suffer resource unemployment.
   b. experience an increase in its resources and/or an improvement in its technology.
   c. use its resources more efficiently than at point W or Y.
   d. All of the answers above are correct.

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11. The following two alternatives exist for a student who has one evening in which to prepare for two exams on the following day:

Possibility	Score in Economics	Score in Accounting
A	95	80
B	80	90

The opportunity cost of receiving a 90 rather than an 80 on the accounting exam is represented by how many points on the economics exam?
a. 15 points.
b. 80 points.
c. 90 points.
d. 10 points.

12. On a production possibilities curve, a change from economic inefficiency to economic efficiency is obtained by:
a. movement along the curve.
b. movement from outside the frontier to a point on the curve.
c. movement from a point inside the frontier to a point on the curve.
d. a change in the slope of the curve.

13. One of the assumptions underlying the production possibilities curve for any given economy is that:
a. the state of technology is changing.
b. there is an unlimited supply of available resources.
c. there is full employment and no underemployment of resources when the economy is operating on the curve.
d. goods can be produced in unlimited quantities.

14. Any point on the production possibilities curve illustrates:
a. minimum production combinations.
b. maximum production combinations.
c. economic growth.
d. a nonfeasible production combination.

15. A production possibilities curve has "good X" on the horizontal axis and "good Y" on the vertical axis. On this diagram, the opportunity cost of good X, in terms of good Y, is represented by the:
a. distance to the curve from the horizontal axis.
b. distance to curve from the vertical axis.
c. movement along the curve.
d. None of the answers above are correct.

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16. As production of a good increases, opportunity costs rise because:
    a. there will be more inefficiency.
    b. people always prefer having more goods.
    c. of inflationary pressures.
    d. workers are not equally suited to all tasks.

17. Which of the following would be *most* likely to cause the production possibility curve for tanks and cars to shift outward?
    a. A reduction in the labor force.
    b. A choice of more tanks and fewer cars.
    c. A choice of more cars and fewer tanks.
    d. An increase in the quantity of natural resources.

18. Which of the following cause(s) economic growth?
    a. Answers c and d are correct.
    b. Answers d and e are correct.
    c. The production of more scarce goods
    d. A technological improvement
    e. The production of more capital goods

19. A source of economic growth is:
    a. unemployment.
    b. inefficiency.
    c. less resources.
    d. greater entrepreneurship.

20. In economics, investment refers to the process of accumulating:
    a. capital goods.
    b. inefficiency.
    c. money.
    d. stocks and bonds.

TRUE OR FALSE

1. T F The opportunity cost of a good is the good or service forgone for a chosen good or service.

2. T F If some resources were used inefficiently, the economy would tend to operate outside its production possibilities curve.

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3. T F Of all the points on the production possibilities curve, only one point represents an efficient division of labor.

4. T F The most efficient point on the production possibilities curve is the midpoint on the curve.

5. T F On the production possibilities curve, a movement between points that yields a loss of one good in order to raise the output of another good will maintain efficient production.

6. T F If more of one good can be produced without loss of output of another along the same production possibilities curve, the economy must have been operating efficiently.

7. T F All points on the production possibilities curve represent efficient levels of production.

8. T F Investment is an economic term for the act of increasing the stock of money available for business loans.

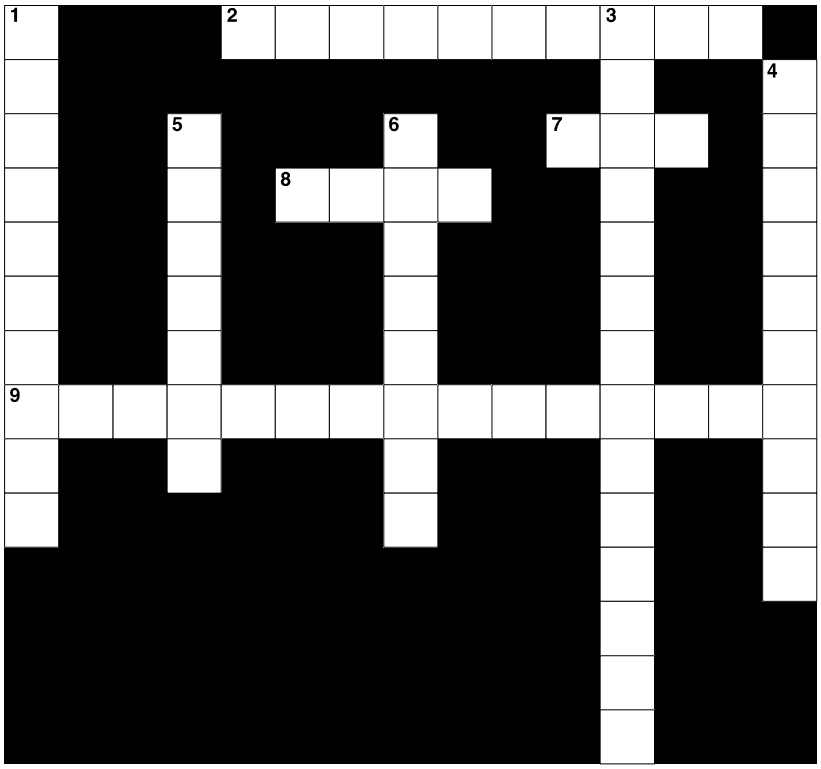
9. T F What to produce, how to produce, and for whom to produce are the three fundamental economic questions.

10. T F Unemployment or underemployment of labor might explain why an economy would be operating inside its production possibilites curve (PPC).

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CROSSWORD PUZZLE

Fill in the crossword puzzle from the list of key concepts. Not all of the concepts are used.



ACROSS

2. The accumulation of capital.
7. The basic economic question of which resources to use in production.
8. The basic economic question of which goods and services to produce.
9. The best alternative sacrificed.

DOWN

1. The application of knowledge to production.
3. An outward shift of the production possibilities curve.
4. The _____ possibilities curve shows the maximum combinations of two outputs than an economy can produce, given its available resources and technology.
5. The basic economic question of who receives goods and services.
6. _____ analysis means additions to or subtractions from a current situation .

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ANSWERS

Completion Questions

1. for whom, what, how
2. opportunity cost
3. marginal analysis
4. production possibilities curve
5. law of increasing opportunity costs
6. economic growth
7. investment
8. technology

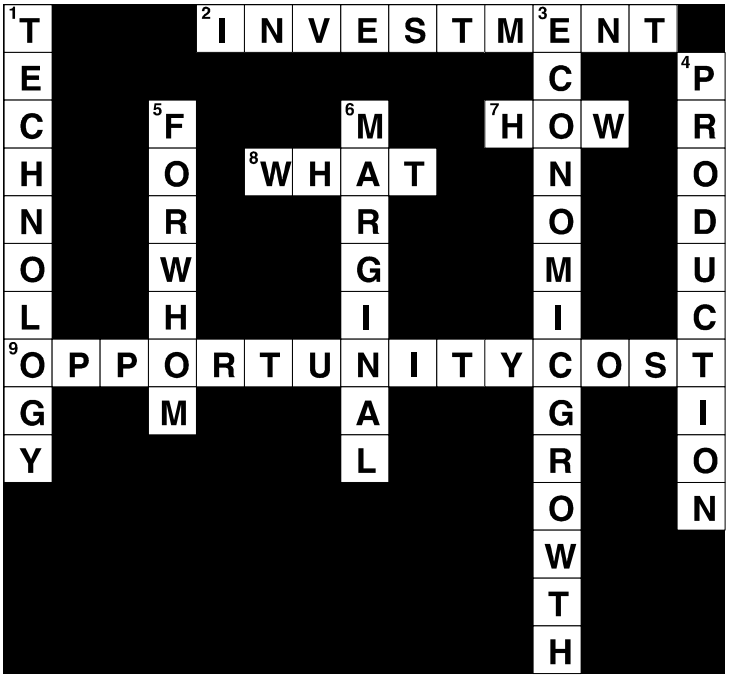
Multiple Choice

1. d 2. c 3. d 4. c 5. c 6. d 7. c 8. d 9. a 10. b 11. a 12. c 13. c 14. b 15. c 16. d 17. d 18. b 19. d 20. a

True or False

1. True 2. False 3. False 4. False 5. True 6. False 7. True 8. False 9. True 10. True

Crossword Puzzle



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Chapter 2

Production Possibilities, Opportunity Cost, and Economic Growth

1. Which of the following *best* describes the three fundamental economic questions?
a. What to produce, when to produce, and where to produce.
b. What time to produce, what place to produce, and how to produce.
c. What to produce, when to produce, and for whom to produce.
d. What to produce, how to produce, and for whom to produce.

ANS
a. Incorrect. The first is correct, but the latter two are not.
b. Incorrect. The last is correct, but the first two are not.
c. Incorrect. The first and last are correct, but the middle one is not.
d. Correct. These are the three fundamental economic questions.

2. Suppose that the alternative uses of an hour of your time in the evening, ranked from best to worst, are (1) study economics, (2) watch two half-hour TV sitcoms, (3) play video gamesl, and (4) jog around town. You can only choose one activity. What is the opportunity cost of studying economics for one hour, given this information?
a. Jogging around town.
b. Watching two half-hour TV sitcoms.
c. Playing video games.
d. The sum of watching two half-hour TV sitcoms, playing pool, and doing your laundry.

ANS
a. Incorrect. This is the least valuable use of your time.
b. Correct. This is the best of the best alternative use of your time.
c. Incorrect. This is not the best alternative use of your time.
d. Incorrect. You cannot do all the activities in the same one hour time period.

3. Which word or phrase *best* completes the following sentence? Marginal analysis means evaluating _____ changes from a current situation.
a. Positive or negative.
b. Infinite.
c. No.
d. Maximum.

ANS
a. Correct. Marginal analysis is an examination of the effects of additions to or subtractions from a current situation.
b. Incorrect. Marginal analysis refers to specific changes.
c. Incorrect. If there is no change, there is nothing to analyze.
d. Incorrect. This approach compares additional benefits to costs which is not "maximum" change.

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4. Which of the following is an example of an organization using marginal analysis?
a. A hotel manager calculating the average cost per guest for the past year.
b. A farmer hoping for rain.
c. A government official considering the effect an increase in military goods production will have on the production of consumer goods.
d. A business calculating economic profits.

ANS
a. Incorrect. Marginal analysis looks at potential future outcomes, not past results.
b. Incorrect. The farmer cannot cause rain to fall.
c. Correct. Marginal analysis is an examination of the effects of additions to or subtractions from a current situation.
d. Incorrect. Economic profit is not an examination of the effects of additions to or subtractions from a current situation.

5. A production possibilities curve shows the various combinations of two outputs that
a. consumers would like to consume.
b. producers would like to produce.
c. an economy can produce.
d. an economy should produce.

ANS
a. Incorrect. The production possibilities curve shows the various combinations of goods and services that an economy can produce with its available stock of resources.
b. Incorrect. The production possibilities curve shows the various combinations of goods and services that an economy can produce with its available stock of resources.
c. Correct. This is what a production possibilities curve does show.
d. Incorrect. The production possibilities curve shows the various combinations of goods and services that an economy can produce with its available stock of resources.

6. A production possibilities curve is drawn based on which of the following assumptions?
a. Resources are fixed and fully employed, and technology advances at the rate of growth of the economy overall.
b. Resources such as nonrenewable resources will decline, but labor remains fully employed, and technology is unchanged.
c. Resources can vary, most resources experience times of unemployment, and technology advances, particularly during wartime.
d. Resources such as labor and capital will grow, are fully employed, and technology is unchanged.
e. None of the above answers are correct.

ANS

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a. Incorrect. The first two are correct, but technology is also assumed to be unchanged.
b. Incorrect. The last is correct, but resources are assumed to be fixed and fully employed.
c. Incorrect. Resources are assumed to be fixed and fully employed, and technology is assumed to be unchanged.
d. Incorrect. The last two are correct, but resources are assumed to be fixed.
e. Correct. None of the answers state the correct answer—that resources are assumed to be fixed and fully employed, and technology is assumed to be unchanged.

7. If an economy can produce various combinations of food and shelter along a production possibilities curve (PPC), then if we increase the production of shelter along the PPC, which of the following is *true*?
a. We also increase the production of food.
b. We must decrease the production of food. This forgone food production represents the opportunity cost of the increase in shelter.
c. We cannot change the production of food.
d. The concept of opportunity cost does not apply along PPC.

ANS
a. Incorrect. We must give up food to increase shelter and stay along a given PPC.
b. Correct. This is how opportunity cost explains the meaning of the PPC.
c. Incorrect. We can change production combinations along the curve by switching resources from the production of one good to another good.
d. Incorrect. Opportunity cost does not apply inside to PPC.

8. An economy can produce various combinations of food and shelter along a production possibilities curve (PPC). We first increase the production of shelter along the PPC. If we then continue to shift more and more production to shelter, which of the following will most likely happen to the opportunity cost of a unit of shelter?
a. Opportunity cost will increase because as more and more shelter is produced, labor and capital that is highly productive at producing food is being shifted to shelter production, and so more and more food is being given up to produce a unit of shelter.
b. Opportunity cost is the amount of labor (but not capital) that is used to produce the extra shelter.
c. Opportunity cost must stay constant if we are to stay on the production possibilities curve (PPC).
d. Opportunity cost includes all options given up to produce shelter.

ANS
a. Correct. This is the law of increasing opportunity cost.
b. Incorrect. The opportunity cost of additional shelter is the food production that was sacrificed.
c. Incorrect. This is not the best answer, because it is only true if resources are not specialized.
d. Incorrect. Opportunity cost only includes the best option not chosen.

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9. An economy can produce various combinations of food and shelter along a production possibilities curve (PPC). Suppose a technological innovation resulted in a new, higher-yielding crop that generated more bushels of grain for a given set of land, labor, and capital resources. If this innovation did not affect the productivity of shelter production, which of the following would be *true*?
a. The PPC will shift outward equally along both axes of the graph.
b. The PPC will rotate inward along the food axis, but will not shift on the shelter axis.
c. The PPC will rotate outward along the food axis, but will not shift on the shelter axis.
d. The PPC will not change.

ANS
a. Incorrect. Since the economy is no more productive at making shelter, the PPC cannot shift outwards along the shelter axis.
b. Incorrect. The PPC would rotate inwards only if resources used specifically for producing food became fewer in number or less productive. Such is not the case.
c. Correct. The PPC shifts outwards along the food axis, but does not change along the shelter axis, since only those resources used to produce food became more productive.
d. Incorrect. An increase in resource productivity will change the PPC to shift in some way or another.
10. If a production possibilities curve (PPC) has capital on the vertical axis and consumer goods on the horizontal axis, which of the following is *true*?
a. There is a tradeoff between emphasizing the production of capital today to benefit people today versus emphasizing the production of consumer goods today that will generate benefits in the future.
b. Greater emphasis on the production of capital today leads to future inward shifts in the PPC, thus decreasing the wealth of people in the future.
c. Greater emphasis on the production of consumer goods today leads to greater outward shifts in the PPC, thus increasing the wealth of people in the future.
d. Greater emphasis on the production of capital today leads to greater outward shifts in the PPC, thus increasing the wealth of people in the future.

ANS
a. Incorrect. Emphasizing the production of capital rather than consumption goods today creates greater future wealth.
b. Incorrect. Greater emphasis on the production of capital leads to larger outward shifts in the PPC.
c. Incorrect. Greater emphasis on the production of capital leads to larger outward shifts in the PPC.
d. Correct. Greater emphasis on the production of capital leads to larger outward shifts in the PPC.

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11. Which of the following reasons could explain why an economy would be operating inside its production possibilities curve (PPC)?
a. Because shrinking population has reduced the number of productive workers in the economy.
b. Because technological innovations have increased the productivity of labor and capital.
c. Because damage to natural resources, such as damage caused by deforestation leading to erosion of topsoil, has shrunk the land resource.
d. Because of unemployment or underemployment of labor, perhaps due to discrimination against employing workers of a certain race or gender.

ANS
a. Incorrect. This would cause the PPC to shift inward, but would not cause an economy to be operating inside its PPC.
b. Incorrect. This would cause the PPC to shift outward.
c. Incorrect. This would cause the PPC to shift inward.
d. Correct. Unemployed or underemployed resources, whether they be idle factories, unemployed workers, or idle farmland, means that we are operating inefficiently, and thus are inside the PPC.

12. Combinations of goods outside the production possibilities curve (PPC) have which of the following characteristics?
a. They are attainable today only if we employ all unemployed or underemployed resources.
b. They are not attainable given our existing stock of resources and technology.
c. They imply that some resources, such as labor, are unemployed or underemployed.
d. None of the above answers is correct.

ANS
a. Incorrect. Even if we employ all resources fully, we can do no better than combinations of goods along the PPC.
b. Correct. Points outside the PPC are unattainable given our existing stock of resources and technology.
c. Incorrect. This is only true of points inside the PPC.
d. Incorrect. Combinations outside the PPC are not attainable given our existing stock of resources and technology.

13. Suppose an economy can produce various combinations of fish and bread. If more people with strong fishing skills became employed in this economy, how would the production possibilities curve (PPC) change?
a. The PPC would shift outward on the fish axis, but would not change on the bread axis.
b. The PPC would shift outward equally along both the fish and the bread axes.
c. The PPC would shift inward on the bread axis, but would not change on the fish axis.
d. The PPC would shift inward equally along both the fish and bread axes.

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ANS
a. Correct. Increasing productive labor resources in fishing increases the PPC along the fish axis, but no resources have been added to the production of bread.
b. Incorrect. No productive resources have been added to the production of bread, and so the PPC does not shift along the bread axis.
c. Incorrect. The PPC would not shift inward if additional productive resources are added to the economy.
d. Incorrect. The PPC would not shift inward if additional productive resources are added to the economy.

14. Three different economies have made choices about the production of capital goods. Which of the following is *most* likely to produce the greatest growth in the production possibilities curve (PPC)?
a. Capital goods are produced at the exact rate needed to replace worn-out capital.
b. Greater production of capital goods than what is needed to replace worn-out capital.
c. Less production of capital goods than what is needed to replace worn-out capital.
d. More production of consumption goods that replace worn-out capital.

ANS
a. Incorrect. This economy fails to accumulate the net gain of factories and equipment required to expand its PPC outward.
b. Correct. This is high-investment economy, adding to its capital stock and creating extra production capacity.
c. Incorrect. This economy fails to accumulate the net gain of factories and equipment required to expand its PPC outward.
d. Incorrect. Adding capital and not consumption goods creates economic growth.

15. In the study of economics, investment means
a. the accumulation of capital that is used to produce goods and services.
b. owning stocks and bonds.
c. the principle that the opportunity cost increases as the production of one output expands.
d. the effect of stock prices on the production possibilities curve.

ANS
a. Correct. This is the economic definition of investment.
b. Incorrect. This is a description of investment in financial capital.
c. Incorrect. This is the definition of the law of increasing opportunity costs.
d. Incorrect. This is a description of investment in financial capital.

16. Which of the following is *not* one of the three fundamental economic questions?
a. What happens when you add to or subtract from a current situation?
b. For whom to produce?
c. How to produce?
d. What to produce?

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ANS
a. Correct. This is the definition of marginal analysis.
b. Incorrect. This is the third fundamental economic question.
c. Incorrect. This is the second fundamental economic question.
d. Incorrect. This is the first fundamental economic question.

17. Opportunity cost
a. represents the best alternative sacrificed for a chosen alternative.
b. has no relationship to the various alternatives that must be given up when a choice is made in the context of scarcity.
c. represents the worst alternative sacrificed for a chosen alternative.
d. represents all alternatives not chosen.

ANS
a. Correct. This is the definition of opportunity cost.
b. Incorrect. Scarcity, choice, and opportunity cost are all related.
c. Incorrect. Opportunity cost represents the best alternative sacrificed for a chosen alternative.
d. Incorrect. Opportunity cost is only the best alternative not selected.

18. Which words *best* complete the following sentence? A rational decision maker always chooses the option for which marginal benefit is _____ marginal cost.
a. less than
b. equal to
c. unrelated to
d. more than

ANS
a. Incorrect. In this case, the benefit from a decision would be less than the cost of the decision. Taking the action would not be rational.
b. Incorrect. In this situation, a rational decisionmaker would not care which option to choose.
c. Incorrect. The key to marginal analysis is that marginal benefit and marginal cost are always compared.
d. Correct. A rational decisionmaker chooses the option for which marginal benefit exceeds marginal cost.

19. The principle that the opportunity cost increases as the production of one output expands is the
a. law of increasing opportunity costs.
b. law of demand.
c. law of supply
d. law of increasing returns to scale.

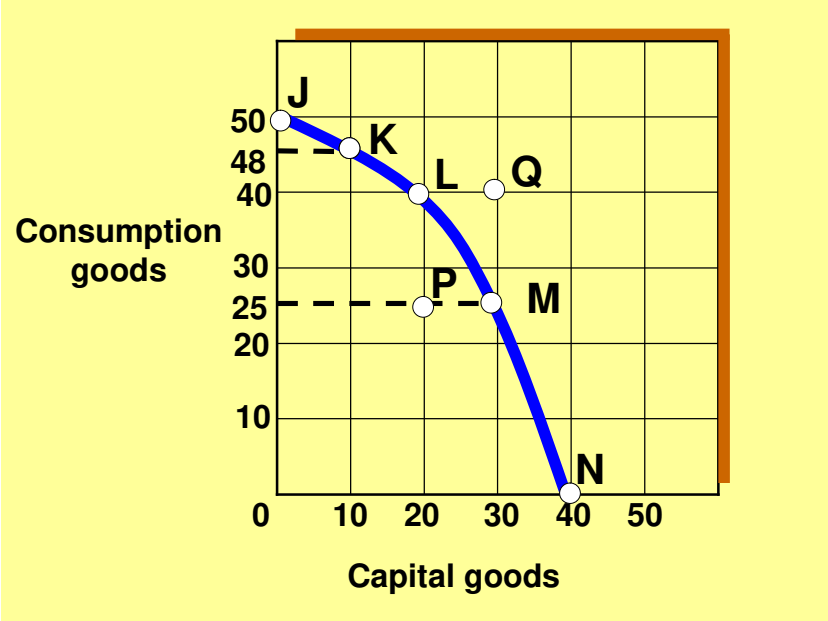
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ANS
a. Correct. This principle gives the production possibilities curve its bowed-out shape.
b. Incorrect. The law of demand describes consumer behavior.
c. Incorrect. The law of supply describes the behavior of a single producer.
d. Incorrect. This law relates to the quantity of output.

20. The ability of an economy to produce greater levels of output is called
a. positive economics.
b. negative economics.
c. economic growth.
d. the law of specialization.

ANS
a. Incorrect. Positive economics is an analysis limited to statements that are verifiable.
b. Incorrect. Negative economics is an analysis limited to statements based on value judgments.
c. Correct. This is the definition of economic growth.
d. Incorrect. There is no such law in economics.

Exhibit 6 Production Possibilities Curve



21. In Exhibit 6, if the economy moves from point L to point M, the opportunity cost of producing 10 more capital goods is
a. 40 less consumer goods.
b. 25 less consumer goods.
c. 15 less consumer goods.
d. 15 more consumer goods.
e. 25 more consumer goods.

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ANS
a. Incorrect. The difference between production of consumer goods at L (40) and M (25) is 15 less.
b. Incorrect. The difference between production of consumer goods at L (40) and M (25) is 15 less.
c. Correct. The difference between production of consumer goods at L (40) and M (25) is 15 less.
d. Incorrect. The difference between production of consumer goods at L (40) and M (25) is 15 less.
e. Incorrect. The difference between production of consumer goods at L (40) and M (25) is 15 less.

22. In Exhibit 6, if the economy produces no capital goods, what is the maximum number of consumer goods that can be produced?
a. 50.
b. 48.
c. 40.
d. 25.
e. 0.

ANS
a. Correct. At zero capital goods, the maximum consumer goods produced is at point J (50).
b. Incorrect. At zero capital goods, the maximum consumer goods produced is at point J (50).
c.Incorrect. At zero capital goods, the maximum consumer goods produced is at point J (50).
d.Incorrect. At zero capital goods, the maximum consumer goods produced is at point J (50).
a. Incorrect. At zero capital goods, the maximum consumer goods produced is at point J (50).

23. In Exhibit 6, the production possibilities curve demonstrates
a. changing prices.
b. economic growth.
c. decreases in resources.
d. the law of increasing oppportunity costs.
e. changing technology.

ANS
a. Incorrect. The PPC curve measures output and not prices.
b. Incorrect. The PPC curve must shift rightward for growth to occur.
c. Incorrect. The PPC curve must shift leftward.
d. Correct. As output increases, the sacrifice of the other good increases.
e. Incorrect. The PPC curve would shift rightward.

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24. In Exhibit 6, the economy will experience the most future economic growth if it chooses what point now?
a. J
b. K.
c. M.
d. N.
e. P.

ANS
a. Incorrect. Capital is a source of economic growth and consumer goods are not.
b. Incorrect. Capital is a source of economic growth and consumer goods are not.
c. Incorrect. Capital is a source of economic growth and consumer goods are not.
d. Correct. Capital is a source of economic growth and consumer goods are not.
e. Incorrect Capital is a source of economic growth and consumer goods are not.

25. In Exhibit 6, inefficient resource use is shown by which of the following points?
a. N.
b. J.
c. Q.
d. L.
e. P.

ANS
a. Incorrect. Any point inside the PPC curve means maximum output is not being produced.
b. Incorrect. Any point inside the PPC curve means maximum output is not being produced.
c. Incorrect. Any point inside the PPC curve means maximum output is not being produced.
d. Incorrect. Any point inside the PPC curve means maximum output is not being produced.
e. Correct. Any point inside the PPC curve means maximum output is not being produced.

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Chapter 2
Production Possibilities, Opportunity Cost, and Economic Growth



Lecture Slides

Economics for Today
Irvin B. Tucker

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What will I learn in this chapter?

- **Having learned that scarcity forces choices, here you will study choices people make in more detail**

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What are the three fundamental economic questions?

1. **What** to produce?
2. **How** to produce?
3. **For** whom to produce?

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What are two key concepts in this chapter?

- ***Opportunity costs***
- ***Marginal analysis***

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What is opportunity cost?

- **The best alternative sacrificed for a chosen alternative**

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What opportunity cost may you now be experiencing?

- **The most money that you could be making if you were somewhere else instead of studying these slides**

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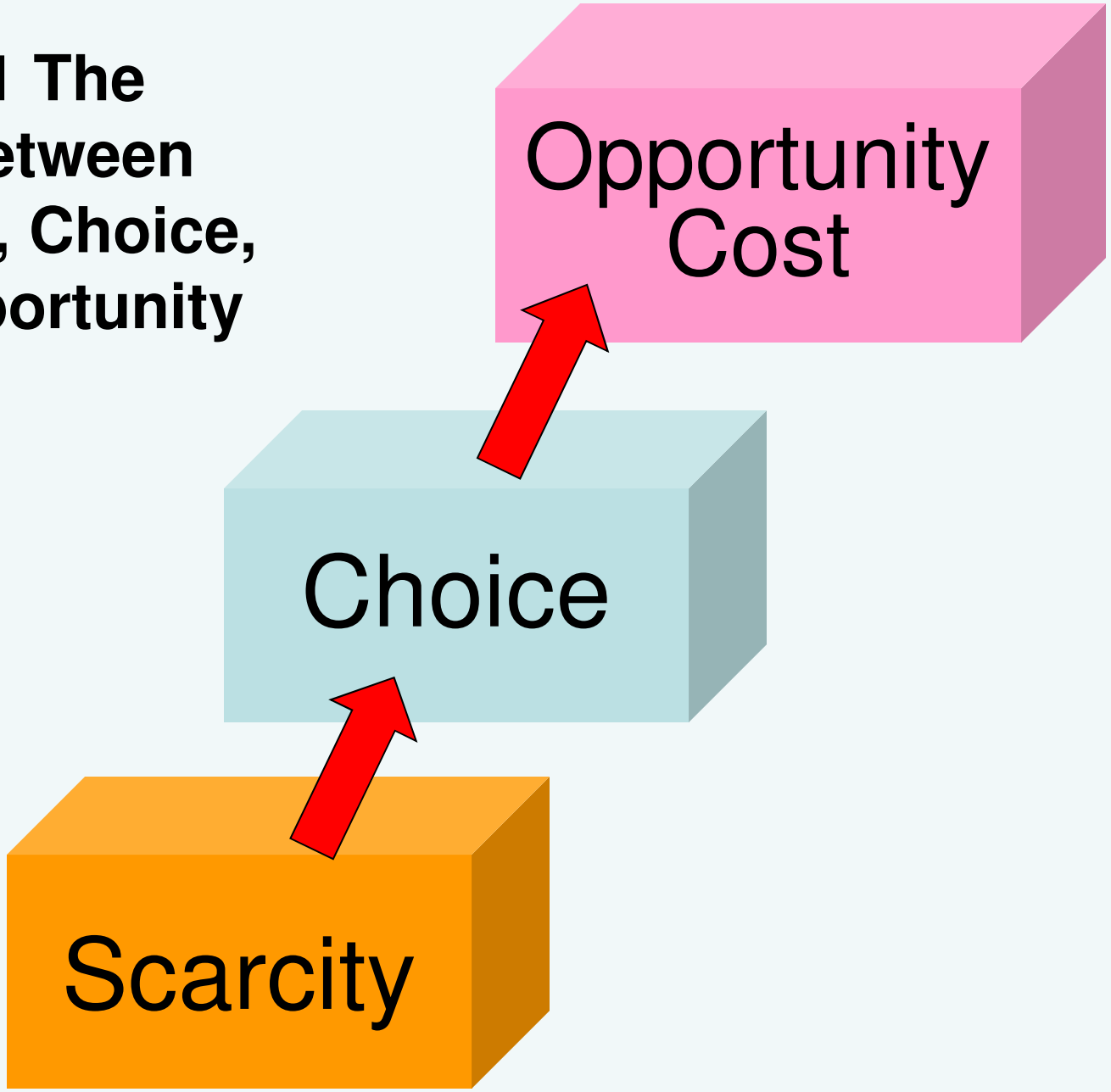
Can opportunity cost be something other than money?

- **Yes, the most desired good or service or use of time that you are presently giving up is an opportunity cost**

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Exhibit 1 The Links Between Scarcity, Choice, and Opportunity Cost



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What is marginal analysis?

- **An examination of the effects of additions to or subtractions from a current situation**

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What is an example of marginal analysis?

- When your benefit of studying these slides exceeds the opportunity cost, you will spend time studying these slides

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What is a production possibilities curve?

- **A curve that shows the *maximum* combinations of two outputs that an economy can produce, given its available resources and technology**

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What is technology?

- The body of knowledge and skills applied to how goods are produced

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What assumptions underlie the production possibilities model?

1. Fixed resources
2. Fully employed resources
3. Technology unchanged

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What is the conclusion of the production possibilities curve?

- **Scarcity limits an economy to points on or below its production possibilities curve**

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What are efficient points?

- **Because all the points along the curve are maximum output levels with given resources and technology, they are called *efficient* points**

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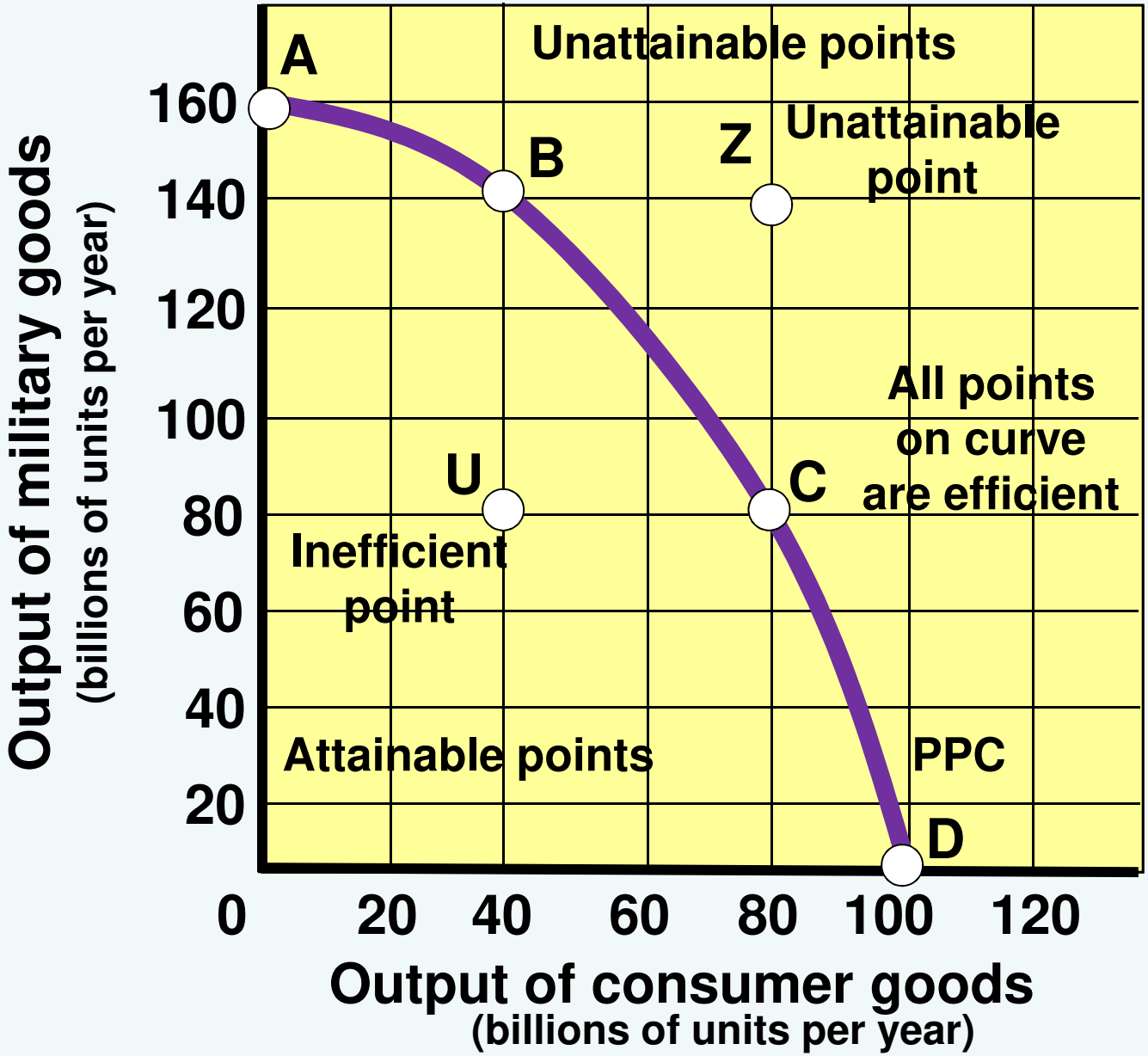
What happens when we move between two efficient points?

- **A movement between any two efficient points on the curve means that *more* of one product is produced only by producing *less* of the other product**

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Exhibit 2 Production Possibilities Curve



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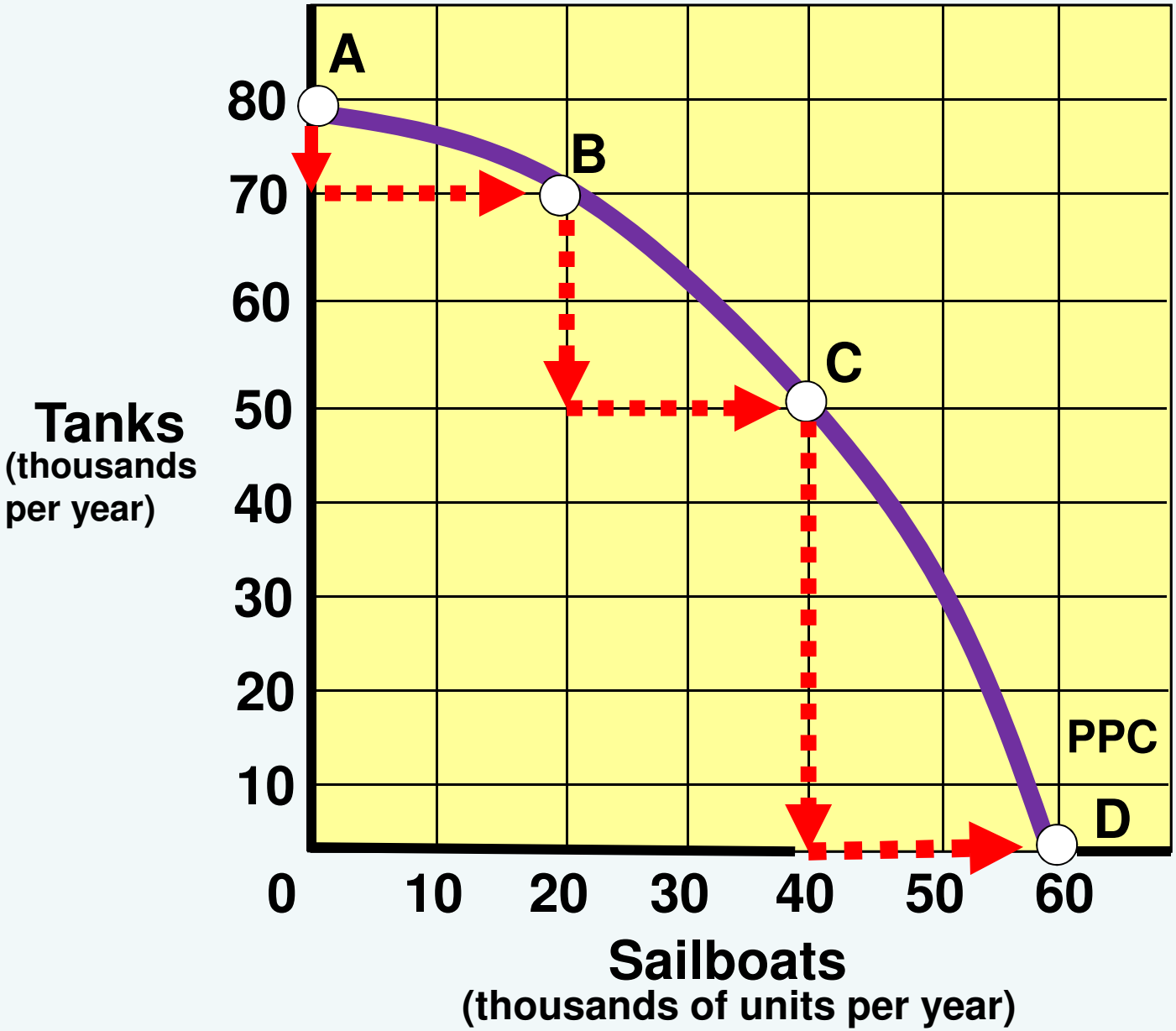
What is the law of increasing opportunity costs?

- The principle that the opportunity cost increases as production of one output expands

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Exhibit 3 The Law of Increasing Opportunity Costs



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What is economic growth?

- The ability of an economy to produce greater levels of output, represented by an outward shift of its production possibilities curve.

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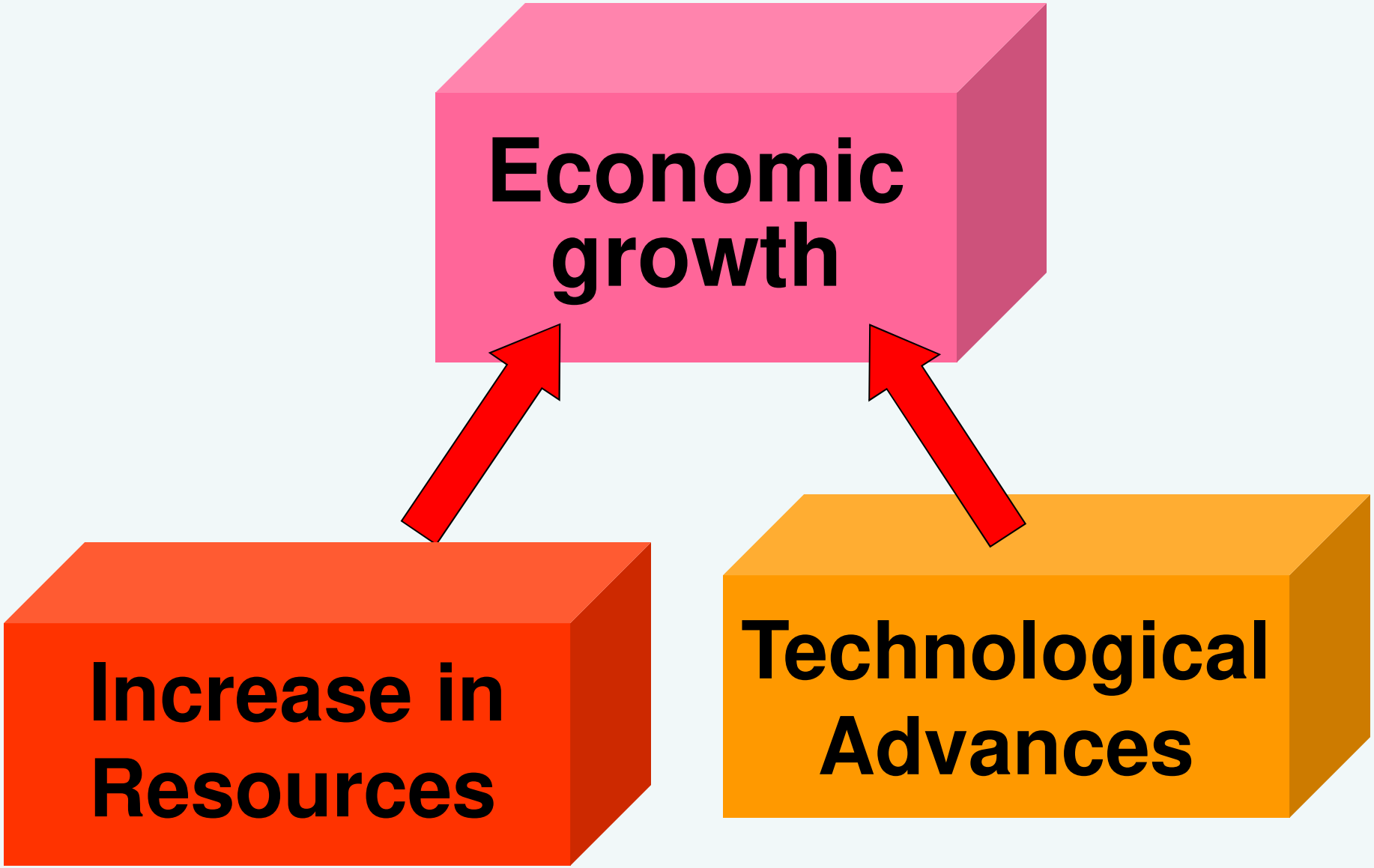
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What makes possible economic growth?

- Increase in resources
- Technological change

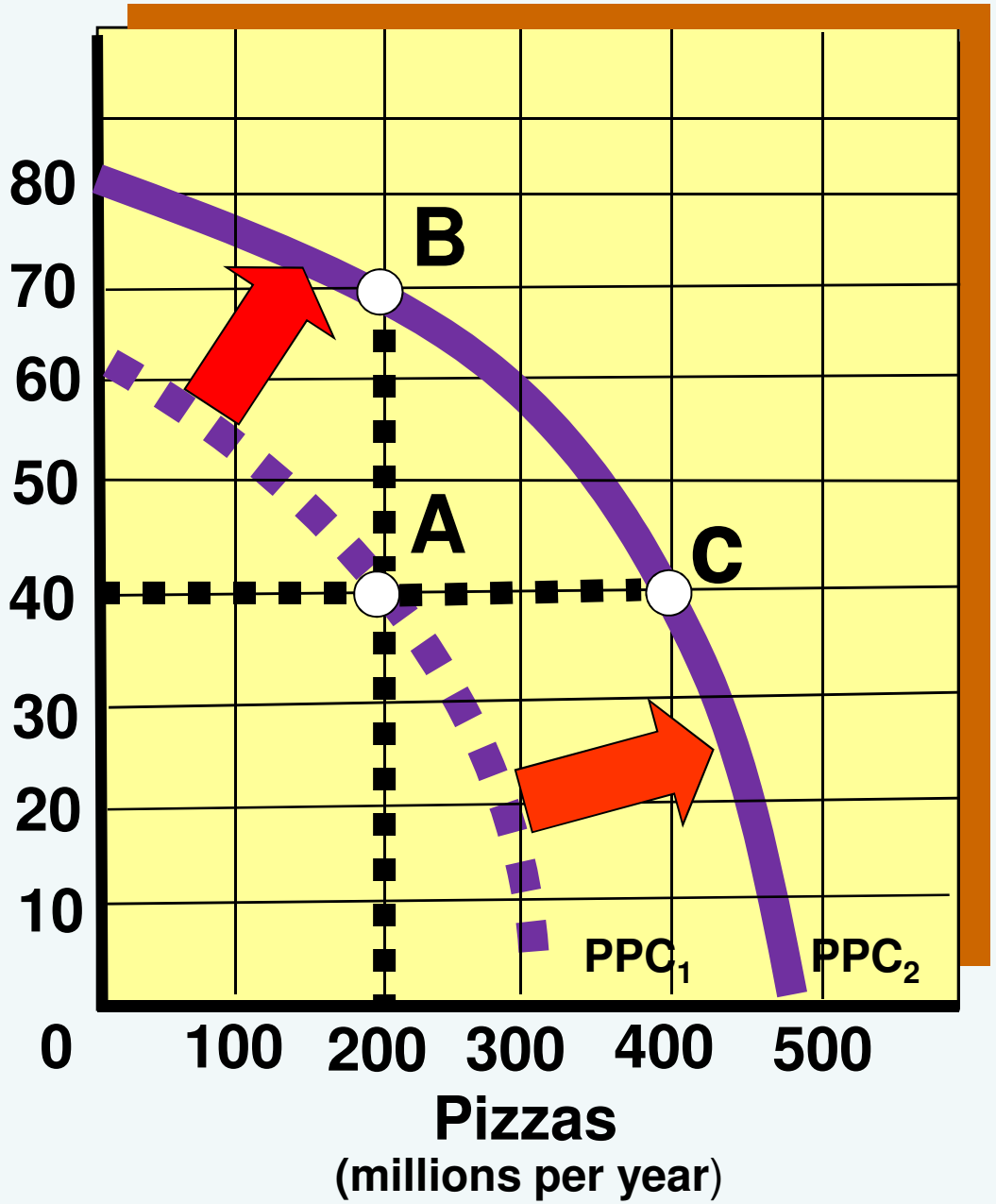
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Exhibit 4 An Outward Shift of the Production Possibilities Curve



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What happens when a country does not invest in new technology?

- **Everything else being equal, the country will not grow**

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What is investment?

- The accumulation of capital, such as factories, machines, and equipment, that is used to produce goods and services

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What is the opportunity cost of investment?

- A country must decide how to allocate its resources between producing capital goods and consumer goods

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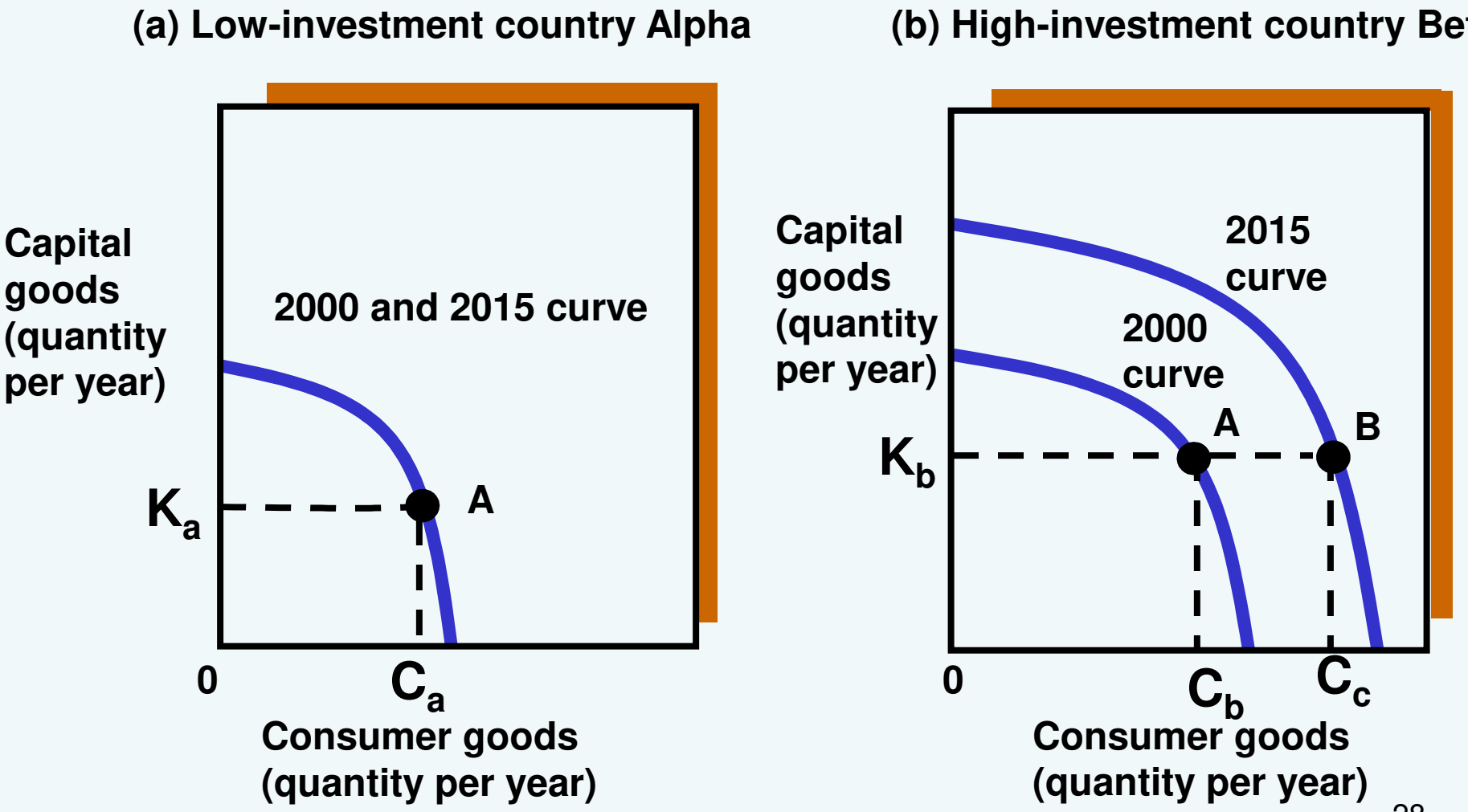
What does producing capital exceeding the amount required to replenish its depreciated capital?

- **Economic growth and a higher standard of living**

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Exhibit 5 Alpha's and Beta's Present and Future Production Possibilities Curves



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What conclusion can we make about investments?

- **A nation can accelerate growth by increasing production of capital goods in excess of the capital being worn out**

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END

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Chapter 2
Production Possibilities, Opportunity Cost, and Economic Growth

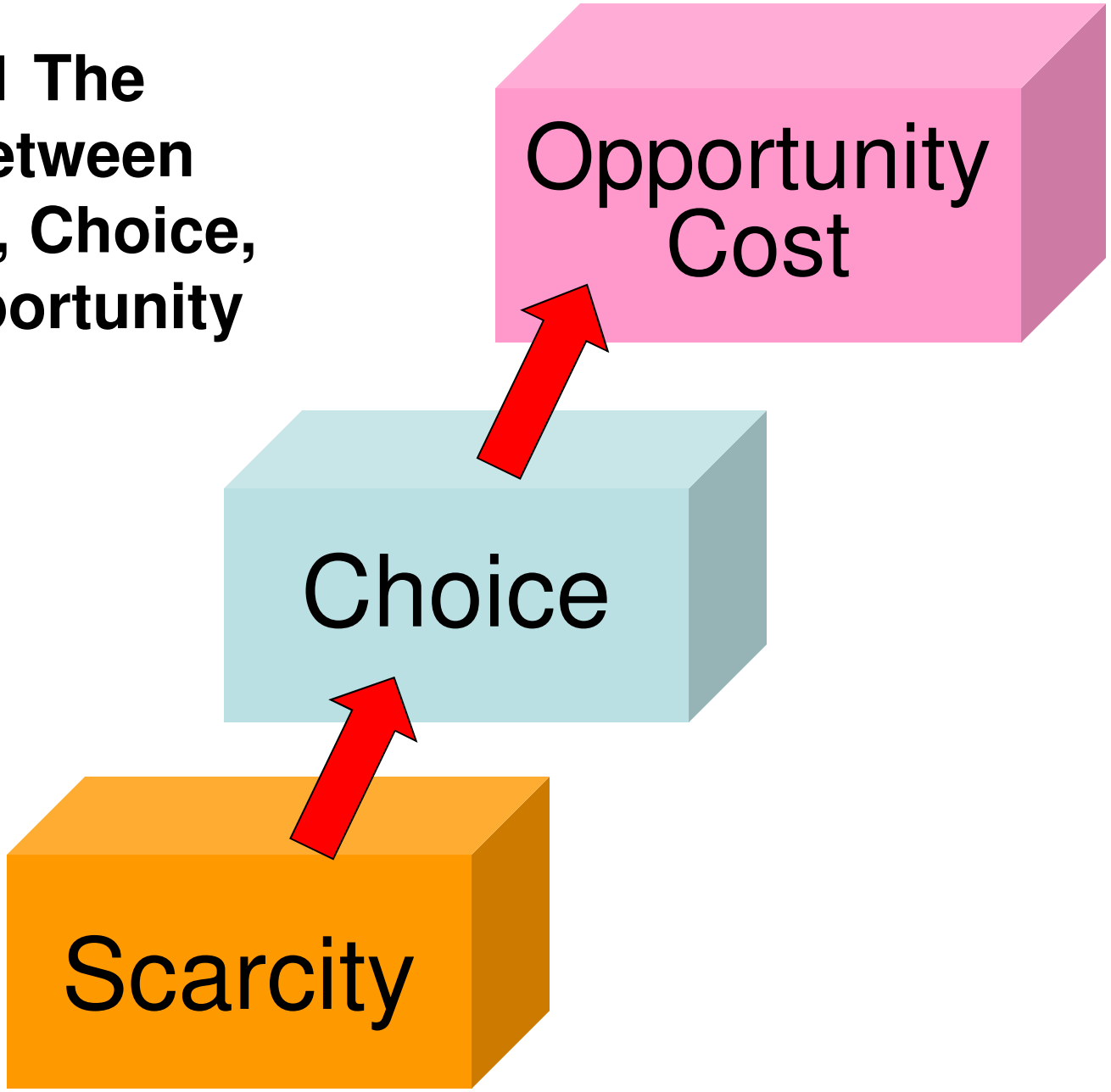


Exhibit Slides

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Irvin B. Tucker

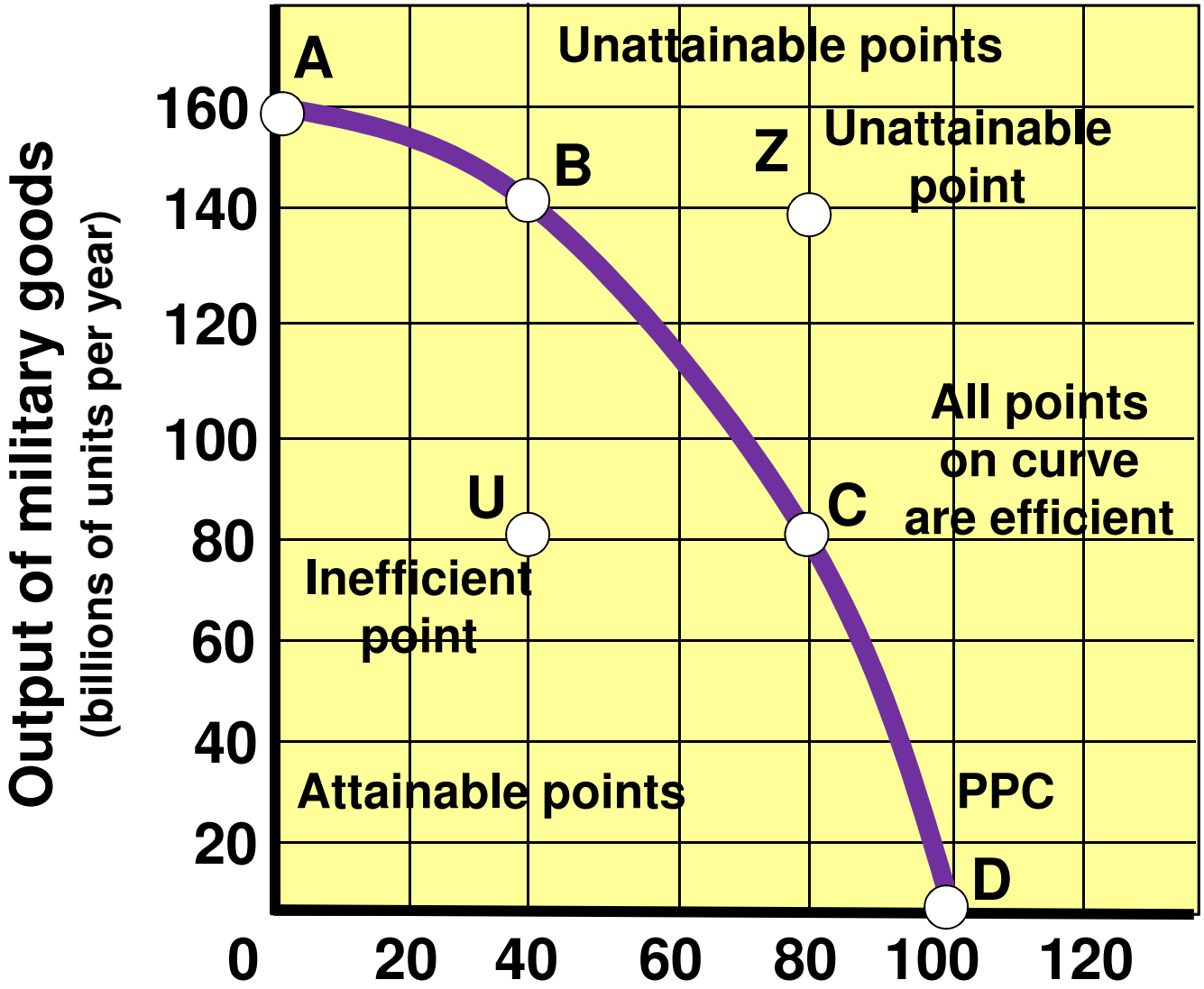
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Exhibit 1 The Links Between Scarcity, Choice, and Opportunity Cost



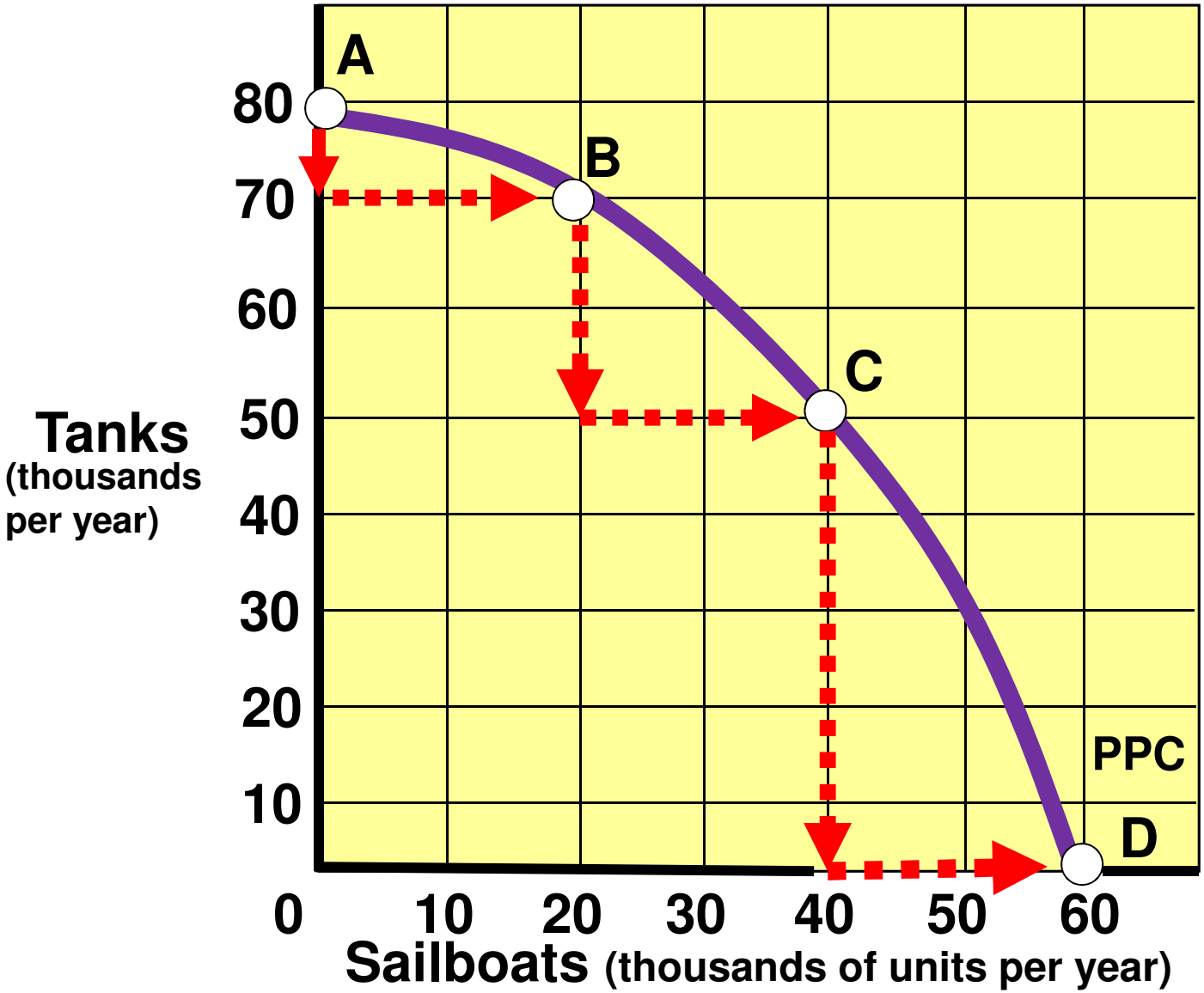
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Exhibit 2 Production Possibilities Curve



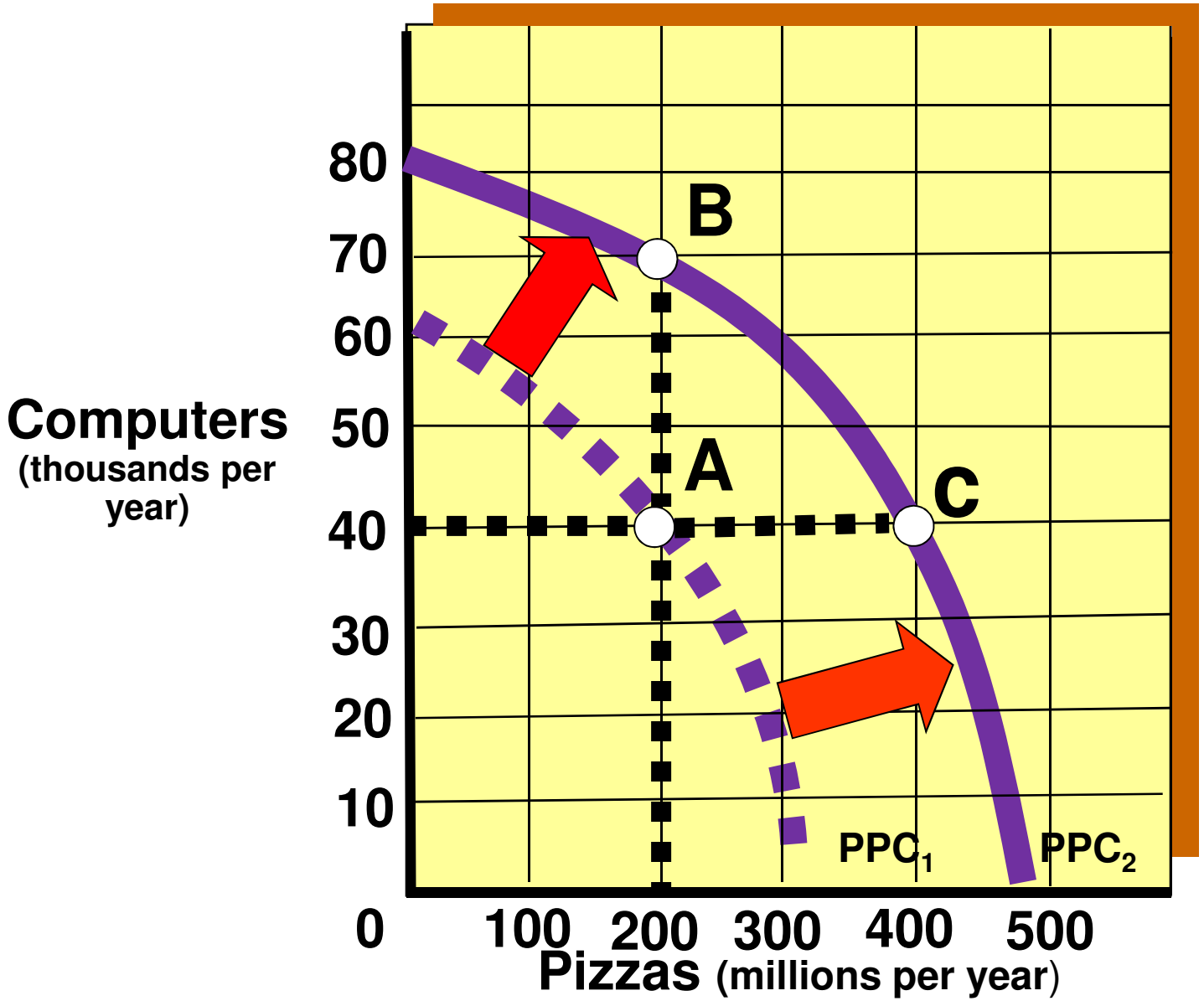
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Exhibit 3 The Law of Increasing Opportunity Costs



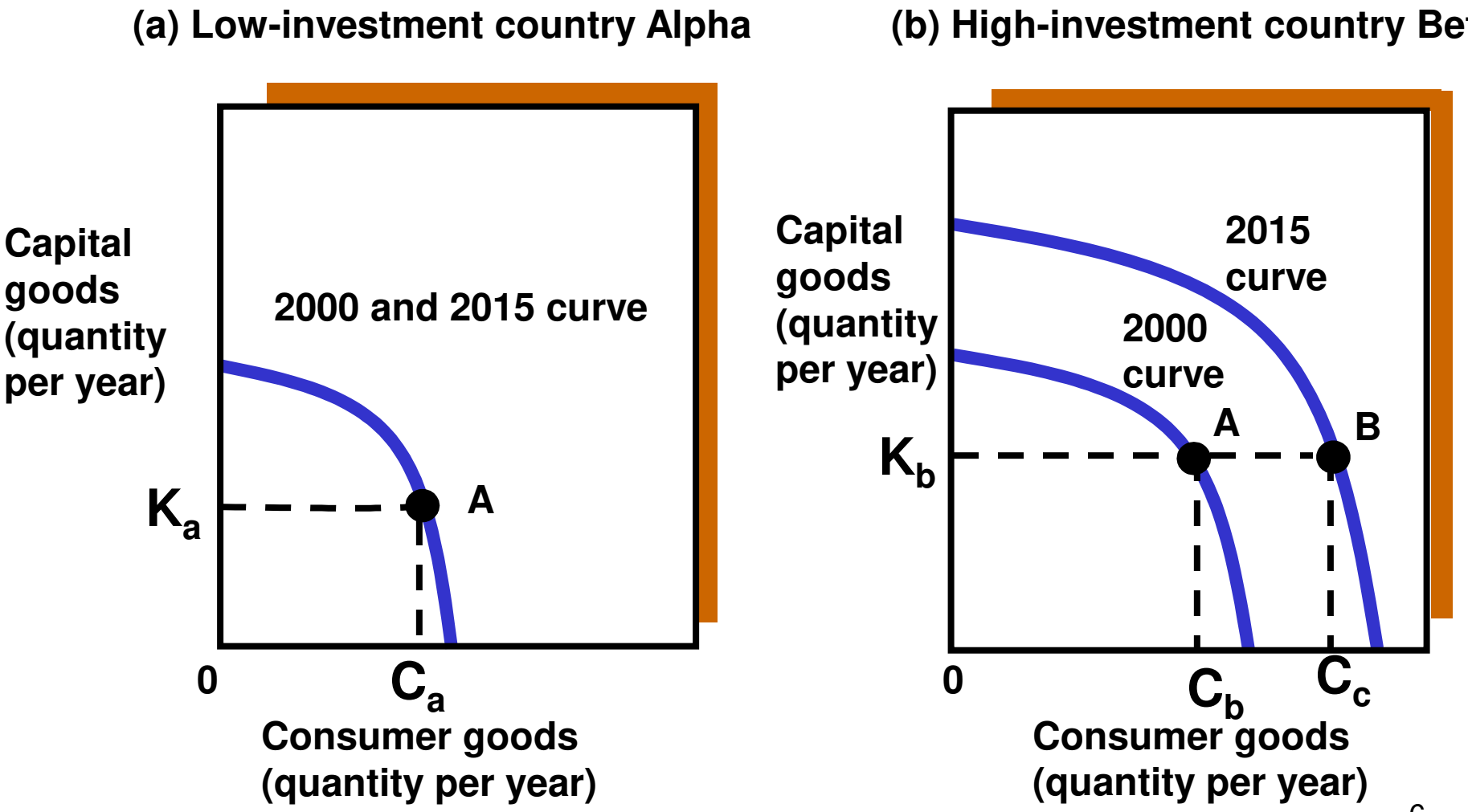
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Exhibit 4 An Outward Shift of the Production Possibilities Curve



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Exhibit 5 Alpha's and Beta's Present and Future Production Possibilities Curves



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