Economics for Today 11th edition Tucker Solutions Manual

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Instructor Manual

Tucker, Economics for Today, ISBN: 9780357720936; Chapter 02: Production Possibilities, Opportunity Cost, and Economic Growth

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Purpose and Perspective of the Chapter

The *What*, *How*, and *For Whom* fundamental economic questions were introduced in Chapter 01. These questions must be addressed by all societies. Because resources are limited while wants are unlimited, we are faced with scarcity. Therefore, we must try to do the best with what we have—to maximize production, given limited resources. This challenge is illustrated with the production possibilities model explored in this chapter.

Most generally there are only two types of products: consumer goods and capital goods. 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 the production possibilities curve is a combination of output that is currently unattainable.

However, the greater the current investment in capital production, the greater the rate of economic growth over time. This growth is represented by rightward shifts of the production possibilities curve, which leads to productive capabilities at points previously outside the curve. Although more current investment in capital leads to greater economic growth over time, the opportunity cost is the foregone consumer goods production today, resulting in less current satisfaction. Other sources of economic growth include more or better resources, and new technologies.

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There is an increasing opportunity cost associated with producing ever larger quantities of any one good. Marginal analysis enables us to make 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."

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Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Resource Center.

- PowerPoint Slides
- Test Bank

Chapter Objectives

The following objectives are addressed in this chapter:

1. Explain the relationship between opportunity cost and scarcity.

2. Describe how the production possibilities curve models aggregate production.

3. Use the production possibilities curve to analyze opportunity costs in production decisions.

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4. Use the production possibilities curve to analyze economic growth.

Complete List of Chapter Activities and Assessments

For additional guidance refer to the Teaching Online Guide.

Chapter Objective	PPT Slide	Activity/Assessment	Duration
1	7	Discussion Activity #1	2-3 minutes
1	8	Knowledge Check Activity #1	2-3 minutes
1	13	Knowledge Check Activity #2	2-3 minutes
2	21	Discussion Activity #2	3-4 minutes
2	24	Knowledge Check Activity #3	2-3 minutes
3	31	Knowledge Check Activity #4	2-3 minutes
4	39	Knowledge Check Activity #5	2-3 minutes
4	44	Discussion Activity #3	3-4 minutes

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Key Terms

Allocative efficiency: Situation where society allocates, or channels, its limited resources into the production of those products most desired by society.

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

Investment: The accumulation of capital, such as factories, machines, and inventories, used to produce goods and services.

Marginal analysis: An examination of the effects of incremental additions to or subtractions from a current situation.

Opportunity cost: The next best alternative that was sacrificed when making a choice.

Production possibilities curve: A curve that shows the maximum combinations of two outputs an economy can produce in a given period of time with its available resources and technology.

Productive efficiency: A situation where society is producing the most it can with its existing resources and technology; when more of one good can only be produced by producing less of another good.

Law of increasing opportunity costs: The principle that the opportunity cost increases as production of one output expands.

Technology: The body of knowledge applied to how goods are produced.

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What's New in This Chapter

The following elements are improvements in this chapter from the previous edition:

- This chapter now begins with clearly stated Chapter Objectives that outline the key learning goals students should achieve after having studied the chapter.
- The "Conclusion" statements of the previous edition have been replaced with "*Take Note"* statements. These *Take Note* statements have been carefully designed and updated to highlight key concepts and are strategically placed within the chapter to enhance pedagogy. Students will be able to use these to remember key points when reviewing the chapter and studying for quizzes and tests. A summary of these *Take Note* statements is provided at the end of the chapter.
- This new edition has also added a new feature entitled "*Am I on Track?*" which are multiple-choice questions testing students' understanding as they move through the chapter. They are designed to pique interest and to maximize mastery of the material presented in the chapter. They have been strategically placed throughout the chapter to maximize learning. These questions spark students' interest and enable them to check their progress by comparing their answers against the key provided at the end of the chapter. Students who answer correctly earn the satisfaction of knowing they are on track and can feel more confident taking quizzes and tests because these questions are very similar to those they will face on their exams!
- The "Checkpoint" features of the previous edition have become new "Study Questions and Problems" found at the end of the chapter. Students are encouraged to see Appendix A for answers to the odd-numbered questions. This Instructor's Manual contains the answers for even-numbered questions.
- The previous edition's *"You're the Economist"* boxed sections have been updated and replaced with a new feature entitled *"A Closer Look."* The previous *"Analyze the Issue"* questions associated with these inserts have now been moved to this Instructor's Manual's "Additional Activities and Assignments" section found below, along with some suggested answers to these *"Analyze the Issue"* questions.
- This revised chapter introduces the concept of economic efficiency using the PPC.
- In addition, the discussion of the three fundamental economic questions that result from scarcity has been moved to Chapter 1 (from the previous edition's Chapter 2), where scarcity is introduced.
- This revised chapter contains three "Am I on Track?" multiple-choice questions, two "Study Questions and Problems," and three new "Sample Quiz" questions.

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Chapter Outline

2-1 Opportunity Cost

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

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2-2 Marginal Analysis

2-3 The Production Possibilities Model

a. Assumptions

b. The Production Possibilities Curve

c. Efficiency and the Production Possibilities Curve

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

2-4 Opportunity Cost and the Production Possibilities Curve

a. Identifying Opportunity Cost Using the PPC Model

b. The Law of Increasing Opportunity Cost

Exhibit 3 "The Law of Increasing Opportunity Costs"

2-5 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"

Exhibit 5 "A Shift of the *PPC* When Technological Advances Only Impact the Production of One Good"

A Closer Look: "FedEx Wasn't an Overnight Success" Applicable Concept: Entrepreneurship

c. Present Investment in Capital

Exhibit 6 "Alpha's and Beta's Present and Future Production Possibilities Curves"

A Closer Look: "How Does Public Capital Affect a Nation's Curve?" Applicable Concept: Economic Growth

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Discussion Questions

You can assign these questions several ways: in a discussion forum in your LMS; as whole-class discussions in person; or as a partner or group activity in class.

1. What are some opportunity costs of attending college?

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Answer: *Some opportunity costs of attending college would include the foregone income, which could have been earned working full-time.*

2. What is the "real" cost of purchasing a new car?

   Answer: *The amount of other goods and services, which could have been purchased but now must be given up to pay for the car.*

3. How could marginal analysis be applied to determine the profit-maximizing quantity of output for a firm to produce?

   Answer: *That profit-maximizing production level would be found at that quantity of production at which the marginal benefit from production (which is "marginal revenue") no longer exceeds the marginal cost of production (where MR = MC).*

4. Under what conditions would a nation be able to *currently* produce more of both consumer and capital products?

   Answer: *If production is currently occurring at a point inside a nation's production possibilities curve. In other words, if there is currently some unemployment or underemployment.*

5. 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 any nation do to achieve all this?

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   Answer: *The ingredients for economic growth include more and better resources, new technologies, and more investment in capital. This includes: (1) more investment in private capital; (2) more investment in public capital (infrastructure); (3) investment in human capital—people (e.g., investments in health, education, and job training); (4) investments and growth in technology; (5) promoting entrepreneurship; (6) promoting a stable political environment.*

6. What might be some problems associated with economic growth?

   Answer: *Problems associated with economic growth might include environmental issues. Notice that one needs to weigh the benefits against the costs to determine whether more economic growth is worth it.*

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Additional Activities and Assignments

I. Answers to even-numbered end-of-chapter *Study Questions and Problems*:

2. *The true cost of the "free" car isn't the price paid, it is the opportunity cost of producing it. For example, the same resources could have been used to produce a truck for the military.*

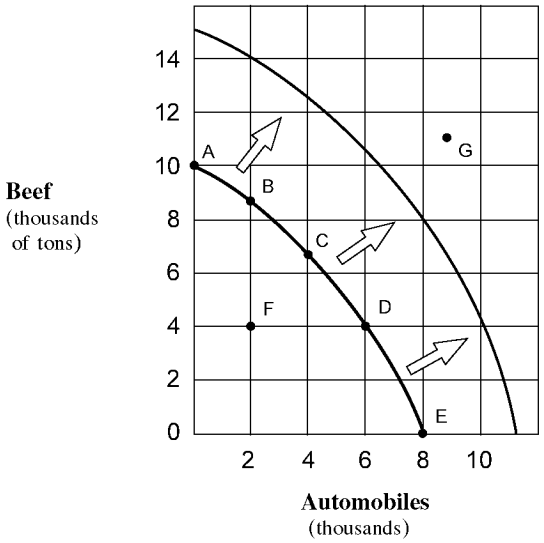
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4. *Decision (a) produces the greatest opportunity cost because the alternative use of a lot in Tokyo is much more valuable than the use of a square mile of desert.*

6. *See the following figure.*

   (a) *(Points A–B) one thousand tons of beef, (Points D–E) four thousand tons of beef, and (Points B–A) two 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 two thousand units increase in the output of automobiles results in greater declines in beef production, measured along the vertical axis. Beef declines (in thousands of units) for 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 productive 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.*

8. *The production possibilities curve is concave, or bowed out from the origin, because of the law of increasing opportunity costs. This law states that resources are not perfectly interchangeable from production of one type of output to another.*

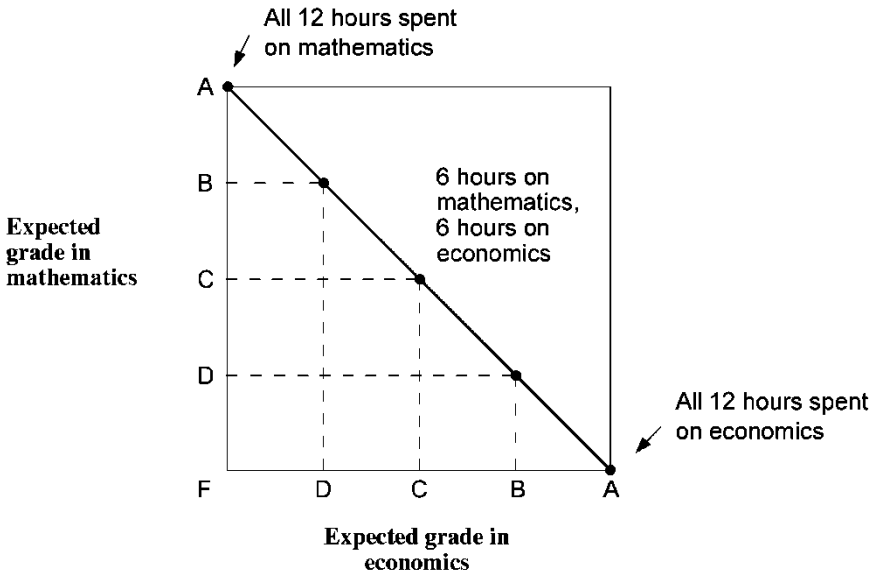
10. (a) **Maximum Production Possibilities for Expected Grades in Mathematics and**

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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) *See the following figure.*



(c) *The curve is not bowed outward and, instead, is a downward-sloping straight line, reflecting constant opportunity costs. Each three-hour change of study time reflects a constant tradeoff 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*

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to produce goods and services. Thus, the production possibilities curve shifts rightward, and economic growth is achieved.

14. *All points along the PPC are productively efficient, that is, an economy is producing as much as possible, given limited resources. However, there is only a single unique combination that falls on the PPC that most satisfies society, and is thus allocatively efficient.*

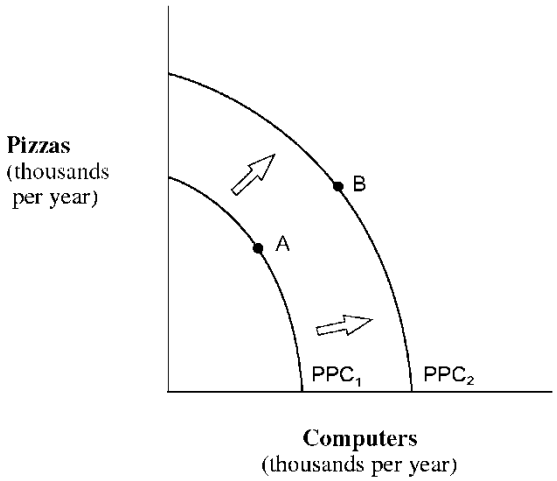
II. "Analyze the Issue." Here are some questions and suggested answers for further analysis associated with the "A Closer Look" boxed features within this chapter:

A Closer Look: "FedEx Wasn't an Overnight Success" Applicable Concept: Entrepreneurship.

1. 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 under existing 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.

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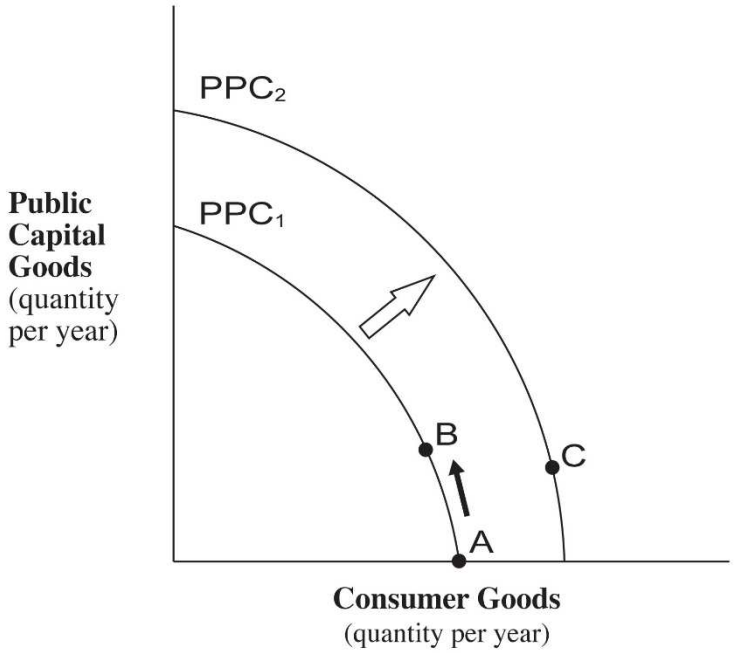
A Closer Look: "How Does Public Capital Affect a Nation's Curve?" Applicable Concept: Economic Growth.

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1. 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 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 shown in the following graph, 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, say, 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.



III. CHAPTER SUMMARY QUIZ. These are quiz questions not found in the textbook or in the Test Bank:

1. Which of the following statements is true?

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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.

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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.

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ANSWERS TO CHAPTER 2 SUMMARY QUIZ

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

IV. CLASSROOM GAMES

Approximately 170 noncomputerized economic games (experiments) for use in the classroom are available for free at https://academic.marietta.edu/people/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.

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Appendix

Generic Rubrics

Providing students with rubrics helps them understand expectations and components of assignments. Rubrics help students become more aware of their learning process and progress, and they improve students' work through timely and detailed feedback.

Customize these rubric templates as you wish. The writing rubric indicates 40 points and the discussion rubric indicates 30 points.

Standard Writing Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Content	The assignment clearly and comprehensively addresses all questions in the assignment. 15 points	The assignment partially addresses some or all questions in the assignment. 8 points	The assignment does not address the questions in the assignment. 0 points
Organization and Clarity	The assignment presents ideas in a clear manner and with strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are logically related and consistent. 10 points	The assignment presents ideas in a mostly clear manner and with a mostly strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are mostly logically related and consistent. 7 points	The assignment does not present ideas in a clear manner and with strong organizational structure. The assignment includes an introduction, content, and conclusion, but coverage of facts, arguments, and conclusions are not logically related and consistent. 0 points
Research	The assignment is based upon appropriate and adequate academic literature, including peer-reviewed journals and other scholarly work. 5 points	The assignment is based upon adequate academic literature but does not include peer-reviewed journals and other scholarly work. 3 points	The assignment is not based upon appropriate and adequate academic literature and does not include peer-reviewed journals and other scholarly work. 0 points
Research	The assignment follows the required citation guidelines. 5 points	The assignment follows some of the required citation guidelines. 3 points	The assignment does not follow the required citation guidelines. 0 points
Grammar and Spelling	The assignment has two or fewer grammatical and spelling errors. 5 points	The assignment has three to five grammatical and spelling errors. 3 points	The assignment is incomplete or unintelligible. 0 points

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Standard Discussion Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Participation	Submits or participates in discussion by the posted deadlines. Follows all assignment. instructions for initial post and responses. 5 points	Does not participate or submit discussion by the posted deadlines. Does not follow instructions for initial post and responses. 3 points	Does not participate in discussion. 0 points
Contribution Quality	Comments stay on task. Comments add value to discussion topic. Comments motivate other students to respond. 20 points	Comments may not stay on task. Comments may not add value to discussion topic. Comments may not motivate other students to respond. 10 points	Does not participate in discussion. 0 points
Etiquette	Maintains appropriate language. Offers criticism in a constructive manner. Provides both positive and negative feedback. 5 points	Does not always maintain appropriate language. Offers criticism in an offensive manner. Provides only negative feedback. 3 points	Does not participate in discussion. 0 points

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