

Economics

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14E

Chapter Two

Production Possibilities Frontier Framework

Icebreaker

1. The class will be broken up into pairs of students.
2. Each pair of students will discuss the question.
 - Scenario: You just moved into a new apartment, and you now have a new roommate. How do you decide how to divide the work? (example: who cooks, who cleans, who takes out the trash, etc)
3. Then one person from each pair will share a one sentence answer to the class.

Chapter Objectives

By the end of this chapter, you should be able to:

- Describe how the production possibilities frontier explains production.
- Describe opportunity cost in the context of the production possibilities frontier.
- Describe the factors that cause the production possibilities frontier to shift.
- Describe absolute advantage in the context of trade.
- Explain how comparative advantage determines trade.
- Explain how the terms of trade can lead to gains.

The Production Possibilities Frontier

Production Possibilities Frontier

Think of yourself as being alone on an island.

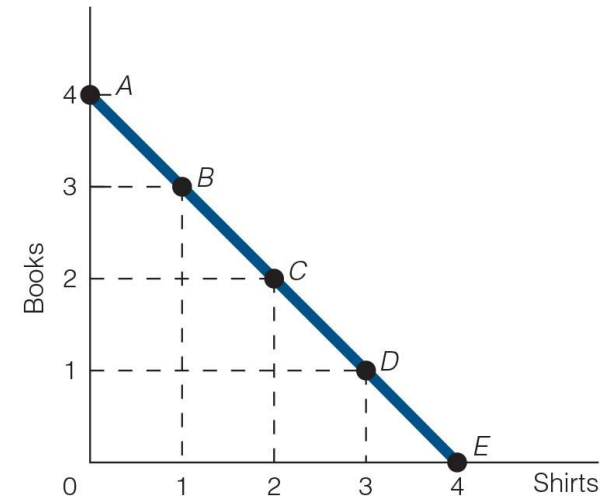
- You can produce two goods only: coconuts and pineapples.
- Because your resources are limited, producing more of one goods means producing less of the other.
- That type of thinking is the intuition behind the production possibilities frontier.
- **Production Possibilities Frontier (PPF):** The possible combinations of two goods that can be produced during a certain span of time under the conditions of a given state of technology and fully employed resources

Straight-Line PPF

Straight-Line PPF =
Constant opportunity costs

Combination	Books	Shirts	Point in Part (b)
A	4	0	A
B	3	1	B
C	2	2	C
D	1	3	D
E	0	4	E

(a)



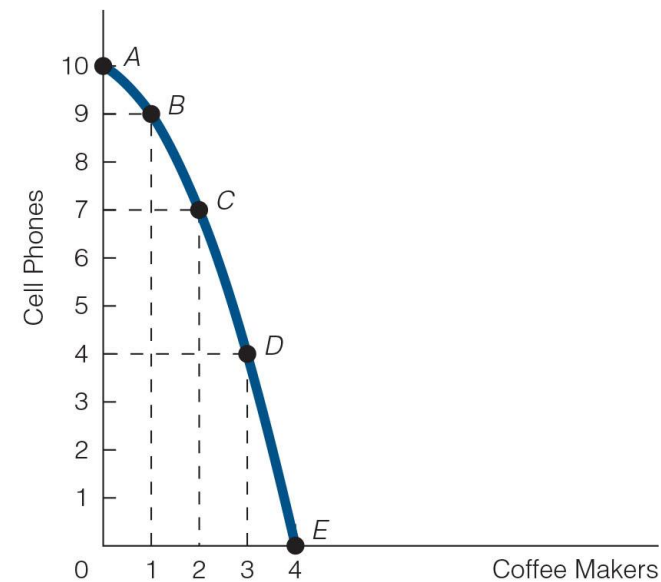
(b)

Bowed-Outward PPF

Bowed-Outward PPF = Increasing opportunity costs

Combination	Cell Phones	Coffee Makers	Point in Part (b)
<i>A</i>	10	0	<i>A</i>
<i>B</i>	9	1	<i>B</i>
<i>C</i>	7	2	<i>C</i>
<i>D</i>	4	3	<i>D</i>
<i>E</i>	0	4	<i>E</i>

(a)



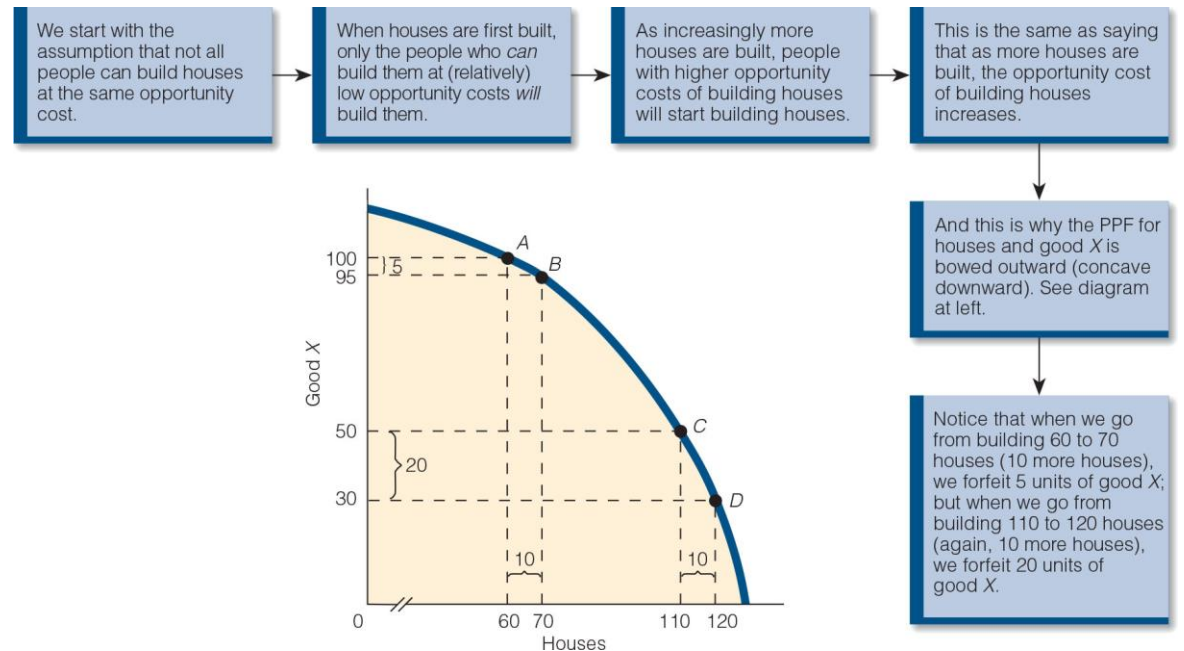
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Law of Increasing Opportunity Costs

Law of Increasing Opportunity Costs

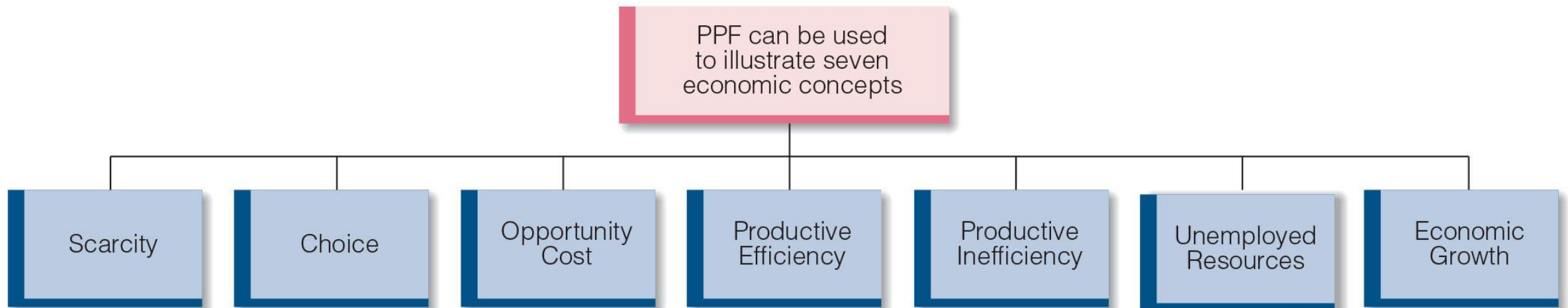
Costs: As more of a good is produced, the opportunity costs of producing that good increase

- In the real world, most PPFs are bowed outward; for most goods, the opportunity costs increase as more of the good is produced



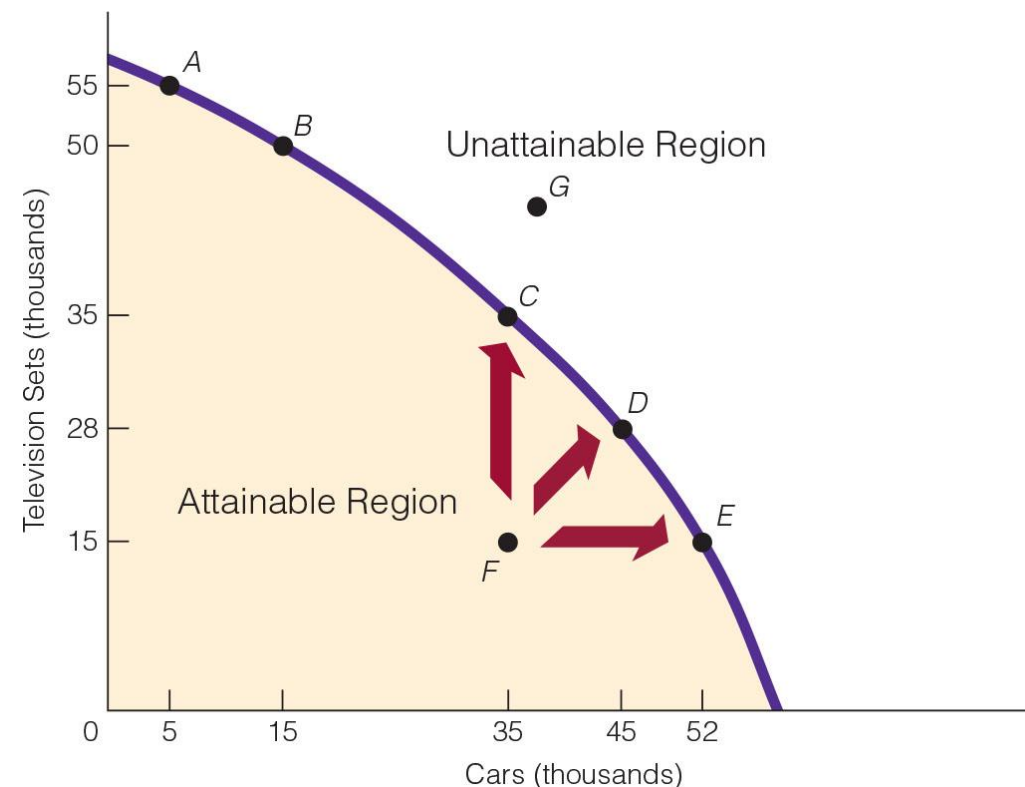
Economic Concepts

Economic Concepts in a PPF Framework



Efficiency versus Inefficiency

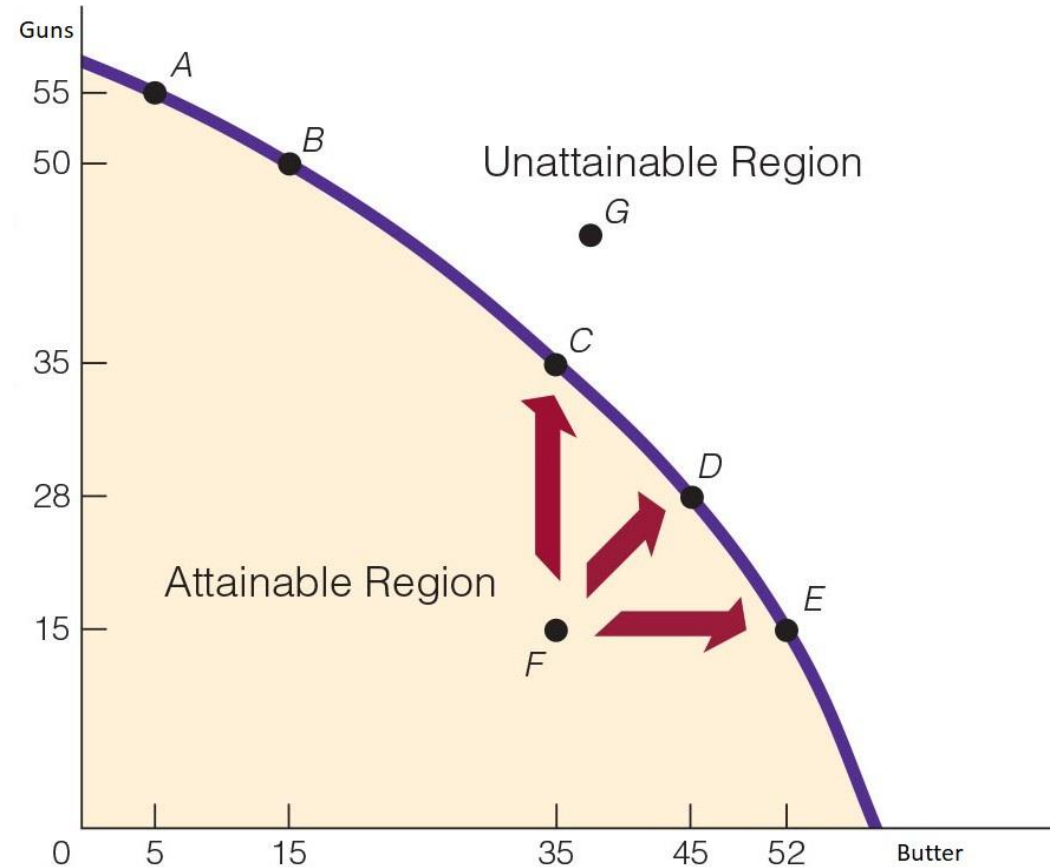
- **Productive Efficient:** The condition in which the maximum output is produced with the given resources and technology
- **Productive Inefficient:** The condition in which less than the maximum output is produced with the given resources and technology. Productive inefficiency implies that more of one good can be produced without any less of another being produced



PPF Activity

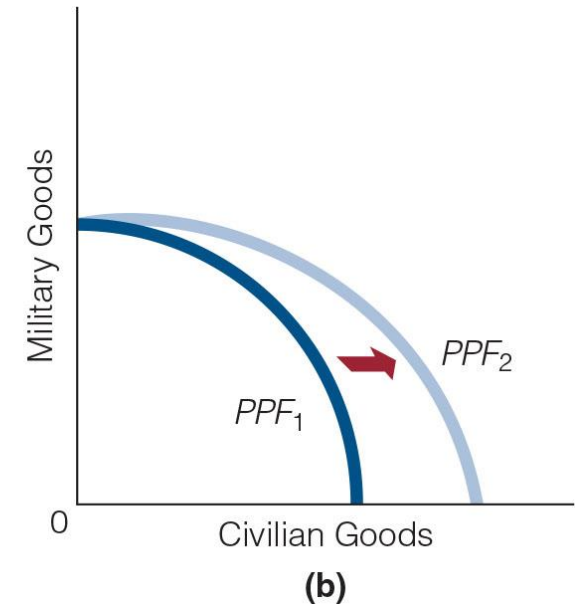
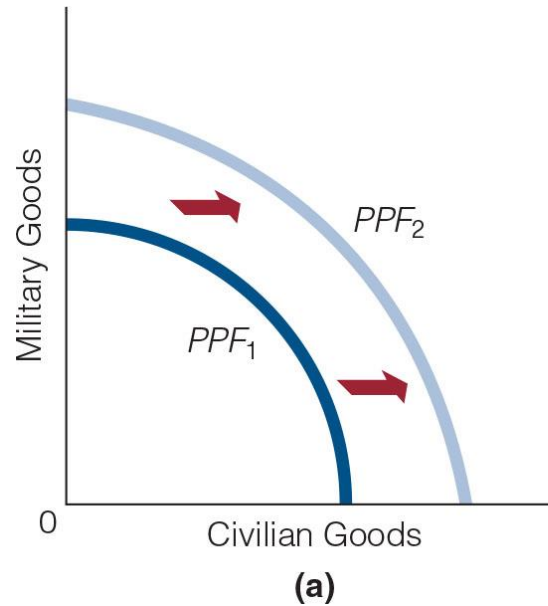
Activity:

- A country has a choice with its resources
 - Produce Guns (military)
 - Produce Butter (civilian)
- Where is the United States on the PPF curve?



Technology

- **Technology:** The body of skills and knowledge involved in the use of resources in production.
 - An advance in technology commonly increases the ability to produce more output with a fixed amount of resources or the ability to produce the same output with fewer resources.



Knowledge Check 1a

_____ refers to the body of skills and knowledge involved in the use of resources in production.

- A. Utility
- B. Technology
- C. Efficiency
- D. PPF

Knowledge Check 1b

A bowed-outward PPF represents _____ and a straight-line PPF represents

- A.** increasing opportunity costs; constant opportunity costs
- B.** constant opportunity costs; increasing opportunity costs
- C.** increasing opportunity costs; increasing opportunity costs
- D.** constant opportunity costs; constant opportunity costs

Knowledge Check 1c

Suppose that a society begins at a point inside its production possibilities frontier (PPF) and then ends up at a point on the same PPF. Which of the following could have caused such a change?

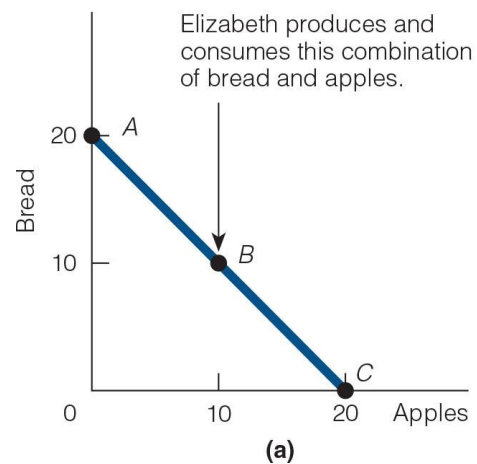
- A.** The society started out using all its resources, but then allowed some of its resources to become unemployed.
- B.** The society developed an improvement in technology.
- C.** The society had some unemployed resources to begin with, but then started using all its resources.
- D.** The society experienced an increase in the quantity of resources available.

Specialization and Trade Can Move Us Beyond Our PPF

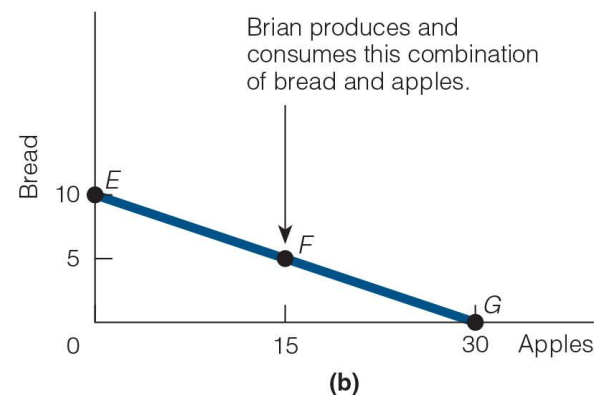
Simple PPF Model

A Simple Two-Person PPF Model

Elizabeth	
Bread	Apples
20	0
10	10
0	20



Brian	
Bread	Apples
10	0
5	15
0	30



Step 1: Opportunity Cost

- Step 1: Find the opportunity cost
 - **Opportunity Cost:** The most highly valued opportunity or alternative forfeited when a choice is made

Elizabeth		Brian	
Bread	Apples	Bread	Apples
20	0	10	0
10	10	5	15
0	20	0	30

Step 2: Comparative Advantage

- Step 2: Find the comparative advantage
 - **Absolute Advantage:** The situation in which someone can produce more of a good using the same amount of resources
 - **Comparative Advantage:** The situation in which someone can produce a good at lower opportunity cost than someone else can

Elizabeth		Brian	
Bread	Apples	Bread	Apples
20	0	10	0
10	10	5	15
0	20	0	30

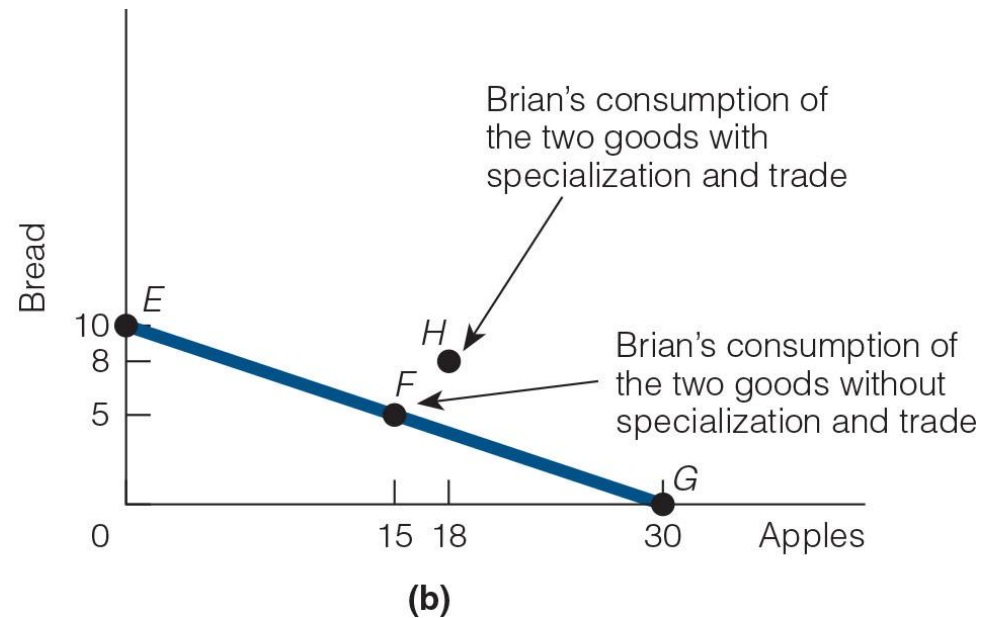
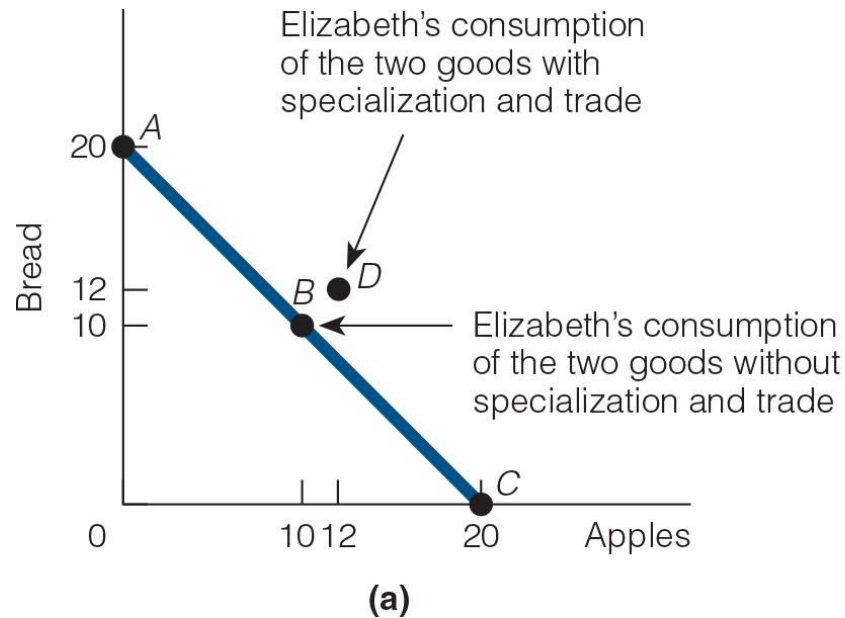
Step 3: Specialize

- Step 3: Specialize
 - Comparative Advantage

Elizabeth		Brian	
Bread	Apples	Bread	Apples
20	0	10	0
10	10	5	15
0	20	0	30

Step 4: Trade

- Step 4: Trade



Knowledge Check 2a

Use the 4-step process to find the comparative advantage and the gains from specialization and trade. What is Tina's opportunity cost?

- A. 1 coconut = 1/2 pineapple
- B. 1 coconut = 2 pineapple
- C. 1 coconut = 5/8 pineapple
- D. 1 coconut = 8/5 pineapple

Tina		David	
Coconuts	Pineapples	Coconuts	Pineapples
100	0	50	0
50	25	25	40
0	50	0	80

Knowledge Check 2b

Use the 4-step process to find the comparative advantage and the gains from specialization and trade. What is David's comparative advantage?

- A. Coconuts
- B. Pineapples
- C. Both
- D. Neither

Tina		David	
Coconuts	Pineapples	Coconuts	Pineapples
100	0	50	0
50	25	25	40
0	50	0	80

Knowledge Check 2c

Use the 4-step process to find the comparative advantage and the gains from specialization and trade. The terms of the trade are each person trades half.

How many additional pineapples does Tina receive with trade than she could produce on her own assuming she produces both coconuts and pineapples?

- A. 100
- B. 50
- C. 40
- D. 15

Tina		David	
Coconuts	Pineapples	Coconuts	Pineapples
100	0	50	0
50	25	25	40
0	50	0	80

Chapter Summary

Now that the lesson has ended, you should have learned how to:

- Describe how the production possibilities frontier explains production.
- Describe opportunity cost in the context of the production possibilities frontier.
- Describe the factors that cause the production possibilities frontier to shift.
- Describe absolute advantage in the context of trade.
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