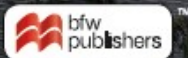


KRUGMAN'S  
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**UNIT 1**  
**MICRO**

**Basic  
Economics  
Concepts**





# Basic Economics Concepts

- Module 1.1 Scarcity and Choice
- Module 1.2 Economic Systems
- Module 1.3 The Production Possibilities Curve Model
- Module 1.4 Comparative Advantage and Trade
- Module 1.5 Cost-Benefit Analysis
- Module 1.6 Consumer Choice



# Scarcity and Choice:

## *Scarcity and Choice: The Core of Economics*

**Economics** is the study of scarcity and choice.

Each individual faces **trade-offs**. You make a trade-off when you give up something to get something else.

Every economic issue involves **individual choice**- decisions by individuals about what to do and what *not* to do.



## Scarcity and Choice: *Resources are Scarce*

A **resource** is anything that can be used to produce something else.

A **scarce** resource is not available in sufficient quantities to satisfy all the various ways a society wants to use it. These scarce resources are divided into **four main categories**:

1. **Land**: all natural resources
2. **Labor**: the effort of workers
3. **Capital**: all manufactured resources
4. **Entrepreneurship**: risk-taking, innovation, and organization



## Scarcity and Choice: *Resources are Scarce*

**Marginal analysis** is the study of the costs and benefits of doing a little more of an activity versus a little less.

The gain from doing something once more is the **marginal benefit**. For example, a one-point increase in a student's grade for studying one more day would be the marginal benefit of that extra day of study.

The **marginal cost** of going to the beach instead would be the same one-point increase given up by not studying for that day.



## Scarcity and Choice:

*Opportunity Cost: The Real Cost of Something is What You Must Give Up to Get It*

The real cost of something is what you must give up to get it.

The value of the next best alternative that you must give up when you make a particular choice is the **opportunity cost**.

The **opportunity cost** of going to college is high for people who have the chance to earn a lot of money during their college years.

Soccer star Mallory Pugh withdrew during her first year of college because her *opportunity cost* would have included her salary and Nike endorsement deal as a professional soccer player.



# Scarcity and Choice:

## *Microeconomics vs. Macroeconomics*

**Table 1.1-1****Microeconomic Versus Macroeconomic Questions**

| Microeconomic Questions                                                             | Macroeconomic Questions                                                                                                         |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| How many years of education should I receive before I start my career?              | How many people are employed in the economy as a whole this year?                                                               |
| What determines the salary that Citibank offers to a new college graduate?          | What determines the average salary paid to workers in the economy?                                                              |
| What is the cost to a high school of offering a new course?                         | What is the overall level of prices in the economy as a whole?                                                                  |
| What government policies would encourage more students to choose to attend college? | What government policies would promote employment and growth in the economy as a whole?                                         |
| What determines the number of iPhones exported to France?                           | What determines the overall trade in goods, services, and financial assets between the United States and the rest of the world? |

**Microeconomics** is the study of how individuals, households, and firms make decisions and how those decisions interact.

**Macroeconomics** is concerned with the behavior of the economy as a whole; therefore, it focuses on **economic aggregates**.



## Scarcity and Choice: *Positive Versus Normative Economics*

**Positive economics** is the branch of economic analysis that describes the way the economy *actually* works.

**Normative economics** makes prescriptions about the way the economy *should* work.

In economics, positive statements are about *what is*, while normative statements are about *what should be*.



## Economic Systems: *How Economic Systems Address the Three Basic Economic Questions*

An **economy** is a system for coordinating a society's productive and consumptive activities.

Every economy must address three basic questions about *resource allocation*:

1. What goods and services will be produced?
2. How will those goods and services be produced?
3. Who will receive the goods and services?



## Economic Systems: *How Economic Systems Address the Three Basic Economic Questions*

Different economic systems address the basic economic questions in very different ways:

### Traditional Economies

- Economic questions answered based on precedent.
- Ex: Amish community in the United States.
- Ease, familiarity, and predictability lead to elements of tradition in every economy.

### Market Economies

- Production and consumption are decisions made by firms and individuals.
- Also described as *capitalist* or *free enterprise*, when there is minimal government intervention.
- No central authority telling people what to produce or who can receive it.



## Economic Systems: *How Economic Systems Address the Three Basic Economic Questions*

Different economic systems address the basic economic questions in very different ways:

### **Command Economies**

- Factors of production are publicly owned.
- Central authorities *do* make production and consumption decisions.
- Command economies have been tried, but they didn't work very well.

### **Mixed Economies**

- Pure forms of traditional, market, and command economies leave something to be desired.
- Most countries today have a mixed economy.
- Mixed economies have a blend of traditional, market, and command characteristics.



## Economic Systems: *Incentives Matter*

**Incentives** are rewards or punishments that motivate particular choices.

In a market economy, **incentives** such as the profit motive, encourage suppliers to meet the needs of consumers, such as increasing the supply during a shortage.

In a command economy, there is often little incentive to meet the economic needs of producers and consumers.

**Property rights** establish ownership and grant individuals the right to trade goods and services with each other.



# The Production Possibilities Curve Model:

## *The Use of Models in Economics*

In 1901, the Wright brothers built a wind tunnel. This apparatus let them experiment with different designs for wings and control surfaces.

Today, pilots train with flight simulators and cockpit models that allow them to practice maneuvers without ever leaving the ground.

**Models** are simplified representations of reality that play a crucial role in almost all scientific research, economics included.



## The Production Possibilities Curve Model: *Trade-offs: The Production Possibilities Curve*

Alexander Selkirk was a castaway on a deserted island off Chile in 1704. With limited resources, Selkirk essentially became a **one-person economy**.

Every day, he chose whether to fish, find coconuts, build shelter, or look out for rescue ships.

These **trade-offs** meant an hour spent doing one thing was an hour that could not be spent doing another.



# The Production Possibilities Curve Model:

## *Trade-offs: The Production Possibilities Curve*

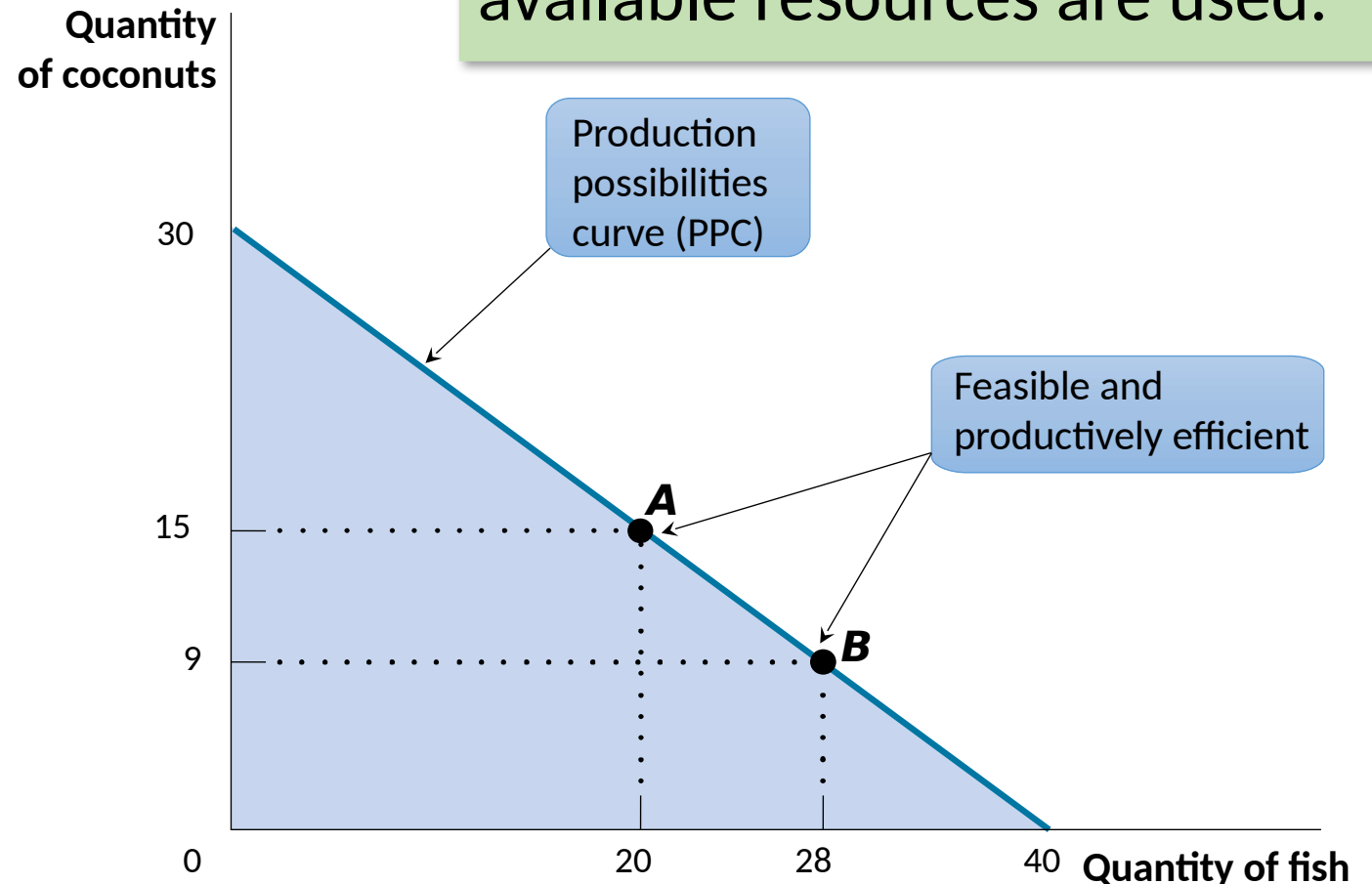
This **PPC** shows the trade-off between coconut and fish production.

At point **A**, 20 fish and 15 coconuts are produced.

At point **B**, 28 fish and 9 coconuts are produced.

*Every point along the **PPC** is both feasible and efficient.*

Both **A** and **B** are efficient—all available resources are used.





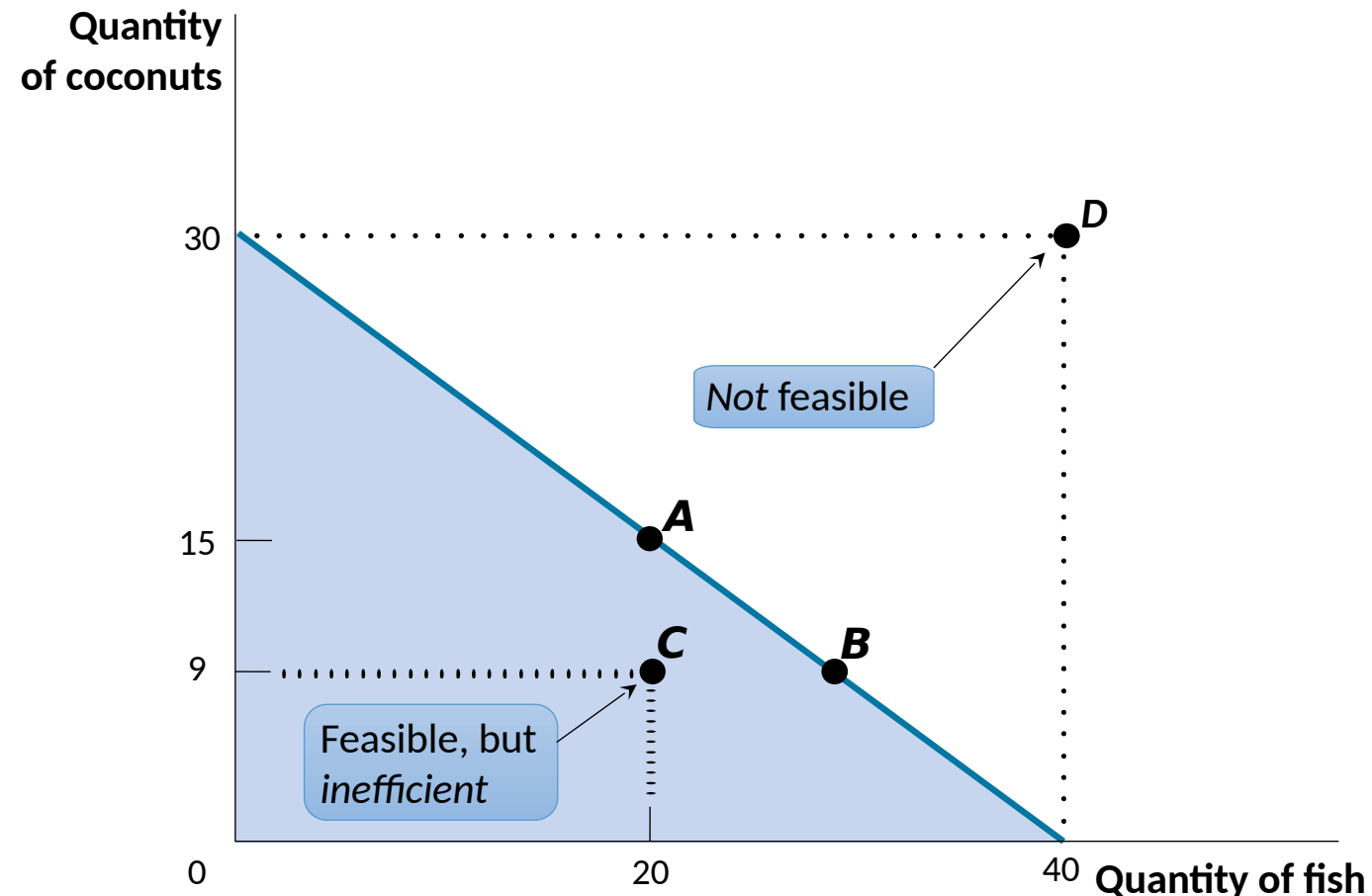
# The Production Possibilities Curve Model:

## *Trade-offs: The Production Possibilities Curve*

Points to the **right** of the **PPC** are **not** feasible. They exceed available resources.

At point **D**, 40 fish and 30 coconuts *would* be produced—but this production level is impossible.

**FIGURE 1.3-1** The Production Possibilities Curve





## The Production Possibilities Curve Model: *Efficiency*

An economy is **efficient** if there are no missed opportunities—meaning that there is no way to make someone better off without making at least one person worse off.

An economy achieves **productive efficiency** if it produces at any point on its production possibilities curve.

An economy achieves **allocative efficiency** if it produces at the point along its production possibilities curve that makes consumers as well off as possible.



## The Production Possibilities Curve Model: *Opportunity Cost*

The **PPC** is a useful reminder that the true cost of anything is not just its price, but everything in addition to money that must be given up in order to get it—the **opportunity cost**.

On a deserted island where each fish caught means a certain number of coconuts cannot be harvested, the **opportunity cost** of each fish is measured in coconuts given up.

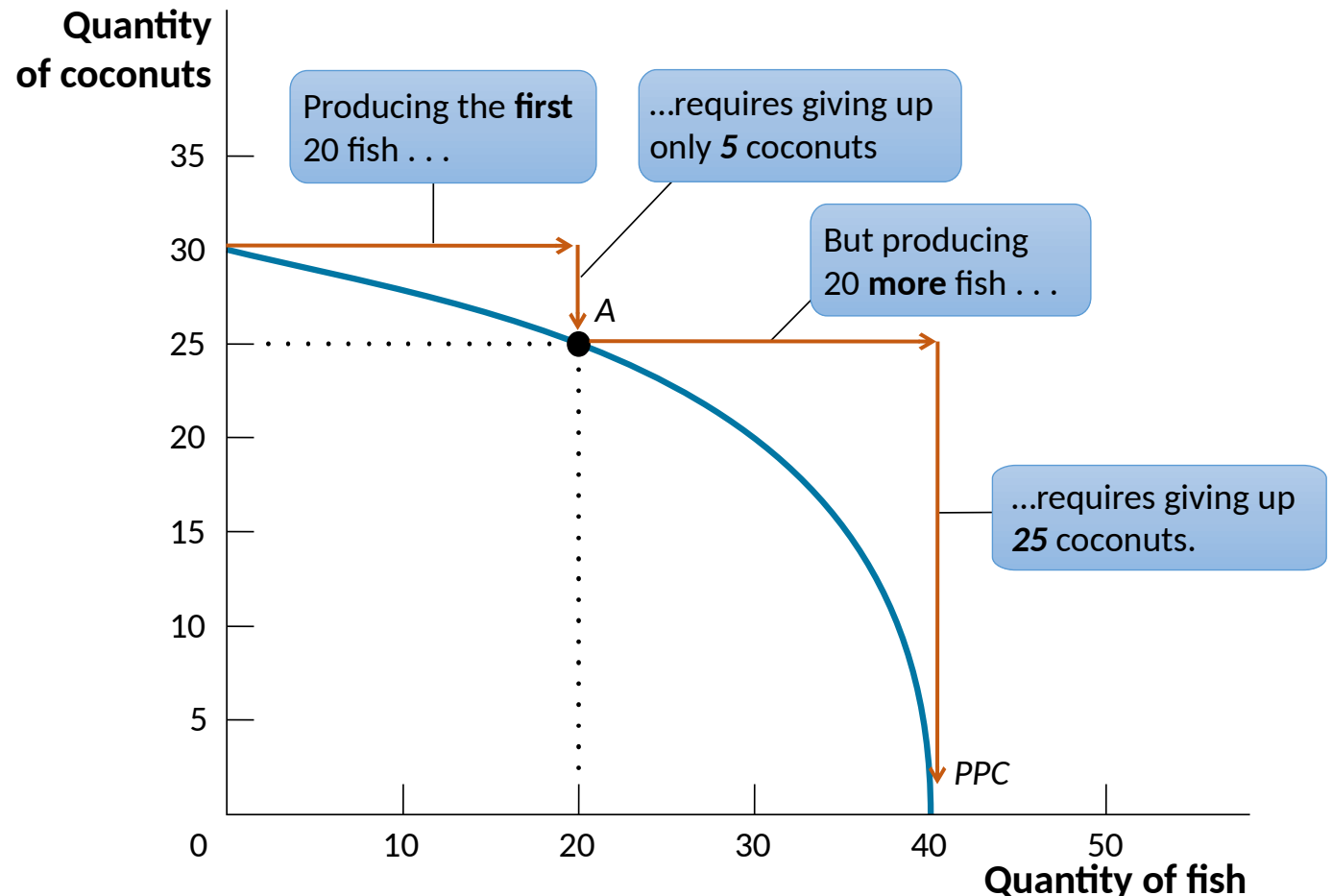


# The Production Possibilities Curve Model: *Opportunity Cost*

This PPC shows the **increasing opportunity cost** of producing fish in terms of coconuts lost.

The concave or **bowed-out** shape of the PPC reflects an increasing opportunity cost.

**FIGURE 1.3-2** Increasing Opportunity Cost





# The Production Possibilities Curve Model: *Economic Growth*

**Economic growth** is a sustained rise in aggregate output and an increase in a standard of living.

Economic growth can also be understood as an **expansion** of an economy's **production possibilities**.



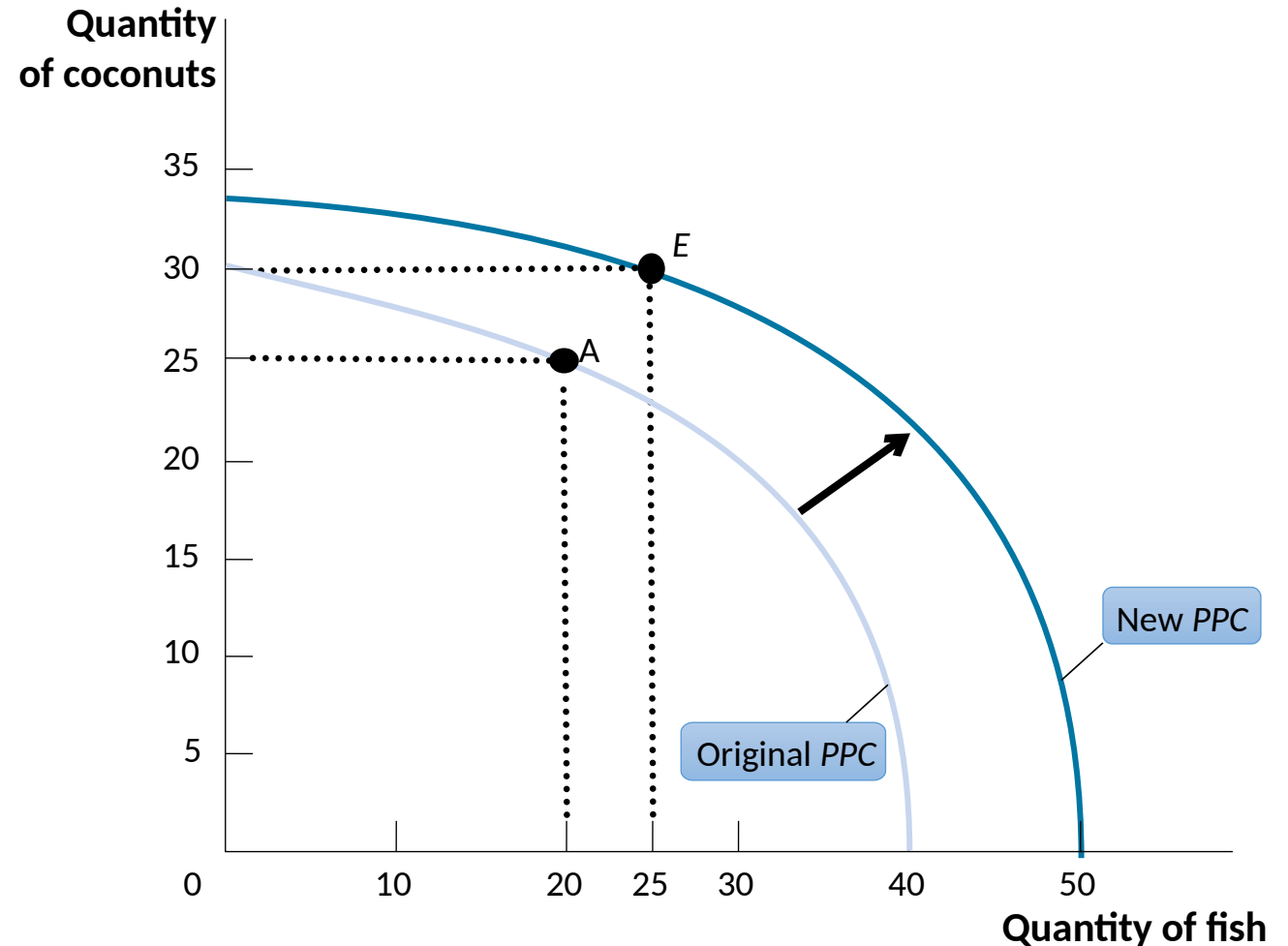
## The Production Possibilities Curve Model: *Economic Growth*

After growth, the **PPC** moves to point **E** (25 fish and 30 coconuts).

The old **PPC** shifts outward to a **new PPC** because production possibilities have expanded.

The economy can now produce more of everything.

**FIGURE 1.3-3** Economic Growth





## The Production Possibilities Curve Model: *Economic Growth*

The two main sources of growth are **increases in available resources** and **improvements in technology**.

For example, a person stranded on a deserted island might suddenly discover a new coconut grove full of low-hanging coconuts. This **increase in available resources** (also known as factors of production) would **shift the PPC outward**.

**Technology** is the technical means for producing goods and services.

For example, a person stranded on a deserted island might discover or build a fishing net. This **improvement in technology** would **shift the PPC outward**.

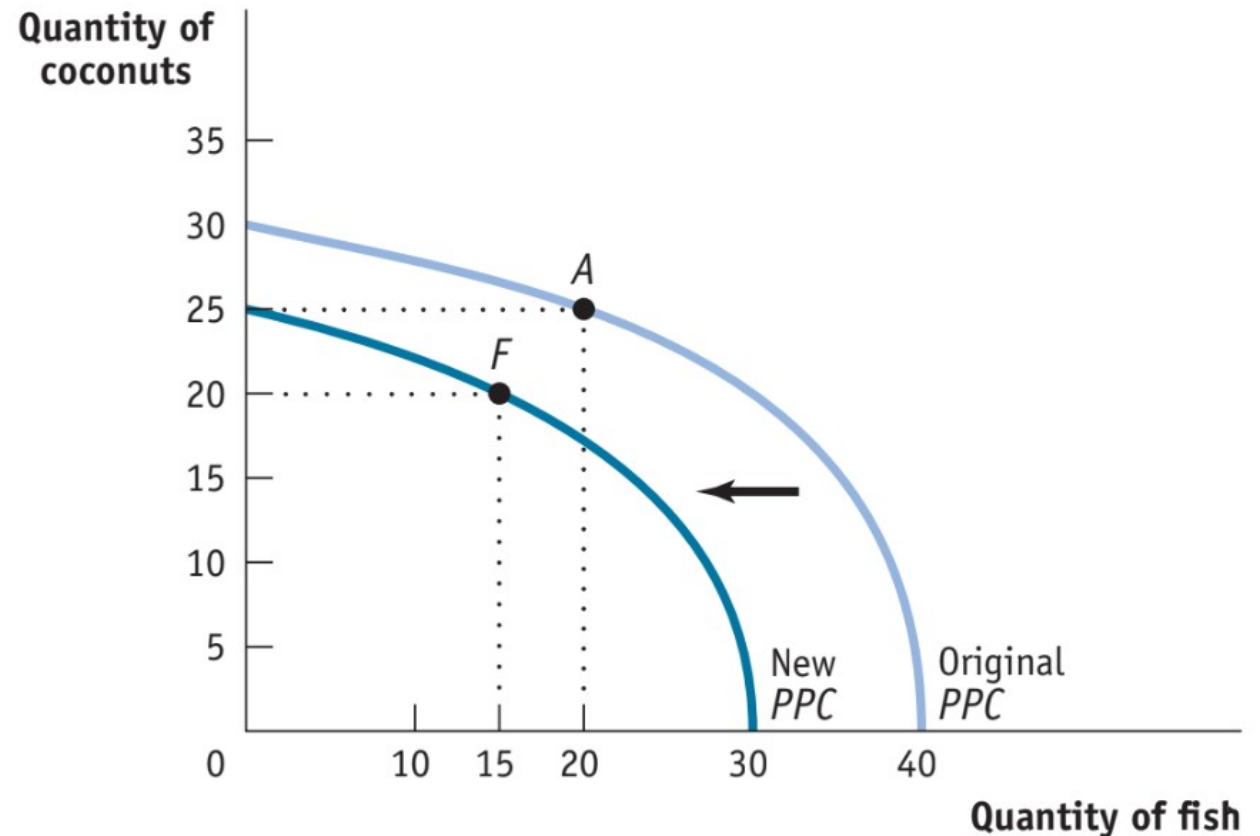


## The Production Possibilities Curve Model: *Economic Growth*

If an economy's production possibilities curve shifts inward, the economy has become smaller.

This could happen if the economy loses resources or technology, which could result from natural disaster or war.

**FIGURE 1.3-4** A Shrinking Economy





## Comparative Advantage and Gains from Trade: *Gains from Trade*

In a market economy, individuals engage in **trade**: they provide goods and services to others and receive goods and services in return.

The gains from trade come from **specialization**: each person specializes in the task that they are good at performing.

The concept of **specialization** allows for the mass production of most of the devices and appliances we use today.



## Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

The **production possibilities curve model** illustrates gains from trade based on comparative advantage.

An individual has a **comparative advantage** in producing a good or service if they face the **lowest opportunity cost** of producing it.

For example, **two** castaways—Alexis and Jacob—have different abilities to produce either coconuts or fish.



## Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

|        | Coconuts | Fish |
|--------|----------|------|
| Alexis | 30       | 40   |
| Jacob  | 20       | 10   |

Alexis has the **absolute advantage** in producing coconuts and fish.

An individual has an **absolute advantage** in production if they can make more of it with a given amount of time and resources.

Absolute advantage is **not** the same as comparative advantage.

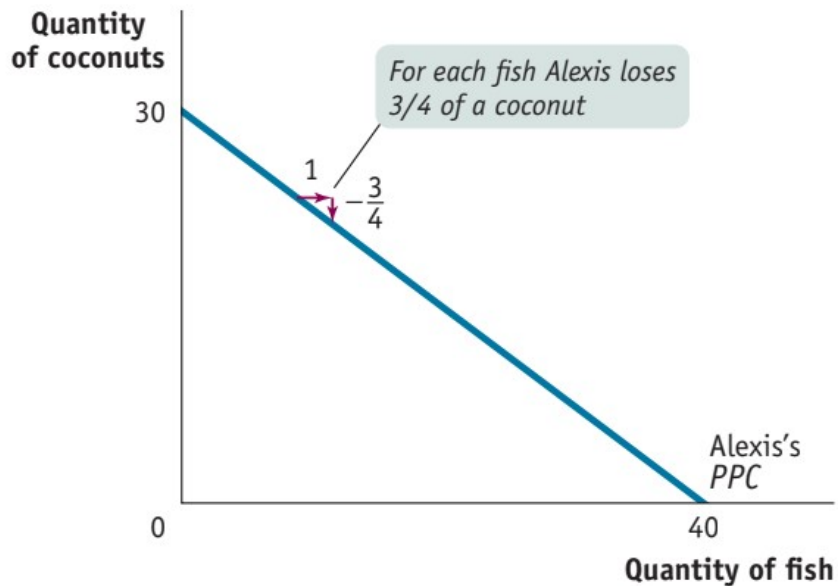


# Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

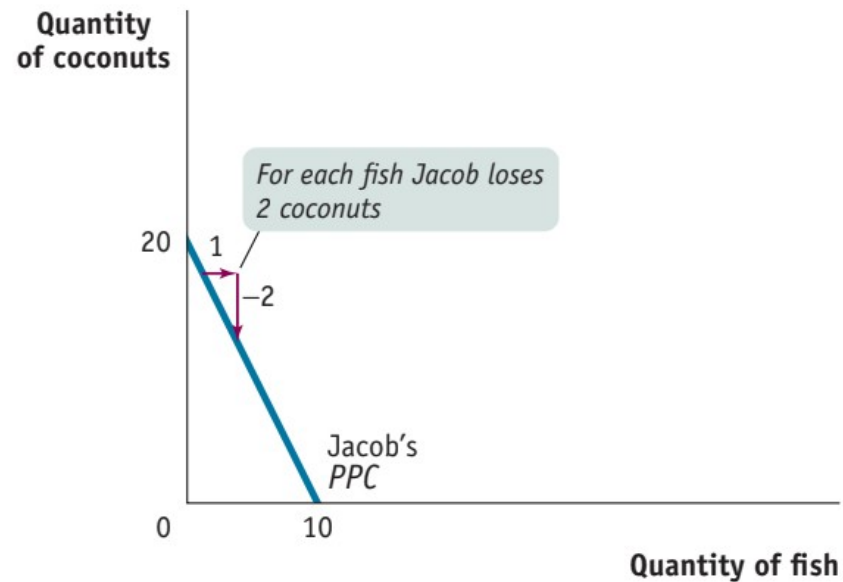
These **production possibilities curves** show each person's opportunity cost.

**FIGURE 1.4-1** Production Possibilities for Two Castaways

(a) Alexis's Production Possibilities



(b) Jacob's Production Possibilities



Alexis's opportunity cost for producing 1 fish is  $\frac{3}{4}$  of a coconut

Jacob's opportunity cost for producing 1 fish is 2 coconuts

Therefore, Alexis has the **comparative advantage** because of the lower opportunity cost.



## Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

| Table 1.4-1 | Alexis's and Jacob's Opportunity Costs of Fish and Coconuts |                          |
|-------------|-------------------------------------------------------------|--------------------------|
|             | Alexis's Opportunity Cost                                   | Jacob's Opportunity Cost |
| One fish    | $\frac{3}{4}$ coconut                                       | 2 coconuts               |
| One coconut | $\frac{4}{3}$ fish                                          | $\frac{1}{2}$ fish       |

Alexis has the comparative advantage in the production of fish because  $\frac{3}{4}$  coconut is less than 2 coconuts

Jacob has the comparative advantage in the production of coconuts because  $\frac{1}{2}$  fish is less than  $\frac{4}{3}$  fish

It is not possible for one person (or country) to have the comparative advantage in both products



## Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

By **specializing** in the good they have a comparative advantage in and by **trading** for the other good, **both** castaways can **consume more of each good**. In other words, there are **gains from trade**.



## Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*

Before trade, Alexis & Jacob were limited by their own production capabilities.

Now, they can specialize based on comparative advantage. Let's suppose that Alexis & Jacob agree to trade 10 coconuts for 10 fish.

**Alexis will produce 40 fish** and trade 10 to Jacob.  
**Jacob will produce 40 coconuts** and trade 10 to Alexis.

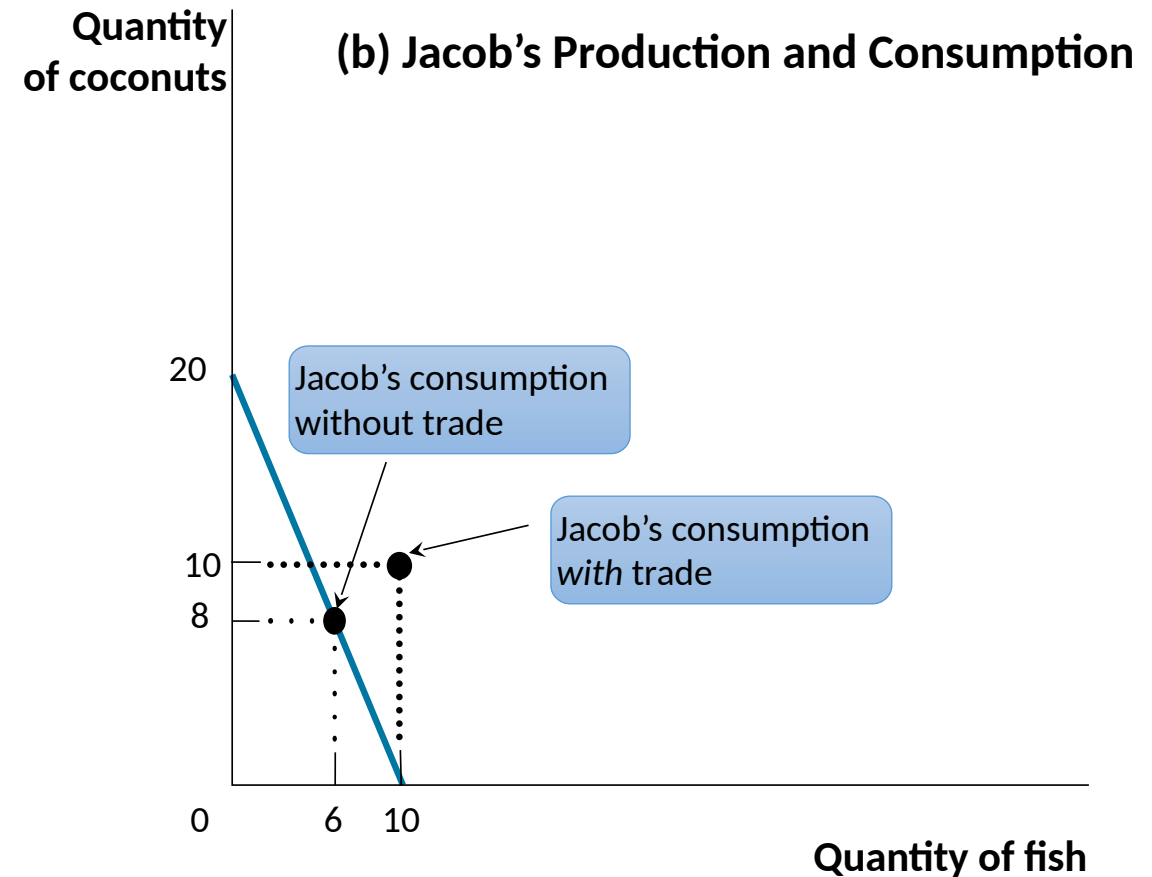
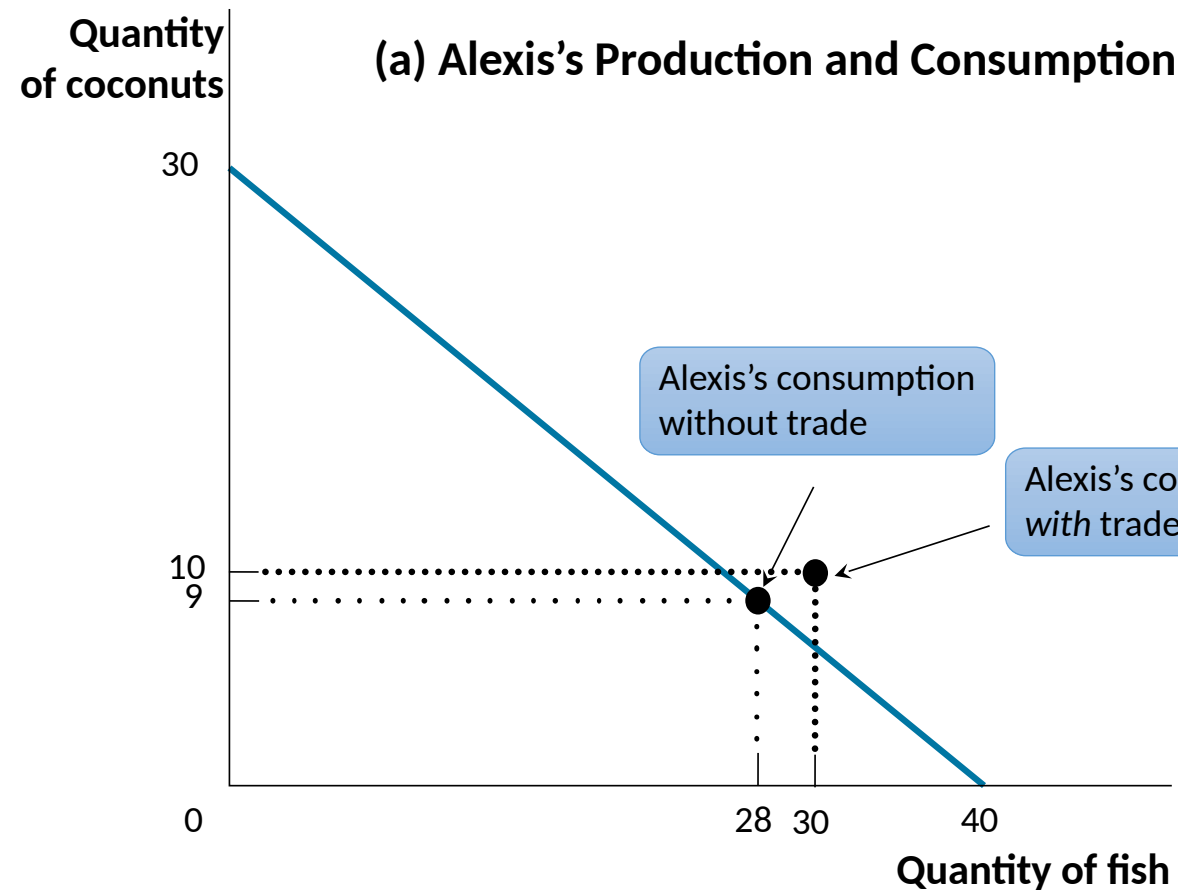
**Table 1.4-2**

**How the Castaways Gain from Trade**

|               |          | Without Trade |             | With Trade |             | Gains from Trade |
|---------------|----------|---------------|-------------|------------|-------------|------------------|
|               |          | Production    | Consumption | Production | Consumption |                  |
| <b>Alexis</b> | Fish     | 28            | 28          | 40         | 30          | +2               |
|               | Coconuts | 9             | 9           | 0          | 10          | +1               |
| <b>Jacob</b>  | Fish     | 6             | 6           | 0          | 10          | +4               |
|               | Coconuts | 8             | 8           | 20         | 10          | +2               |



# Comparative Advantage and Gains from Trade: *Comparative Advantage and Gains from Trade*





## Comparative Advantage and Gains from Trade: *Mutually Beneficial Terms of Trade*

**Terms of trade** indicate the rate at which one good can be exchanged for another.

Any price between the opportunity cost of the producer and the opportunity cost of the buyer will make **both sides better off** than in the absence of trade.

In other words, if the “price” of a good obtained from trade is **less** than the opportunity cost of producing it, **trade is beneficial**.



## Comparative Advantage and Gains from Trade: *Mutually Beneficial Terms of Trade*

| Table 1.4-1 | Alexis's and Jacob's Opportunity Costs of Fish and Coconuts |                          |
|-------------|-------------------------------------------------------------|--------------------------|
|             | Alexis's Opportunity Cost                                   | Jacob's Opportunity Cost |
| One fish    | $\frac{3}{4}$ coconut                                       | 2 coconuts               |
| One coconut | $\frac{4}{3}$ fish                                          | $\frac{1}{2}$ fish       |

Trade is beneficial if the price of one fish is between  $\frac{3}{4}$  coconut and 2 coconuts

Trade is beneficial if the price of one coconut is between  $\frac{1}{2}$  fish and  $\frac{4}{3}$  fish



## Comparative Advantage and Gains from Trade: *Comparative Advantage and International Trade*

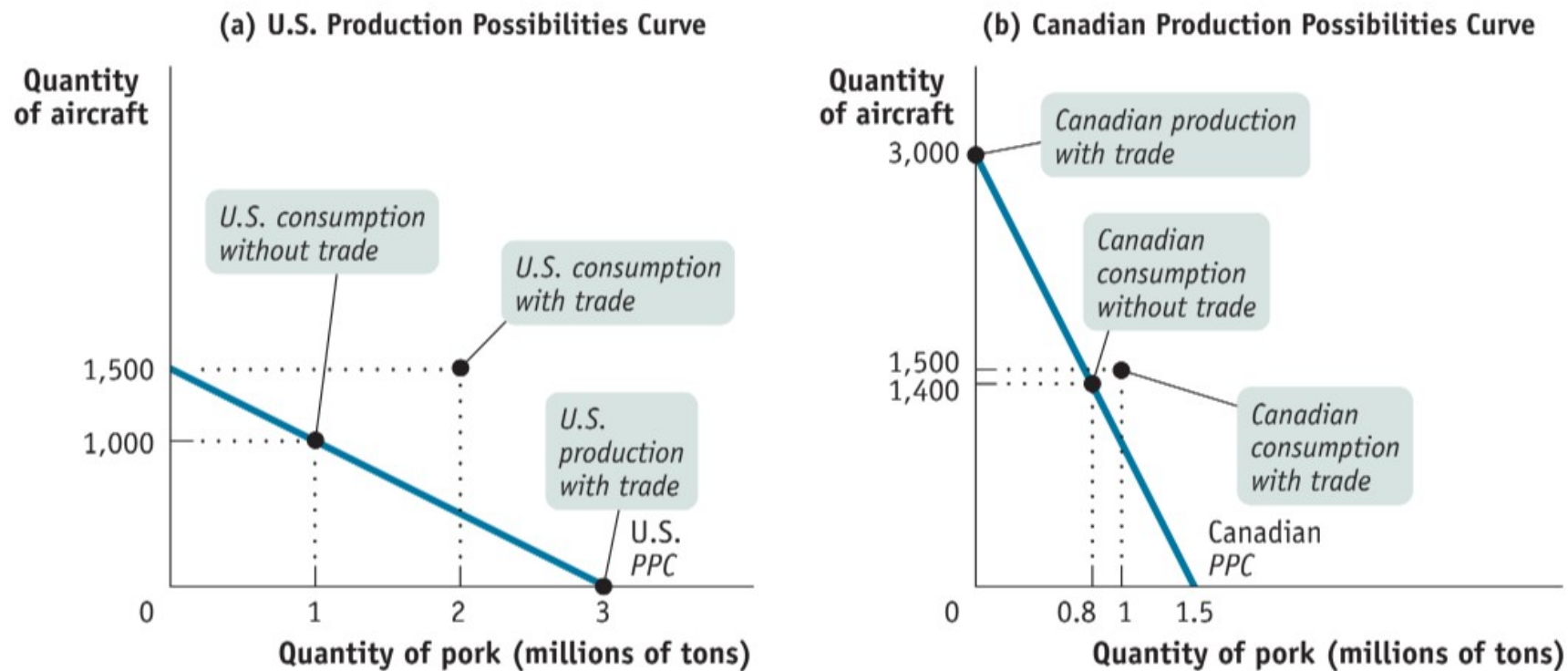
**Comparative advantage** allows for **gains from trade** not just between individuals, but also between countries.

Just as with individuals, even if a country has an **absolute advantage** in both goods, because one country will always have a **comparative advantage** in one of the goods, **trade is beneficial**.



# Comparative Advantage and Gains from Trade: *Comparative Advantage and International Trade*

**FIGURE 1.4-3** Comparative Advantage and International Trade



Though the U.S. has a comparative advantage in pork and Canada has a comparative advantage in aircrafts, **both gain from trade.**



## Cost-Benefit Analysis: *All Costs Are Opportunity Costs*

Opportunity costs are the value of the next-best alternative forgone when a decision is made.

Some costs are *explicit*, meaning they are paid with dollars.

Some costs are *implicit*, meaning they are paid with time and missed opportunities.

Money spent on one purchase can't be spent on something else.

Time spent on one activity can't be spent on another activity.



## Cost-Benefit Analysis: *All Costs Are Opportunity Costs*

Rational agents are consumers, producers, and others who behave rationally and make optimal decisions.

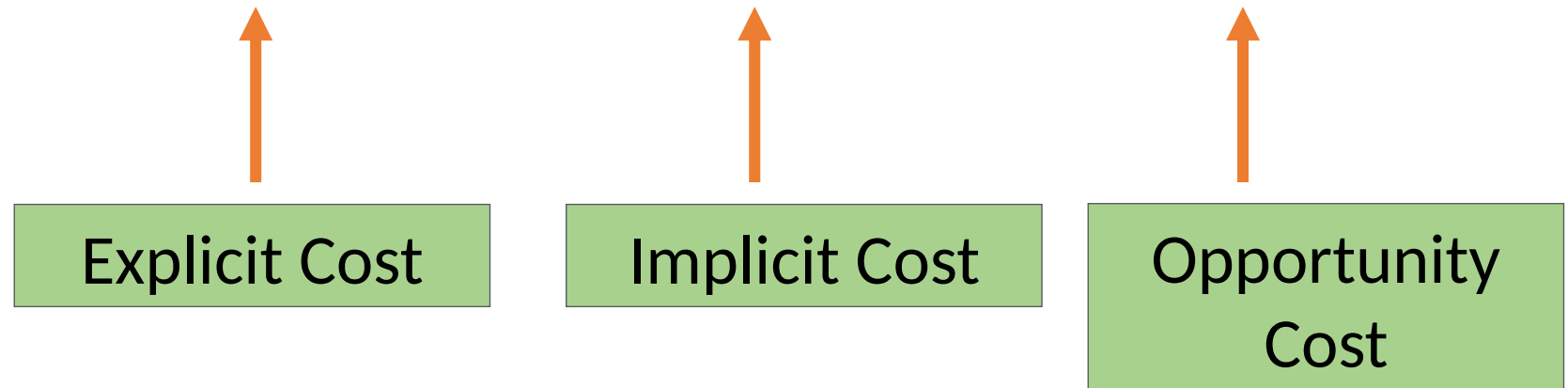
Suppose Isha earns a salary of \$50,000 per year to manage an ice cream shop.

Someone offers her a \$60,000 per year job to deliver seafood. The delivery job would require renting a truck for \$7,000.

She would also have to start working weekends, a fate she would be willing to pay \$5,000 per year to avoid. What should Isha do?



## Cost-Benefit Analysis: *All Costs Are Opportunity Costs*



Since the \$48,000 annual opportunity cost of staying is less than the \$50,000 salary she would forgo switching jobs, Isha should continue to manage the ice cream shop.



## Cost-Benefit Analysis: *The Benefit Consumers Seek*

The measure of satisfaction is known as **utility**.

Consumers seek happiness and satisfaction from the purchases they make.

Economists use **utils** as a numerical measure of satisfaction, but the numbers are used to highlight the concept that when making purchases, a higher number is better.



## Cost-Benefit Analysis: *The Benefits Firms Seek*

Firms generally seek to maximize *profit*, which is the difference between the total amount of money received in exchange for the goods and services total cost.

The money a firm receives is called *revenue*.

Total revenue can be found by multiplying the price of the product by the quantity sold.



## Cost-Benefit Analysis: *Comparisons of Total Benefit and Total Cost*

Consumers and firms share the common objective of maximizing the difference between their total benefit and total cost.

**Cost-benefit analysis** is the process of comparing costs with benefits to inform a decision.

For all questions of, “Should I do this?” a comparison of total cost and total benefit will indicate the answer.

For example, deciding whether or not to go on vacation.

Deciding where to go and how much to spend is a *marginal* decision.



## Cost-Benefit Analysis: *Comparisons of Marginal Benefit and Marginal Cost*

If the college is solely focused on profit, then 3 teams would be added. The addition of the 4<sup>th</sup> team creates a marginal benefit (\$120,000) which is lower than the marginal cost (\$200,000).

**Table 1.5-1**
**The Costs and Benefits of New Sports Teams at a Private College**

| Quantity of New Teams | Marginal Cost | Marginal Benefit | Total Cost | Total Benefit | Profit (net gain) |
|-----------------------|---------------|------------------|------------|---------------|-------------------|
| 1                     | \$100,000     | \$500,000        | \$100,000  | \$500,000     | \$400,000         |
| 2                     | \$120,000     | \$300,000        | \$220,000  | \$800,000     | \$580,000         |
| 3                     | \$150,000     | \$160,000        | \$370,000  | \$960,000     | \$590,000         |
| 4                     | \$200,000     | \$120,000        | \$570,000  | \$1,080,000   | \$510,000         |
| 5                     | \$280,000     | \$90,000         | \$850,000  | \$1,170,000   | \$320,000         |



## Cost-Benefit Analysis: *Sunk Costs*

Although it is important to measure costs when making a decision, some costs should be ignored.

These are referred to as *sunk costs*.

Suppose you just replaced the brake pads on your car for \$250.

The mechanic then informs you that the entire brake system is defective and must be replaced at a cost of \$1,500.

You also have an option to sell the car and buy a comparable one with no problems for \$1,600.

What should you do?



## Cost-Benefit Analysis: *Sunk Costs*

In this example, the \$250 spent on brake pads is a *sunk cost*.

The \$250 is *nonrecoverable*. So, if you keep or sell your car, you are not getting the \$250 back.

The real cost at this point is whether to spend \$1,500 on your car or \$1,600 on the new one.

Spending \$1,500 to fix your car is the right choice in this case.



## Consumer Choice: *Utility and Consumption*

**Utility** is a measure of personal satisfaction. A **util** is a unit of utility.

A **utility function** shows the relationship between a consumer's utility and the combination of goods and services—the *consumption bundle*—he or she consumes.

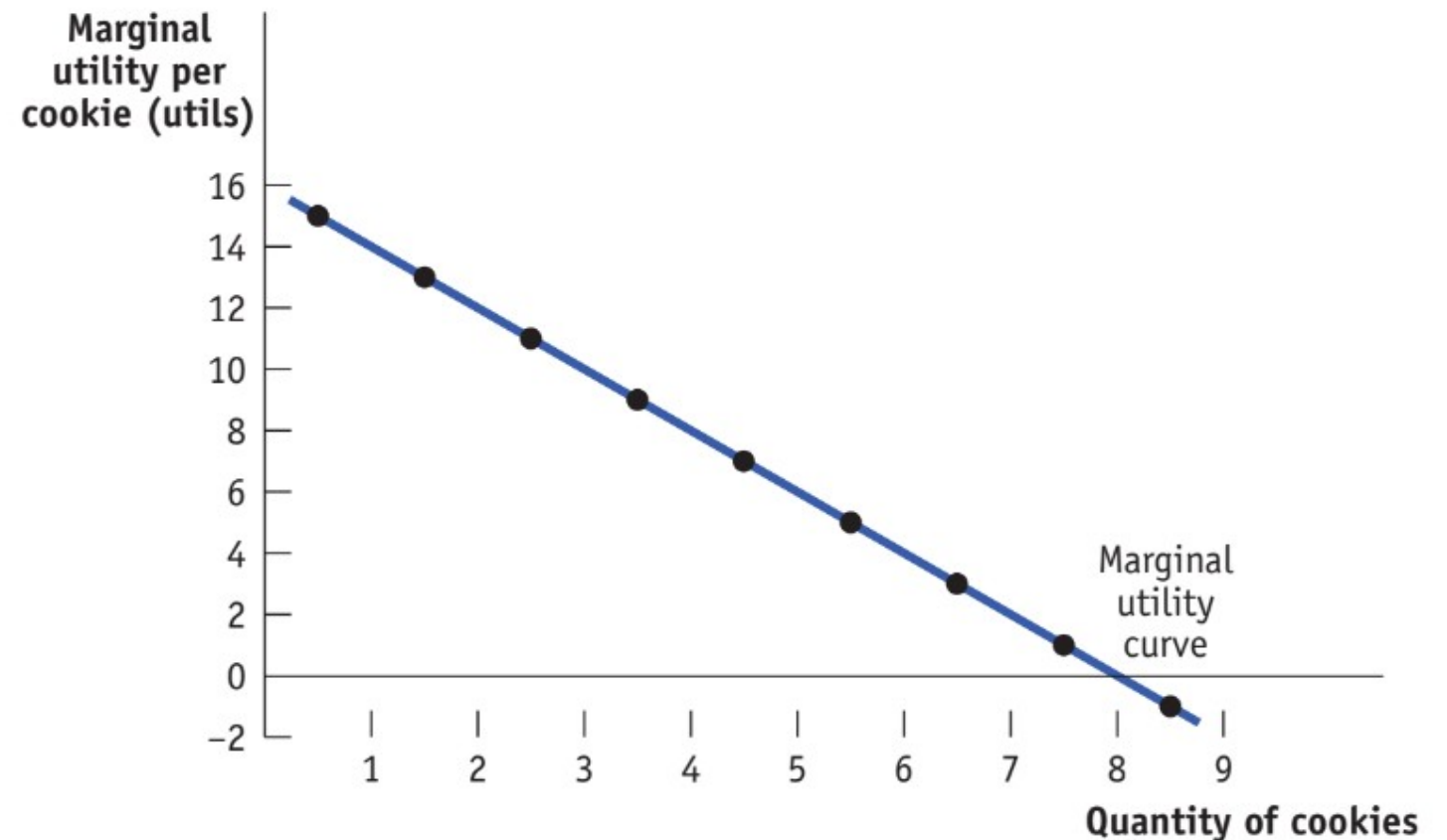


## Consumer Choice: *The Principle of Diminishing Marginal Utility*

### Marginal Utility

That is, each additional cookie gives Olivia **less** utility than the previous cookie. that.

(b) Olivia's Marginal Utility Curve





## Consumer Choice: *The Principle of Diminishing Marginal Utility*

The **marginal utility** of a good or service is the change in total utility generated by consuming **one additional unit** of that good or service.

The **marginal utility curve** shows that marginal utility depends on the **quantity** of a good or service consumed.

According to the **principle of diminishing marginal utility**, successive units of a good or service add less total utility than do previous units.



## Consumer Choice: *Occasional Ups & Downs of Marginal Utility*

In rare cases, diminishing marginal utility **doesn't** hold.

For example, the first few times you go skiing, your utility may *increase* as you become more skilled and able to enjoy rather than fear the experience.

For other goods, it is better to have **none** than to have not enough. For example, too little wallpaper to paper a room would provide **less** utility than no wallpaper at all —because you would have to store a useless amount of the good.

Although the principle of **diminishing marginal utility** doesn't always apply, it does apply in the majority of cases, so it will form the foundation of our analysis of consumer behavior.



## Consumer Choice: *Budgets and Optimal Consumption*

A **budget constraint** limits the cost of a consumer's consumption bundle to no more than the consumer's income.

A consumer's **consumption possibilities** are the set of all affordable consumption bundles given the consumer's income and prevailing prices.

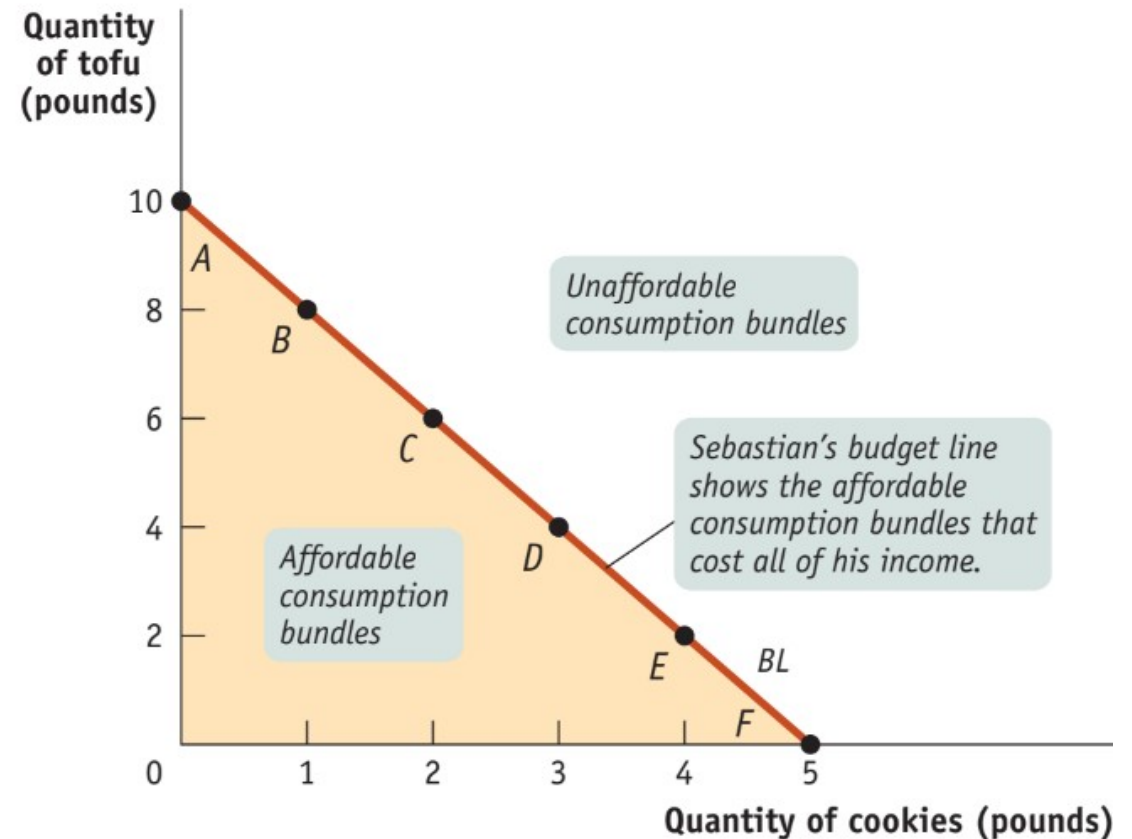
A consumer's **budget line (BL)** shows the consumption bundles available to a consumer who spends all of his or her income.



## Consumer Choice: *Budgets Constraints and Budget Lines*

The **BL** is also the boundary between the set of affordable consumption bundles (the **consumption possibilities**) and the unaffordable ones.

**FIGURE 1.6-2** The Budget Line





## Consumer Choice: *The Optimal Consumption Bundle*

**Table 1.6-1** shows that Sebastian derives utility from **both** cookies and tofu. Due to the budget constraint, however, Sebastian must choose some combination of both goods.

**Table 1.6-1** Sebastian's Utility from Cookie and Tofu Consumption

| Utility from cookie consumption |                              | Utility from tofu consumption |                           |
|---------------------------------|------------------------------|-------------------------------|---------------------------|
| Quantity of cookies (pounds)    | Utility from cookies (utils) | Quantity of tofu (pounds)     | Utility from tofu (utils) |
| 0                               | 0                            | 0                             | 0                         |
| 1                               | 15                           | 1                             | 11.5                      |
| 2                               | 25                           | 2                             | 21.4                      |
| 3                               | 31                           | 3                             | 29.8                      |
| 4                               | 34                           | 4                             | 36.8                      |
| 5                               | 36                           | 5                             | 42.5                      |
|                                 |                              | 6                             | 47.0                      |
|                                 |                              | 7                             | 50.5                      |
|                                 |                              | 8                             | 53.2                      |
|                                 |                              | 9                             | 55.2                      |
|                                 |                              | 10                            | 56.7                      |



## Consumer Choice: *The Optimal Consumption Bundle*

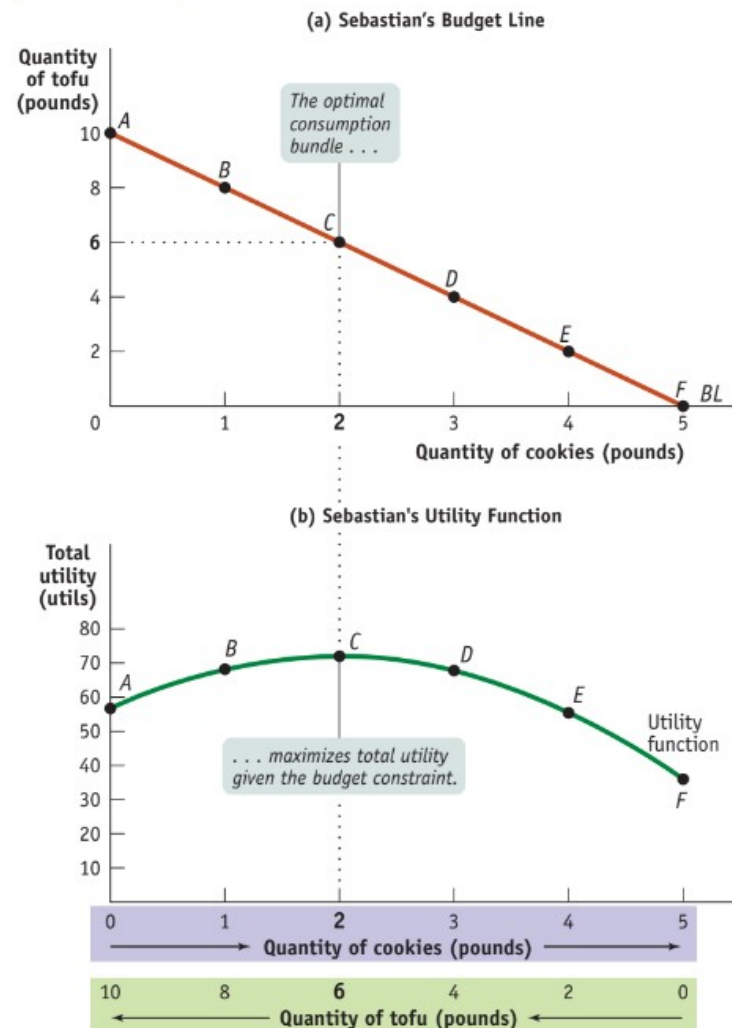
The fourth column shows the quantity of tofu Sebastian can afford to consume. The sixth column shows the utility from tofu. Since total utility is highest at **72.0**, C is Sebastian's **optimal consumption bundle**. The budget line.

| Table 1.6-2        |                              | Sebastian's Budget and Total Utility |                           |                           |                       |
|--------------------|------------------------------|--------------------------------------|---------------------------|---------------------------|-----------------------|
| Consumption bundle | Quantity of cookies (pounds) | Utility from cookies (utils)         | Quantity of tofu (pounds) | Utility from tofu (utils) | Total utility (utils) |
| A                  | 0                            | 0                                    | 10                        | 56.7                      | 56.7                  |
| B                  | 1                            | 15                                   | 8                         | 53.2                      | 68.2                  |
| C                  | 2                            | 25                                   | 6                         | 47.0                      | 72.0                  |
| D                  | 3                            | 31                                   | 4                         | 36.8                      | 67.8                  |
| E                  | 4                            | 34                                   | 2                         | 21.4                      | 55.4                  |
| F                  | 5                            | 36                                   | 0                         | 0                         | 36.0                  |



## Consumer Choice: *Spending the Marginal Dollar*

FIGURE 1.6-3 Optimal Consumption Bundle



**Panel (a):** the budget line and six possible consumption bundles.

**Panel (b):** how total utility is affected by each consumption bundle, which must lie on his budget line.

This is Sebastian's **optimal consumption bundle**.

Sebastian's total utility is maximized at bundle C, where he consumes 2 pounds of cookies and 6 pounds of tofu.



## Consumer Choice: *Spending the Marginal Dollar*

**Table 1.6-3** Sebastian's Marginal Utility per Dollar

| (a) Cookies (price of cookies = \$4 per pound) |                              |                                               |                                     | (b) Tofu (price of tofu = \$2 per pound) |                           |                                            |                                     |
|------------------------------------------------|------------------------------|-----------------------------------------------|-------------------------------------|------------------------------------------|---------------------------|--------------------------------------------|-------------------------------------|
| Quantity of cookies (pounds)                   | Utility from cookies (utils) | Marginal utility per pound of cookies (utils) | Marginal utility per dollar (utils) | Quantity of tofu (pounds)                | Utility from tofu (utils) | Marginal utility per pound of tofu (utils) | Marginal utility per dollar (utils) |
| 0                                              | 0                            |                                               |                                     | 0                                        | 0                         |                                            |                                     |
| 1                                              | 15                           | 15                                            | 3.75                                | 1                                        | 11.5                      | 11.5                                       | 5.75                                |
| 2                                              | 25                           | 10                                            | 2.50                                | 2                                        | 21.4                      | 9.9                                        | 4.95                                |
| 3                                              | 31                           | 6                                             | 1.50                                | 3                                        | 29.8                      | 8.4                                        | 4.20                                |
| 4                                              | 34                           | 3                                             | 0.75                                | 4                                        | 36.8                      | 7.0                                        | 3.50                                |
| 5                                              | 36                           | 2                                             | 0.50                                | 5                                        | 42.5                      | 5.7                                        | 2.85                                |
|                                                |                              |                                               |                                     | 6                                        | 47.0                      | 4.5                                        | 2.25                                |
|                                                |                              |                                               |                                     | 7                                        | 50.5                      | 3.5                                        | 1.75                                |
|                                                |                              |                                               |                                     | 8                                        | 53.2                      | 2.7                                        | 1.35                                |
|                                                |                              |                                               |                                     | 9                                        | 55.2                      | 2.0                                        | 1.00                                |
|                                                |                              |                                               |                                     | 10                                       | 56.7                      | 1.5                                        | 0.75                                |

The next step is to derive marginal utility *per dollar* for each good. The

Note that marginal utility per dollar declines with each additional unit due to **diminishing marginal utility**.  
spending one more dollar on that good or service.



## Consumer Choice: *Spending the Marginal Dollar*

Sebastian should purchase the first pound of tofu because the MU/\$ of tofu is greater than the MU/\$ of cookies

To determine whether a consumer should buy more of one good or another, compare the marginal utility *per dollar* received from each good, not just the marginal utility received from each good.

| (a) Cookies (price of cookies = \$4 per pound) |                              |                                               |                                     | (b) Tofu (price of tofu = \$2 per pound) |                           |                                            |                                     |
|------------------------------------------------|------------------------------|-----------------------------------------------|-------------------------------------|------------------------------------------|---------------------------|--------------------------------------------|-------------------------------------|
| Quantity of cookies (pounds)                   | Utility from cookies (utils) | Marginal utility per pound of cookies (utils) | Marginal utility per dollar (utils) | Quantity of tofu (pounds)                | Utility from tofu (utils) | Marginal utility per pound of tofu (utils) | Marginal utility per dollar (utils) |
| 0                                              | 0                            |                                               | 3.75                                | 0                                        | 0                         |                                            | 5.75                                |
| 1                                              | 15                           | 15                                            | 2.50                                | 1                                        | 11.5                      | 11.5                                       | 4.95                                |
| 2                                              | 25                           | 10                                            | 1.50                                | 2                                        | 21.4                      | 9.9                                        | 4.20                                |
| 3                                              | 31                           | 6                                             | 0.75                                | 3                                        | 29.8                      | 8.4                                        | 3.50                                |
| 4                                              | 34                           | 3                                             | 0.50                                | 4                                        | 36.8                      | 7.0                                        | 2.85                                |
| 5                                              | 36                           | 2                                             |                                     | 5                                        | 42.5                      | 5.7                                        | 2.25                                |
|                                                |                              |                                               |                                     | 6                                        | 47.0                      | 4.5                                        | 1.75                                |
|                                                |                              |                                               |                                     | 7                                        | 50.5                      | 3.5                                        | 1.35                                |
|                                                |                              |                                               |                                     | 8                                        | 53.2                      | 2.7                                        | 1.00                                |
|                                                |                              |                                               |                                     | 9                                        | 55.2                      | 2.0                                        | 0.75                                |
|                                                |                              |                                               |                                     | 10                                       | 56.7                      | 1.5                                        |                                     |



## Consumer Choice: *Optimal Consumption:*

The **optimal consumption rule** says that in order to maximize utility, a consumer must equate the marginal utility per dollar spent on each good and service in the consumption bundle.

**Optimal consumption rule:** the optimal consumption bundle occurs where the marginal utility per dollar spent on each good is equal:

$$(1.6-3) \quad \frac{MU_C}{P_C} = \frac{MU_T}{P_T}$$