

# INTRODUCTION TO ECONOMICS

## The Core Principles of Economics<sup>a</sup>



Martina Zweimüller  
Department of Economics

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<sup>a</sup>Based on Ch. 1 of "*Principles of Economics*" by Betsey Stevenson & Justin Wolfers.

## Chapter Objective

- Learn the four core principles that provide the foundation of all economic analysis.
- Use the four core principles to analyze choices and make better decisions.

## Roadmap (1 of 5)

### ■ A Principled Approach to Economics

Understand economics as a way of thinking, grounded in a set of broadly applicable principles that you all find useful “in the ordinary business of life.”

### ■ The Cost-Benefit Principle

Costs and benefits are the incentives that shape decisions. You should evaluate the full set of costs and benefits of any choice and only pursue those whose benefits are at least as large as their costs.

### ■ The Opportunity Cost Principle

The true cost of something is the next best alternative you must give up to get it. Your decisions should reflect this opportunity cost, rather than just the out-of-pocket financial costs

### ■ The Marginal Principle

Decisions about quantities are best made incrementally. You should break “how many” decisions down into a series of smaller or marginal decisions.

### ■ The Interdependence Principle

Your best choice depends on your other choices, the choices others make, developments in other markets, and expectations about the future. When any of these factors change, your best choice might change.

# A Principled Approach to Economics

- Economics is not just about money!
- It is a way of thinking, and the economic approach can also help you understand politics, families, careers, and just about every aspect of your life.



Gabby Jones/Bloomberg via Getty Images

Should you stream one more episode? It's an economic decision.

# The Economic Approach

- Economics is the study of people in the ordinary business of life.
- Economics helps you make better decisions.
- You will learn four principles that help you make better decisions, and this approach will guide you through the following:
  - **Microeconomics:** The study of individual decision making and the implications for specific markets.
  - **Macroeconomics:** The study of decision making across the whole economy.

# A Systematic Framework for Making Decisions

- Individual decisions choices are the foundation of all economic forces.
- **Four core principles** provide a systematic framework for analyzing decisions:
  1. the **cost-benefit principle**.
  2. the **opportunity cost principle**.
  3. the **marginal principle**.
  4. the **interdependence principle**.

## Discussion Question (1 of 9)

What decisions did you make today?

## Roadmap (2 of 5)

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## The Cost-Benefit Principle

- Costs and benefits are the incentives that shape decisions.
- The **cost-benefit principle** says that you should
  - evaluate the full set of costs and benefits of any choice.
  - pursue only those choices whose benefits are at least as large as their costs.

## Quantifying Costs and Benefits: An Example (1 of 5)

- You walk into a coffee shop and need to decide whether to buy a cup of coffee.
- The coffee costs \$3.
- Should you buy the coffee?

## Quantifying Costs and Benefits: An Example (2 of 5)

- The **cost-benefit principle** says you should buy the coffee if the benefit is at least as large as the cost of \$3.
- What is the benefit of your consumption of the coffee?

## Quantifying Costs and Benefits: An Example (3 of 5)

- How do you compare intangible benefits to monetary costs?
- Economist trick: Convert each cost and each benefit into its monetary equivalent.
  - What is your **willingness to pay**?
  - That is, what is the most that you would be willing to pay to obtain a particular benefit or avoid a particular cost?

## Quantifying Costs and Benefits: An Example (4 of 5)

- Your **willingness to pay** is how much you value the good.
  - Are you willing to pay \$5 for a cup of coffee?
  - How about \$4 dollars? Maybe \$3? How about just \$2?
- The amount you are willing to pay depends on how much you like coffee, not the price.

## Quantifying Costs and Benefits: An Example (5 of 5)

- Suppose you are willing to pay up to \$4 for a good cup of coffee.
  - You are always willing to pay *less* than \$4!
- Now apply the cost-benefit principle:
  - The cost of coffee = \$3.
  - The benefit of coffee = \$4.
  - The benefit is greater than the cost. So you purchase the coffee.

## Discussion Question (2 of 9)

- Think about something you purchased today. What was its cost?
- Using willingness to pay, what was its benefit?
- Did you correctly apply the cost-benefit principle?

## Money Is the Measuring Stick, Not the Objective.

- Money is a common measuring stick that allows you to compare a wide variety of costs and benefits.
- Money allows you to take account of a wide variety of nonfinancial issues, such as satisfaction or time.



pixproviderAB/E+/Getty Images

Money is just a tool  
for measuring value.

## Maximize Your Economic Surplus.

- When you follow the **cost-benefit principle**, every decision you make will yield larger benefits than costs.
  - **Economic surplus** is the total benefits minus the total costs flowing from a decision.
  - It is a measure of how much your decision has improved your well-being.
- By maximizing your economic surplus, you can make good decisions.

## Focus on the Costs and Benefits, Not How They're Framed. (1 of 3)

- **Framing** refers to how different alternatives are described or framed.
- **Framing effects** can lead you astray and can make identical choices seem different.

## Focus on the Costs and Benefits, Not How They are Framed. (2 of 3)

You are the CEO of a large but struggling insurance company. Sales have fallen, and you need to cut costs in order to avoid losing money this year. You anticipate needing to fire 6,000 of your employees. Your management team has been exploring alternatives to this drastic action.

During your Monday morning meeting they suggest two possible plans:

- **Plan A** Saves 2,000 jobs.
- **Plan B** Has a one-in-three chance of saving all 6,000 jobs, but a two-in-three chance of saving no jobs at all.

Which plan would you choose?

## Focus on the Costs and Benefits, Not How They are Framed. (3 of 3)

	<u>Monday's</u> <u>alternatives: Plan A</u>	<u>Monday's</u> <u>alternatives: Plan B</u>	<u>Tuesday's</u> <u>alternatives: Plan 1</u>	<u>Tuesday's</u> <u>alternatives: Plan 2</u>
<b>Benefit</b>	Save 2,000 jobs	One-in-three chance to save 6,000 jobs	Save 2,000 jobs*	One-in-three chance to save 6,000 jobs*
<b>Cost</b>	Lose 4,000 jobs*	Two-in-three chance to lose 6,000 jobs*	Lose 4,000 jobs	Two-in-three chance to lose 6,000 jobs

Remember: If you don't do nothing, your firm will lose 6,000 jobs.

## Discussion Questions (3 of 9)

Think about the last time you purchased a good or service.

- What were your benefits? What were your costs?
- What were the seller's benefits? What were the seller's costs?
- Did you both benefit more than your costs?

## Applying the Cost-Benefit Principle (1 of 3)

- Nerida Kyle, a 23-year-old economics graduate, is about to start her first full-time job. She likes her new apartment, but there is no metro rail station nearby, buses come only rarely, and she is too far from work to bike or walk.
- Should she buy a car or take an Uber each way?

## Applying the Cost-Benefit Principle (2 of 3)

Nerida came up with the following costs:

- The cost of purchasing a car is \$10,000.
  - However, she can sell it for \$8,000 after a year.
- Work is 5 miles away, and the car gets 25 miles to the gallon.
  - She works 50 weeks per year.
  - Gas costs \$3 per gallon.
- Insurance costs \$1,500 per year.
- Repairs cost \$500 per year.
- Parking costs \$5 per day.
- Uber fares are \$10 per ride.

## Applying the Cost-Benefit Principle (3 of 3)

<b>Costs</b> (Costs associated with buying and maintaining a car and driving to and from work for a year)	<b>Benefits</b> (Savings from not taking an Uber)
<i>Cost of the car: \$2,000</i> <i>\$10,000 purchase price</i> <i>minus \$8,000 resale value</i>	<i>Uber fare savings: \$5,000</i> <i>\$10 per trip × 2 trips per day × 5 days</i> <i>per week × 50 weeks per year</i>
<i>Gas costs: \$300</i> <i>5 miles × 2 trips per day × 5 days</i> <i>per week × 50 weeks = 2,500 miles.</i>  <i>Because she gets 25 miles per gallon,</i> <i>she'll need 2,500 miles / 25 miles per</i> <i>gallon = 100 gallons, which cost a total</i> <i>of \$3 per gallon × 100 gallons.</i>	
<i>Parking costs: \$1,250</i> <i>\$5 per day × 5 days per week</i> <i>× 50 weeks per year</i>	
<i>Insurance \$1,500</i>	
<i>Repairs \$500</i>	
<i>Total annual costs \$5,550</i>	<i>Total annual benefits \$5,000</i>

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## Practice Question (1 of 5)

Suppose that you are willing to pay up to \$15 to purchase a meal at your favorite restaurant. The meal currently costs \$16. Should you buy it?

1. yes because \$16 is not that much higher than \$15
2. yes because the benefit is higher than the cost
3. no because the cost is higher than the benefit
4. no because you cannot quantify the benefit

## Practice Question (1 of 5)

Suppose that you are willing to pay up to \$15 to purchase a meal at your favorite restaurant. The meal currently costs \$16. Should you buy it?

1. yes because \$16 is not that much higher than \$15
2. yes because the benefit is higher than the cost
3. no because the cost is higher than the benefit **CORRECT**
4. no because you cannot quantify the benefit

## Roadmap (3 of 5)

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## The Opportunity Cost Principle

- **Opportunity cost:** The true cost of something is the next best alternative you must give up to get it.
  - Your decisions should reflect this opportunity cost rather than just the out-of-pocket financial costs.
  - When you make a decision, pay attention to the trade-offs; you are giving up your best alternative.
  
- When economists say “costs”, they really mean **opportunity costs**.

## Opportunity Costs Reflect Scarcity.

The opportunity cost arises because of a fundamental economic problem: **scarcity**.

- **Scarcity** occurs because resources are limited.
- But when we use resources for one thing, we are unable to use them for another.
- Therefore, all choices require a trade-off!

## Discussion Questions (4 of 9)

- The opportunity cost principle is asking you to focus on the trade-offs you face.
- You decided to come to class today. What is the best alternative that you were forced to give up as a result of your decision?
- What was the scarce resource that led to this choice?

## Calculating Your Opportunity Costs

Ask yourself two questions:

1. What happens if you pursue your choice?
2. What happens under your next best alternative?

## Calculating Opportunity Costs: An Example (1 of 6)

- Nerida has noticed that many of the executives she admires have advanced degrees. In the long run, she might be even more successful if she has an MBA.
- But is it worth it?

## Calculating Opportunity Costs: An Example (2 of 6)

1. What happens if Nerida pursues an MBA (two years of school)?
  - She pays \$60,000 in tuition, pays for room and board, spends time studying, and quits her current job (loses that income).
2. What happens if Nerida pursues her next best alternative (continuing to work at her current job)?
  - She earns \$70,000 per year, still has to pay for rent and meals, and spends her time working.

## Calculating Opportunity Costs: An Example (3 of 6)

Costs of her choice	-	Costs of her next best alternative	=	Opportunity cost:
If Nerida pursues an MBA		If she continues to work full time instead		The cost of an MBA, relative to working full time

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## Calculating Opportunity Costs: An Example (4 of 6)

Costs of her choice	–	Costs of her next best alternative	=	Opportunity cost:
If Nerida pursues an MBA		If she continues to work full time instead		The cost of an MBA, relative to working full time
Tuition costs \$60,000				
She quits her job				
Room and board cost \$24,000				
10 hours per day studying				

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## Calculating Opportunity Costs: An Example (5 of 6)

Costs of her choice	–	Costs of her next best alternative	=	Opportunity cost:
If Nerida pursues an MBA		If she continues to work full time instead		The cost of an MBA, relative to working full time
Tuition costs \$60,000		She won't pay tuition		
She quits her job		She earns \$70,000 from her job		
Room and board cost \$24,000		Rent and meals cost \$24,000		
10 hours per day studying		10 hours per day at work		

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## Calculating Opportunity Costs: An Example (6 of 6)

<b>Costs of her choice</b>	<b>– Costs of her next best alternative</b>	<b>= Opportunity cost</b>
<i>If Nerida pursues an MBA</i>	<i>If she continues to work full time instead</i>	<i>The cost of an MBA, relative to working full time</i>
Tuition costs \$60,000	She won't pay tuition	\$60,000 tuition
She quits her job	She earns \$70,000 from her job	+ \$70,000 in forgone income
Room and board cost \$24,000	Rent and meals cost \$24,000	+ No opportunity cost (She has to pay for housing and food whether or not she pursues an MBA)
10 hours per day studying	10 hours per day at work	+ No opportunity cost (She works 10 hours per day either way)

*= \$130,000 per year in total opportunity cost*

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## Four Important Lessons About Opportunity Costs

1. Some out-of-pocket costs are opportunity costs, such as the cost of MBA tuition and fees.
2. Opportunity costs don't need to involve out-of-pocket financial costs.
3. Not all out-of-pocket costs are real opportunity costs.
4. Some nonfinancial costs are not opportunity costs.

## The “Or What?” Trick

- To apply the **opportunity cost principle** correctly, ask yourself “or what?”
  - Should Nerida pursue an MBA, **OR** should she keep working?
  - Should you study economics for another hour, **OR** should you go to bed?
- Asking “or what?” forces you to consider the alternatives.

## Discussion Questions (5 of 9)

What are the opportunity costs of each of the following choices?

- Should you hang out with your friends Sunday afternoon? Or what?
- Should you do an unpaid internship this summer? Or what?
- Should you hire your best friend to work in the family business? Or what?
- Should you invest your savings in the stock market? Or what?

## You Should Ignore Sunk Costs.

A **sunk cost** is a cost that has been incurred and cannot be reversed.

- A **sunk cost** exists whether you make your choice or not, so it is not an opportunity cost.
- When weighing costs and benefits, a good decision maker ignores sunk costs.

## Discussion Questions (6 of 9)

- Yesterday you bought a Halloween costume for \$35 to wear to a friend's Halloween party. But today you are feeling sick, and as you dress to go to the party, you realize that you won't enjoy it. **Do you head to the party?**
- You buy a \$700 package deal to Puerto Rico for spring break, but later your friends decide to go to Miami, where they stay with your friend's family for free. You would rather spend time with your friends, but you have already bought tickets. **Do you go to PR?**

## Practice Question (2 of 5)

You paid \$13 for movie tickets. But 30 minutes into the film, you have seen enough! The acting is terrible, the plot is predictable, and the jokes are cringe-worthy. Do you stay for the last hour?

1. Yes, you paid \$13, so you should stay for the whole film.
2. Yes, the benefits of staying outweigh the costs.
3. No, the opportunity cost of staying is \$13 plus what you could have done with the hour.
4. No, \$13 is a sunk cost, and the opportunity cost of the alternative use of the hour is higher than the benefit of staying in the movie.

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You paid \$13 for movie tickets. But 30 minutes into the film, you've seen enough! The acting is terrible, the plot is predictable, and the jokes are cringe-worthy. Do you stay for the last hour?

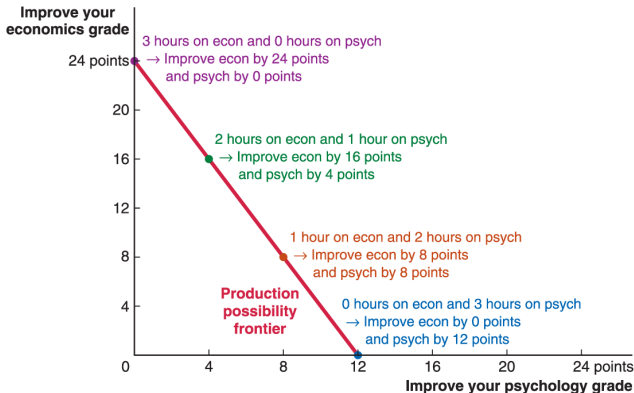
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4. No, \$13 is a sunk cost, and the opportunity cost of the alternative use of the hour is higher than the benefit of staying in the movie. **CORRECT**

## The Production Possibilities Frontier (PPF) (1 of 3)

- How can we visualize opportunity costs?
  - Use the **production possibilities frontier** (PPF).
  
- The PPF illustrates the trade-offs you experience when deciding how to allocate scarce resources.
  - These scarce resources include time, money, raw inputs, and production capacity.
  - The PPF illustrates the different sets of output that are attainable with scarce resources.

## The Production Possibilities Frontier (PPF) (2 of 3)

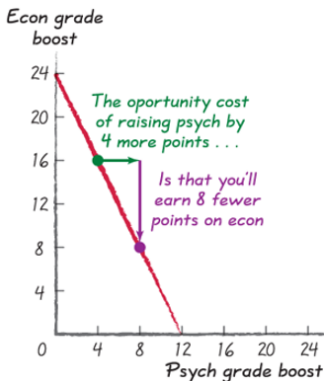
You have 3 hours per night to devote to studying either economics (where each hour will boost your grade by 8 points) or psychology (where each hour will boost your grade by 4 points). The **production possibility frontier** shows what you can produce with alternative allocations of your time.



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## Moving Along Your PPF Reveals Your Opportunity Costs.

- When you're on your PPF, you can't produce more of one output unless you produce less of another.
  - Every hour you study psychology is one less hour you can study economics
  - The opportunity cost of earning 4 more points in psychology is earning 8 fewer points in economics.
- Choices come with trade-offs: which course would you rather do well in?

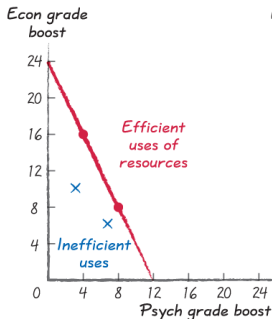


## Productivity Gains Shift Your PPF Outward.

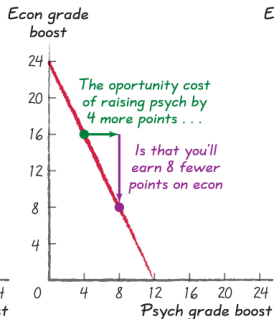
- Can you produce inside your PPF?
  - Yes!
  - But this is an inefficient use of your resources.
- Can you produce outside your PPF?
  - Only if you change something!
  - You have to find a new way to produce more with the same inputs. Using new production techniques is a common way to do this.

# The Production Possibilities Frontier (PPF) (3 of 3)

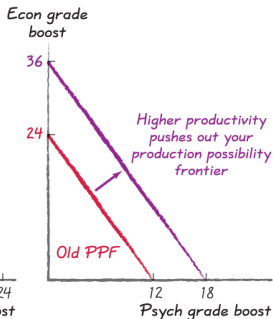
*It's a frontier.*



*It illustrates your opportunity costs.*



*Greater productivity pushes out the frontier.*



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## Practice Question (3 of 5)

If an economy is using its resources *efficiently*, then

1. some resources are not being utilized.
2. more of one good can be produced only if production of another is given up.
3. it is impossible to produce more than one good.
4. more of both goods can be produced.

## Practice Question (3 of 5)

If an economy is using its resources *efficiently*, then

1. some resources are not being utilized.
2. more of one good can be produced only if production of another is given up. **CORRECT**
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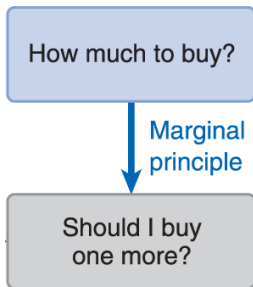
## The Marginal Principle

- Decisions about quantities are best made incrementally.
  - You should break down “how many” decisions into a series of smaller, or marginal, decisions.
  - Then you weigh the marginal benefits and marginal costs to make good decisions.
  
- **Marginal benefit:** The extra benefit from one unit (of goods purchased, hours studied, etc.).
  
- **Marginal cost:** The extra cost from one extra unit.

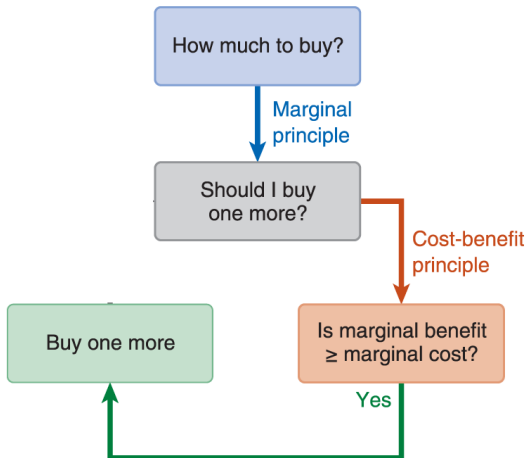
## When Is the Marginal Principle Useful?

- The **marginal principle** is useful for “how many” decisions but not for “either/or” choices.
- The **cost-benefit principle** is useful for “either/or” choices.
- Apply the marginal principle first, then the cost-benefit principle.

## Applying the Marginal Principle (1 of 3)

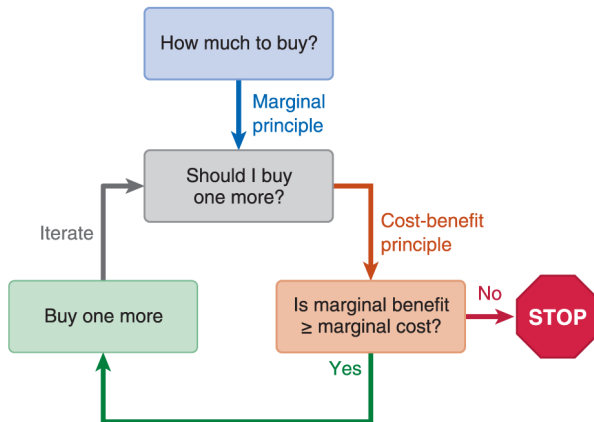


## Applying the Marginal Principle (2 of 3)



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## Applying the Marginal Principle (3 of 3)



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## Discussion Questions (7 of 9)

Can you apply the **marginal principle** to simplify the following decisions?

- How many workers should I hire? → Should I hire one more worker?
- How many pairs of shoes should I buy? → Should I buy one more pair of shoes?
- How many classes should I take? → Should I take one more class this semester?

## Using the Rational Rule

The **marginal principle** provides a rule of thumb that will help you maximize your economic surplus.

- The **Rational Rule**: *If something is worth doing, keep doing it until your marginal benefits equals your marginal costs.*
- Following the rational rule leads to good decisions.
- Following the rational rule maximizes economic surplus.

## Applying the Rational Rule (1 of 4)

Nerida is trying to figure out how many workers to hire.

Below are her projections:

Number of workers	Meals served	Total benefits (Revenue = $\$25 \times$ number of meals)	Marginal benefit (Change in total benefit from hiring an extra waiter)	Total costs ( $\$10$ per meal food costs + $\$300$ per waiter + $\$500$ per rent + $\$1,000$ for Nerida's time)	Marginal cost (Change in total cost from hiring an extra waiter)	Profit or economic surplus (Total benefits less total costs)
2	160					
3	210					
4	250					
5	280					
6	300					
7	310					

## Applying the Rational Rule (2 of 4)

Number of workers	Meals served	Total benefits (Revenue = \$25 × number of meals)	Marginal benefit (Change in total benefit from hiring an extra waiter)	Total costs ( $\$10$ per meal food costs + $\$300$ per waiter + $\$500$ rent + $\$1,000$ for Nerida's time)	Marginal cost (Change in total cost from hiring an extra waiter)	Profit or economic surplus (Total benefits less total costs)
2	160	\$4,000		\$3,700		
3	210	\$5,250		\$4,500		
4	250	\$6,250		\$5,200		
5	280	\$7,000		\$5,800		
6	300	\$7,500		\$6,300		
7	310	\$7,750		\$6,700		

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## Applying the Rational Rule (3 of 4)

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4	250	\$6,250	\$1,000	\$5,200	\$700	
5	280	\$7,000	\$750	\$5,800	\$600	
6	300	\$7,500	\$500	\$6,300	\$500	
7	310	\$7,750	\$250	\$6,700	\$400	

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## Applying the Rational Rule (4 of 4)

Number of workers	Meals served	Total benefits (Revenue = \$25 × number of meals)	Marginal benefit (Change in total benefit from hiring an extra waiter)	Total costs ((\$10 per meal food costs + \$300 per waiter + \$500 rent + \$1,000 for Nerida's time)	Marginal cost (Change in total cost from hiring an extra waiter)	Profit or economic surplus (Total benefits less total costs)
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4	250	\$6,250	\$1,000	\$5,200	\$700	\$1,050
5	280	\$7,000	\$750	\$5,800	\$600	\$1,200
6	300	\$7,500	\$500	\$6,300	\$500	\$1,200
7	310	\$7,750	\$250	\$6,700	\$400	\$1,050

Profit is maximized when marginal benefit = marginal cost →

← Maximum profit

Marginal benefit equals marginal cost

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## Discussion Questions (8 of 9)

- Consumer: How many cups of coffee should I buy today?
- Producer: How many tons of coffee should I produce?
- Worker: How many hours should I work as a barista?

## Practice Question (4 of 5)

According to the marginal principle (and the rational rule), economic surplus is maximized when

1. total cost equals total benefit.
2. average cost equals average benefit.
3. marginal cost equals marginal benefit.
4. producers make as much as possible.

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2. average cost equals average benefit.
3. marginal cost equals marginal benefit. **CORRECT**
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## Roadmap (5 of 5)

### ■ A Principled Approach to Economics

Understand economics as a way of thinking, grounded in a set of broadly applicable principles that you all find useful “in the ordinary business of life.”

### ■ The Cost-Benefit Principle

Costs and benefits are the incentives that shape decisions. You should evaluate the full set of costs and benefits of any choice and only pursue those whose benefits are at least as large as their costs.

### ■ The Opportunity Cost Principle

The true cost of something is the next best alternative you must give up to get it. Your decisions should reflect this opportunity cost, rather than just the out-of-pocket financial costs

### ■ The Marginal Principle

Decisions about quantities are best made incrementally. You should break “how many” decisions down into a series of smaller or marginal decisions.

### ■ The Interdependence Principle

Your best choice depends on your other choices, the choices others make, developments in other markets, and expectations about the future. When any of these factors change, your best choice might change.

## The Interdependence Principle

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## The Four Types of Interdependencies

1. Dependencies between each of your individual choices
2. Dependencies between people or businesses in the same market
3. Dependencies between markets
4. Dependencies through time

## Four Types of Interdependence: An Example

How do you choose your classes for the semester?

1. Your choices: If you take an economics class, you won't be able to take other classes scheduled at the same time.
2. Others choices: If another student takes the last spot in a popular class, then you will have to take a different class.
3. Other markets: If you believe that the skills you will learn in economics have become more valuable, then your decision on which class to take depends on outcomes in other markets.
4. Future choices: Your decision to study economics today changes the classes you have met the prerequisites for, and this might lead to take more economics courses.

## Discussion Questions (9 of 9)

Think about a choice you made today.

- How was it affected by the other choices you made today?
- The choices others made?
- Your future choices?

## Practice Question (5 of 5)

You decide that reading the textbook tonight will lay the foundation for your later success in your economics class. Which of the four types of interdependencies is this?

1. dependencies between each of your individual choices
2. dependencies between people or businesses in the same market
3. dependencies between markets
4. dependencies through time

## Practice Question (5 of 5)

You decide that reading the textbook tonight will lay the foundation for your later success in your economics class. Which of the four types of interdependencies is this?

1. dependencies between each of your individual choices
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3. dependencies between markets
4. dependencies through time **CORRECT**

## Using the Core Principles in Practice

Here's the four-step process (MCOI) you should work through when confronting a problem:

1. Use the **marginal principle** by breaking down “how many” choices into simpler marginal choices.
2. Apply the **cost-benefit principle** by assessing whether the marginal benefit exceeds the marginal cost.
3. Apply the **opportunity cost principle** to evaluate all relevant costs and benefits, and ask “or what?”
4. Use the **interdependence principle** to identify how changes in other factors might lead you to make a different decision.

## Principles in Short

Here's a memory trick. Always ask these four questions:

- One more? (the **marginal principle**)
- Benefit beat cost? (the **cost-benefit principle**)
- Or what? (the **opportunity cost principle**)
- What else? (the **interdependence principle**)

## Key Takeaways

- Decisions about quantities are best made incrementally. Following the Rational Rule will maximize economic surplus.
- Incentives matter. Decisions should be informed by the full set of costs and benefits, and you should pursue only those decisions in which the benefits exceed the costs.
- The true cost of something is the next best alternative that must be given up to get it. Sunk costs should be ignored.
- Your best choice depends on your other choices, the choices others make, developments in other markets, and expectations about the future.
- Apply core principles in the following order: the marginal principle (how many?), the cost-benefit principle (what are the marginal costs and benefits?), the opportunity cost principle (or what?), then the interdependence principle (what else?).