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Chapter 01 - Limits, Alternatives, and Choices

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DISCUSSION QUESTIONS

1. What is an opportunity cost? How does the idea relate to the definition of economics? Which of the following decisions would entail the greater opportunity cost: Allocating a square block in the heart of Toronto for a surface parking lot or allocating a square block at the edge of a typical suburb for such a lot? Explain. **LO1.2**

   Answer: An opportunity cost is what was sacrificed to do or acquire something else. The condition of scarcity creates opportunity cost. If there was no scarcity, there would be no need to sacrifice one thing to acquire another.

   The opportunity cost would be much higher in Toronto as the alternative uses for that square block are much more valuable than for a typical suburban city block.

2. Cite three examples of recent decisions that you made in which you, at least implicitly, weighed marginal cost and marginal benefit. **LO1.2**

   Answer: Student answers will vary, but may include the decision to come to class, to skip breakfast to get a few extra minutes of sleep, to attend college, or to make a purchase. Marginal benefits of attending class may include the acquisition of knowledge, participation in discussion, and better preparation for an upcoming examination. Marginal costs may include lost opportunities for sleep, meals, or studying for other classes. In evaluating the discussion of marginal benefits and marginal costs, be careful to watch for sunk costs offered as a rationale for marginal decisions.

3. What is "utility" and how does the idea relate to purposeful behaviour? **LO1.2**

   Answer: "Utility" refers to the pleasure, happiness, or satisfaction gained from engaging in an activity (eating a meal, attending a ball game, etc.). It is an important component of purposeful behaviour because people will allocate their scarce time, energy, and money in an attempt to gain the most utility possible.

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4. What are the key elements of the scientific method and how does this method relate to economic principles and laws? **LO1.3**

Answer: The key elements include the gathering of data (observation), the formulation of possible explanations (hypothesis), testing the hypothesis, determining the validity of the hypothesis, and repeated testing of hypotheses that have appeared to be valid in prior tests.

The scientific method is the technique used by economists to determine economic laws or principles. These laws or principles are formulated to explain and/or predict behavior of individuals or institutions.

5. Make (a) a positive economic statement of your choice, and then (b) a normative economic statement relating to your first statement. **LO1.4**

Answer: Student answers will vary. Example: (a) The unemployment rate is 6.8 percent; (b) the unemployment rate is too high. In general, we treat "what is" statements as positive, "what should be" as normative, but keep an eye out for statements like "at full employment an increase in the production of pizzas *should* come at the cost of less robots." Some students may incorrectly identify the statement as normative because of the term "should."

6. How does the slope of a budget line illustrate opportunity cost and trade-offs? How does a budget line illustrate scarcity and the effect of limited incomes? **LO1.5**

Answer: Budget lines are always sloped downward. This downward slope shows an inverse relationship between the two goods, meaning that as you increase one, the other must decrease. This decrease is what you are giving up, or opportunity cost, of the good you are getting more of.
Budget lines illustrate scarcity in that they show you are limited by your income. Since they slope downward, they show you cannot keep getting more and more of both goods. There is always a trade-off. The area beyond the budget line represents combinations of the goods that are beyond your income.

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7. What are economic resources? What categories do economists use to classify them? Why are resources also called factors of production? Why are they called inputs? **LO1.6**

Answer: Economic resources are the natural, human, and manufactured inputs used to produce goods and services. Economic resources fall into four main categories: labour, land (natural resources), real capital (machines, factories, buildings, etc.,) and entrepreneurs. Economic resources are also called *factors of production* because they are used to *produce* goods and services. They are called *inputs* because they go *in* to a production process (like ingredients go into a bowl to make a cake), with the resulting goods and services also being referred to as *output*.

8. Why is money not considered to be a capital resource in economics? Why is entrepreneurial ability considered a category of economic resource, distinct from labour? What are the major functions of the entrepreneur? **LO1.6**

Answer: Money is not considered a capital resource because money is not productive – it provides access to resources but itself does not directly contribute to the production of goods and services. Additionally, the quantity of money in circulation does not determine an economy's productive capacity, while the amount of capital and other resources does. Doubling the amount of money in circulation does not change the economy's physical capacity to produce goods and services. Money is, however, referred as a *financial resource* and *financial capital*, reflecting its ability to acquire real economic resources.

Entrepreneurial ability and labour are both human resources, but they perform different functions in the productive process. Entrepreneurial ability does not directly produce goods and services; it organizes the resources that do. Labour refers to the human inputs that directly engage in production.

Entrepreneurs are risk-takers: They coordinate the activities of the other three inputs for profit—or loss, which is why they are called risk-takers. Entrepreneurs sometimes manage companies that they own, but a manager who is not an owner is not necessarily an entrepreneur but may be performing some of the entrepreneurial functions for the company. Entrepreneurs are also innovators, or perhaps inventors, and profits help to motivate such activities.

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9. Specify and explain the typical shapes of marginal-benefit and marginal-cost curves. How are these curves used to determine the optimal allocation of resources to a particular product? If current output is such that marginal cost exceeds marginal benefit, should more or fewer resources be allocated to this product? Explain. **LO1.7**

   Answer: The marginal benefit curve is downward sloping; MB falls as more of a product is consumed because additional units of a good yield less satisfaction than previous units. The marginal cost curve is upward sloping, MC increases as more of a product is produced since additional units require the use of increasingly unsuitable resource. The optimal amount of a particular product occurs where MB equals MC. If MC exceeds MB, fewer resources should be allocated to this use, as the additional cost is more than the additional benefit.

10. Suppose that, on the basis of a nation's production possibilities curve, an economy must sacrifice 10,000 pizzas domestically to get the 1 additional industrial robot it desires but that it can get the robot from another country in exchange for 9,000 pizzas. Relate this information to the following statement:

    "Through international specialization and trade, a nation can reduce its opportunity cost of obtaining goods and thus 'move outside its production possibilities curve.'" **LO1.8**

    Answer: The message of the production possibilities curve is that an individual nation is limited to the combinations of output indicated by its production possibilities curve. International specialization means directing domestic resources to output which a nation is highly efficient at producing. International trade involves the exchange of these goods for goods produced abroad. Specialization and trade have the same effect as having more and better resources or discovering improved production techniques. The output gains from greater international specialization and trade are the equivalent of economic growth.

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LAST WORD

Starbucks has $1 billion to invest. It can either purchase a rival coffee

shop chain or build additional Starbucks shops. If Starbucks chooses to purchase the rival chain, what does that say about the relative profitability of purchasing and owning the rival's existing shops versus building additional Starbucks shops? Explain.

Answer: If Starbucks made the decision to invest the $1 billion by purchasing a rival chain rather than building additional Starbucks shops, we can assume that Starbucks' management had made a careful comparison of the marginal costs and marginal benefits of each option and found that the net marginal benefit (or profitability) of purchasing the rival chain to be higher. Of course, the management team also determined that expected marginal benefits exceeded marginal costs. Otherwise, it would not make sense to pursue either option because they would be unprofitable.

REVIEW QUESTIONS

1. Match each term with the correct definition. **LO1.2**

   economics

   opportunity cost

   marginal analysis

   utility

   a. The next-best thing that must be foregone in order to product one more unit of a given product.

   b. The pleasure, happiness, or satisfaction obtained from consuming a good or service.

   c. The social science concerned with how individuals, institutions, and society make optimal (best) choices under conditions of scarcity.

   d. Making choices based on comparing marginal benefits with marginal costs.

   Answer: a. opportunity cost; b. utility; c. economics; d. marginal analysis

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2. Indicate whether each of the following statements applies to microeconomics or macroeconomics: **LO1.3**

   a. The unemployment rate in Canada was 5.9 percent in January 2018.
   b. A software firm discharged 15 workers last month and transferred the work to India.
   c. An unexpected freeze in central Florida reduced the citrus crop and caused the price of oranges to rise.
   d. Canadian output, adjusted for inflation, increased by 3.0 percent in 2017.
   e. Last week ScotiaBank lowered its interest rate on business loans by one-half of 1 percentage point.
   f. The consumer price index rose by 1.7 percent from January 2017 to January 2018.

   Answer: a. macro; b. micro; c. micro; d. macro; e. micro; f. Macro

3. Suppose that you initially have $100 to spend on books or movie tickets. The books start off costing $25 each and the movie tickets start off costing $10 each. For each of the following situations, would the attainable set of combinations that you can afford increase or decrease?

   LO1.5

   a. Your budget increases from $100 to $150 while the prices stay the same.

   b. Your budget remains $100, the price of books remains $25, but the price of movie tickets rises to $20.

   c. Your budget remains $100, the price of movie tickets remains $10, but the price of a book falls to $15.

   Answer:

   a. **increase** because a larger budget allows you to purchase not only the combinations that you could afford before but also new combinations that you could not afford before (for example, you can now afford to purchase 4 books and 5 movie tickets);

   b. **decrease** because certain combinations are no longer affordable (for example, you can no longer purchase 10 movie tickets with your $100 budget);

   c. **increase** because the lower price allows you to purchase combinations that you could not afford before (for example, you can now purchase 6 books and 1 movie ticket)].

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4. Suppose that you are given a $100 budget at work that can be spent only on two items: staplers and pens. If staplers cost $10 each and pens cost $2.50 each, then the opportunity cost of purchasing one stapler is: **LO1.5**

   a. 10 pens.

   b. 5 pens.

   c. zero pens.

   d. 4 pens.

   Answer: 4 pens. You must forego purchasing 4 pens if you are to free up enough money (4 x $2.50 = $10) to purchase a stapler.

5. For each of the following situations involving marginal cost (MC) and marginal benefit (MB), indicate whether it would be best to produce more, fewer, or the current number of units. **LO1.5**

   a. 3,000 units at which MC = $10 and MB = $13.

   b. 11 units at which MC = $4 and MB = $3.

   c. 43,277 units at which MC = $99 and MB = $99.

   d. 82 units at which MC < MB.

   e. 5 units at which MB < MC.

   Answer:

   a. **more** because MB > MC -- the benefit of consuming one more unit exceed the opportunity costs (scarce resources used elsewhere) of producing that additional unit.

   b. **fewer** because MC > MB -- the opportunity costs (scarce resources used elsewhere) of producing one more unit exceed the benefit of consuming that additional unit.

   c. **current amount** because MB = MC -- there is no net gain in using scarce resources in producing and consuming one more unit.

   d. **more** because MB > MC -- *see the explanation for part* (**a**)

   e. **fewer** because MB < MC -- *see the explanation for part* (**b**)

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6. Explain how (if at all) each of the following events affects the location of a country's production possibilities curve: **LO1.7**

   a. The quality of education increases.

   b. The number of unemployed workers increases.

   c. A new technique improves the efficiency of extracting copper from ore.

   d. A devastating earthquake destroys numerous production facilities.

   Answer:

   a. Assuming better education translates into better work skills, then productivity should rise and this would shift the curve outward.
   b. Should not affect location of curve. Production moves inward, away from the curve.
   c. The curve should shift outward as more production is possible with existing resources.
   d. The curve should shift inward with the destruction of resources (capital).

7. What are the two major ways in which an economy can grow and push out its production possibilities curve? **LO1.8**

   a. Better weather and nicer cars.

   b. Higher taxes and lower spending.

   c. Increases in resource supplies and advances in technology.

   d. Decreases in scarcity and advances in auditing.

   Answer:

   c. The economy produces output from resource inputs like land, labour, and capital. So one major way for an economy to grow and push out its production possibilities curve is for it to *obtain more resources*.

   The second major way is to *develop new and better technologies* so that the economy can produce more from any given amount of resources.

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PROBLEMS

1. Potatoes cost Janice $1 per kilogram, and she has $5.00 that she could possibly spend on potatoes or other items. If she feels that the first kilogram of potatoes is worth $1.50, the second kilogram is worth $1.14, the third kilogram is worth $1.05, and all subsequent kilograms are worth $0.30, how many kilograms of potatoes will she purchase? What if she only had $2 to spend? **LO1.2**

   Answer: 3; 2

   Feedback: Janice will purchase potatoes until the value of potatoes is less than the cost of potatoes or until her income has been exhausted. For example, assume Janice has $5.00 to spend on potatoes or other items and the cost of a kilogram of potatoes is $1. Now assume the first kilogram of potatoes is worth $1.50 to Janice. She will purchase this kilogram of potatoes since the value of the kilogram of potatoes ($1.50) is greater than the cost ($1). If the second kilogram is worth $1.14 and the third kilogram is worth a $1.05 then Janice will purchase these as well since the value exceeds the cost of $1. If all remaining kilograms are worth $0.30 then Janice will not purchase these because the value is less than the cost. So, Janice will purchase 3 kilograms of potatoes at total cost of $3.00.

   Now assume Janice only has $2.00 to spend on potatoes. She will purchase the first kilogram because it is worth $1.50 to her and it only costs a $1. She will purchase the second kilogram because it is worth $1.14. She has now spent her entire income on potatoes. She would like to purchase the third kilogram because the value of this kilogram of potatoes is $1.05, but she does not have the income to make this purchase. So, Janice will purchase 2 kilograms of potatoes at a total cost of $2.00.

2. Pham can work as many or as few hours as she wants at the university bookstore for $9 per hour. But due to her hectic schedule, she has just 15 hours per week that she can spend working at either the bookstore or at other potential jobs. One potential job, at a café, will pay her $12 per hour for up to 6 hours per week. She has another job offer at a garage that will pay her $10 an hour for up to 5 hours per week. And she has a potential job at a daycare center that will pay her $8.50 per hour for as many hours as she can work. If her goal is to maximize the amount of money she can make each week, how many hours will she work at the bookstore? **LO1.2**

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Answer: 4.

Feedback: Pham will choose to work at the bookstore as long as the wage rate at the bookstore exceeds her other opportunities. However, if another job offers a higher wage rate she will choose employment there. She will work until her total time allotment (for work) is exhausted.

For example, assume Pham only has 15 hours per week that she can work and the wage rate at the bookstore is $9 per hour. She can also spend her time working at a café that will pay her $12 per hour for up to 6 hours per week, at a garage that will pay her $10 an hour for up to 5 hours per week, and at a daycare center that will pay her $8.50 per hour for as many hours as she can work.

She will choose to work at the café for the full 6 hours because the wage rate at the café is $12 per hour, which is greater than the wage rate at the bookstore of $9. This leaves her with 9 hours of work time remaining. Next, she will choose to work at the garage for the full 5 hours because the wage rate here is $10, which again is greater than the bookstore wage rate $9. After this decision she only has 4 hours of work time remaining. She will choose to work these last 4 hours at the bookstore because the bookstore wage rate of $9 exceeds the daycare center wage rate of $8.50.

3. Suppose you won $15 on a lotto ticket at the local 7-Eleven and decided to spend all the winnings on candy bars and bags of peanuts. Candy bars cost $0.75 each while bags of peanuts cost $1.50 each. **LO1.6**

a. Construct a table showing the alternative combinations of the two products that are available.

b. Plot the data in your table as a budget line in a graph. What is the slope of the budget line? What is the opportunity cost of one more candy bar? Of one more bag of peanuts? Do these opportunity costs rise, fall, or remain constant as additional units are purchased?

c. Does the budget line tell you which of the available combinations of candy bars and bags of peanuts to buy?

d. Suppose that you had won $30 on your ticket, not $15. Show the $30 budget line in your diagram. Has the number of available combinations increased or decreased?

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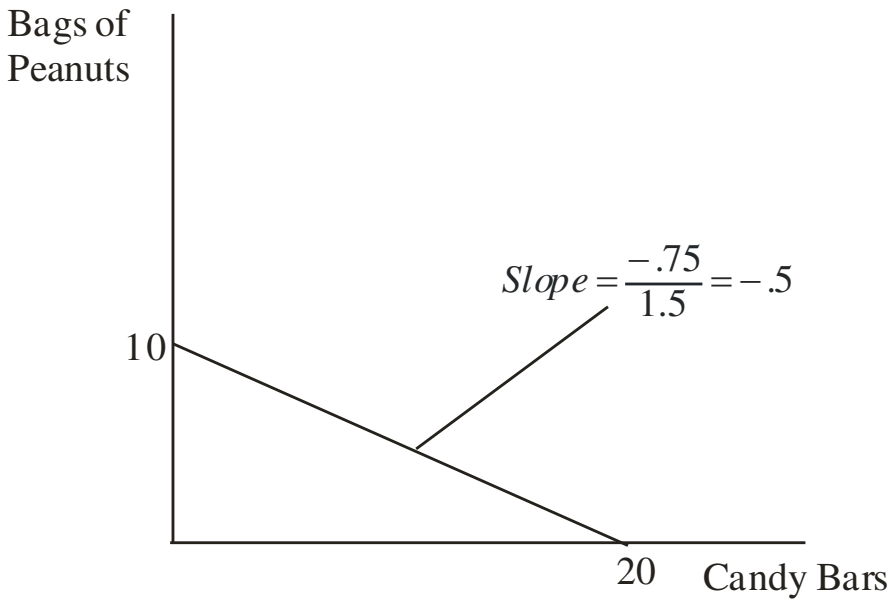
Answers:

Part a:

Consumption alternatives

Goods	A	B	C	D	E	F
Candy bars	0	4	8	12	16	20
Bags of peanuts	10	8	6	4	2	0

Part b:



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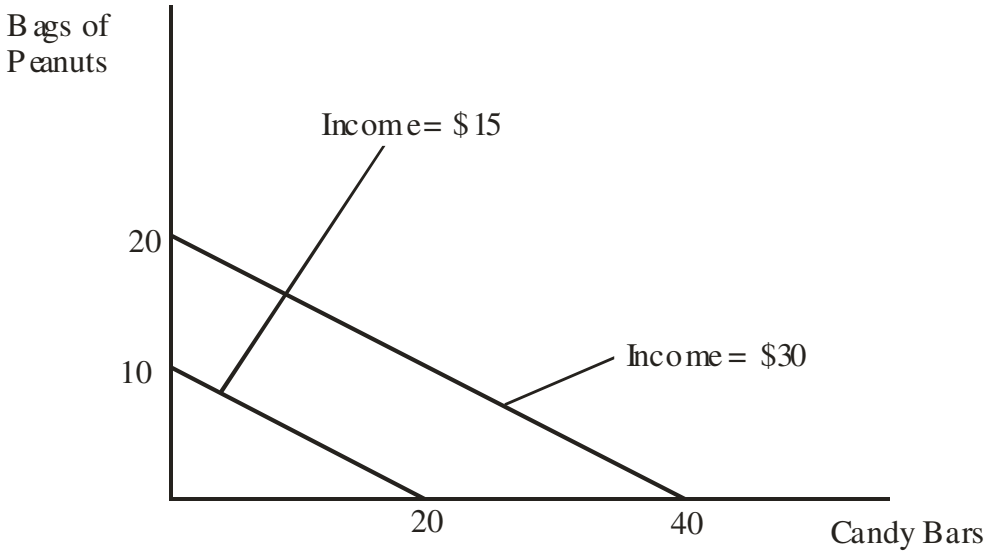
Feedback: The slope for the budget line above, with candy bars on the horizontal axis, is -0.5 (= $-P_{cb}/P_{bp}$). Note that the figure could also be drawn with bags of peanuts on the horizontal axis. The slope of that budget line would be -2.

The opportunity cost of one more candy bar is ½ of a bag of peanuts. The opportunity cost of one more bag of peanuts is 2 candy bars. These opportunity costs are constant. They can be found by comparing any two of the consumption alternatives for the two goods.

Part c: No; it only tells you what is possible.

Feedback: The budget line does not tell you which of the available combinations of candy bars and bags of peanuts to buy. You will need to use your preference relationship for candy bars and bags of peanuts to determine which combination to buy. The budget line only tells you which combinations are feasible.

Part d: Increased.



Feedback: The budget line at $30 would be preferable because it would allow greater consumption of both goods.

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4. Suppose that you are on a deserted island and possess exactly 20 coconuts. Your neighbour, Friday, is a fisherman, and he is willing to trade 2 fish for every 1 coconut that you are willing to give him. Another neighbour, Kwame, is also a fisherman, and he is willing to trade 3 fish for every 1 coconut. **LO1.6**

   a. On a single figure, draw budget lines for trading with Friday and for trading with Kwame. (Put coconuts on the vertical axis.)

   b. What is the slope of the budget line from trading with Friday?

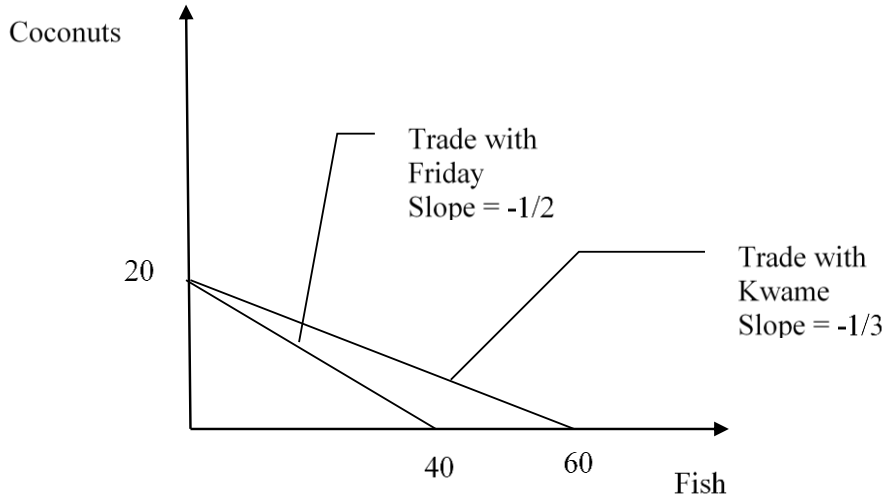
   c. What is the slope of the budget line from trading with Kwame?

   d. Which budget line features a larger set of attainable combinations of coconuts and fish?

   e. If you are going to trade coconuts for fish, would you rather trade with Friday or Kwame?

Answers:

Part a:



Part b: -1/2

Feedback: The slope of the budget line from trading with Friday equals -(1/2). This implies that for every coconut I give up, Friday must give up two fish. Or, for every fish that Friday gives up, I must give up (1/2) a coconut.

Part c: -1/3

Feedback: The slope of the budget line from trading with Kwame equals -(1/3). This implies that for every coconut I give up, Kwame must give up three fish. Or, for every fish that Friday gives up, I must give up (1/3) a coconut.

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Part d: The budget line from trading with Kwame

Feedback: The budget line from trading with Kwame features a larger set of attainable combinations of coconuts and fish. Because Kwame is willing to give up more fish per coconut, I can consume more of both (assuming I make a trade). This implies that you would prefer to trade with Kwame.

Part e: Kwame

Feedback: Because Kwame is willing to give up more fish per coconut, I can consume more of both (assuming I make a trade). This implies that you would prefer to trade with Kwame.

5. Below is a production possibilities table for consumer goods (automobiles) and capital goods (forklifts): **LO1.7**

	Production Alternatives				
Type of Production	A	B	C	D	E
Automobiles	0	2	4	6	8
Forklifts	30	27	21	12	0

a. Show these data graphically. Upon what specific assumptions is this production possibilities curve based?

b. If the economy is at point C, what is the cost of one more automobile? Of one more forklift?

Which characteristic of the production possibilities curve reflects the law of increasing opportunity costs: its shape or its length?

c. If the economy characterized by this production possibilities table and curve were producing 3 automobiles and 20 forklifts, what could you conclude about its use of its available resources?

d. Is production at a point outside the production possibilities curve currently possible? Could a future advance in technology allow production beyond the current production possibilities curve? Could international trade allow a country to consume beyond its current production possibilities curve?

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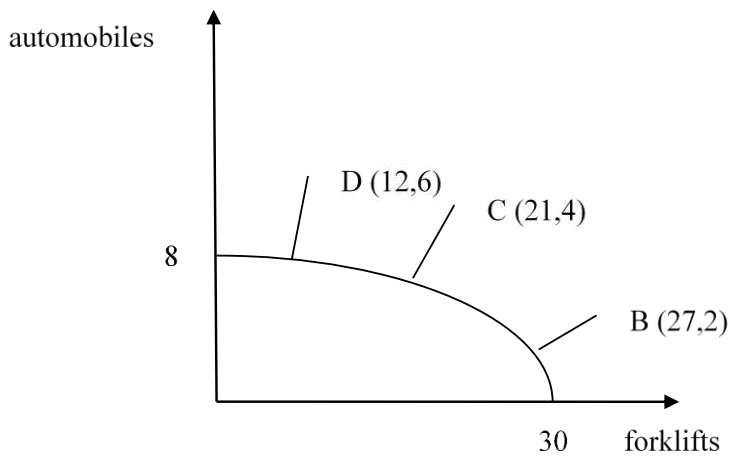
Answers:

Part a: (See figure below.) The assumptions are full employment, fixed supplies of resources, fixed technology and two goods.



Part b: 4 automobiles and 21 forklifts; its shape.

Feedback: Consider the following example:

	Production Alternatives				
Type of Production	**A**	**B**	**C**	**D**	**E**
Automobiles	0	2	4	6	8
Forklifts	30	27	21	12	0

Assume the economy is producing at point C. Thus, the economy is producing 4 automobiles and 21 forklifts.

The cost of producing one more automobile can be found by moving to point D and calculating the number of forklifts given up for the 2 additional automobiles. At point D the economy is producing 12 forklifts, which is a loss of 9 forklifts (moving from C to D) for the 2 additional automobiles. Thus, the cost of 1 more automobile equals 9 (forklifts) divided by 2 (automobiles), or (9/2) = 4.5 forklifts.

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The cost of producing one more forklift can be found in an equivalent fashion. First, we will move to point B (from point C). Here we must give up 2 automobiles to get 6 forklifts. Thus, the cost of 1 more forklift equals 2 (automobiles) divided by 6 (forklifts), which is (2/6) = (1/3).

In review, take the cost (loss) and divide by the gain. If we were at point D, the cost of one more forklift equals 2 automobiles (loss) divided by 9 forklifts (gain). Thus, the cost of 1 more forklift at point B is (2/9) automobiles.

Increasing opportunity cost implies that we must give up more of a particular good to get an additional unit of a different good. This implies as we move along the production possibilities curve (from left to right) I must give up more automobiles to get an additional forklift. Thus, the SHAPE of the schedule captures the increasing opportunity cost concept.

Part c: Underutilizing.

Feedback: The economy is underutilizing resources (inside the PPC).

Part d: No; Yes; Yes.

Feedback: No, the country cannot produce outside its PPC. Yes, a technological advance would shift the PPC outward allowing the country produce more with a given amount of inputs. Yes, by specializing in goods we have a comparative advantage producing we can trade to gain access to goods beyond our own PPC.

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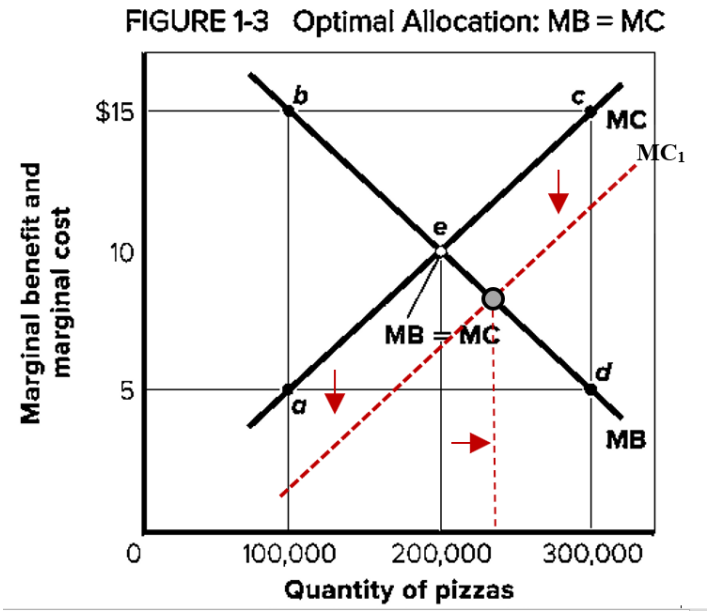
6. Look at Figure 1.3. Suppose that the cost of cheese falls, so that the marginal cost of producing pizza decreases. Will the MC curve shift up or down? Will the optimal amount of pizza increase or decrease? **LO1.7**

Answers: MC will shift down; the optimal amount of pizza will increase.



Feedback: To think about cost schedules we must think about input costs. If the cost of cheese falls, then the cost of making pizza is cheaper for all pizzas. This implies that the marginal cost schedule will shift down reflecting the lower input cost. For a given demand schedule, the optimal amount of pizza produced and sold will increase and the equilibrium price would fall. The opposite story would apply if the cost of cheese were to increase.

7. Referring to the table in problem 5, suppose improvement occurs in the technology of producing forklifts but not in the technology of producing automobiles. Draw the new production possibilities curve. Now assume that a technological advance occurs in producing automobiles but not in producing forklifts. Draw the new production possibilities curve. Now draw a production possibilities curve that reflects technological improvement in the production of both goods. **LO1.8**

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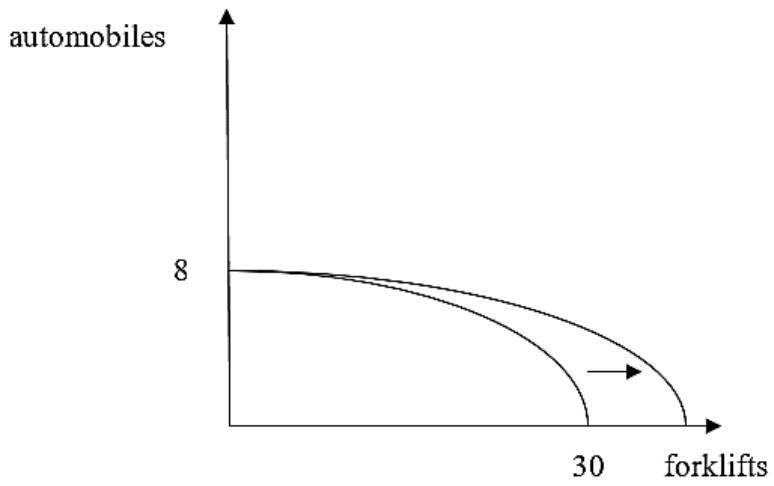
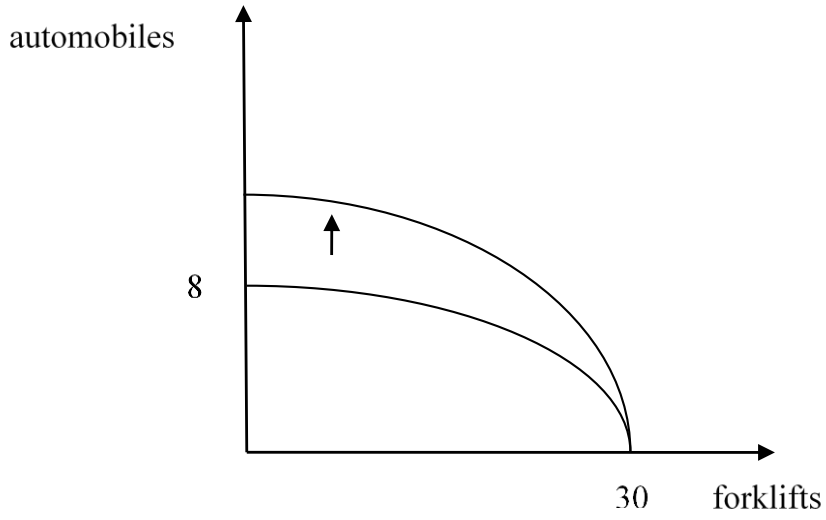
Answers: See figures below

Technological advance in producing forklifts and not automobiles.



Feedback: This implies we can produce more forklifts with the given resources, so the schedule will shift out along the horizontal axis.

Technological advance in producing automobiles and not forklifts.



Feedback: This implies we can produce more automobiles with the given resources, so the schedule will shift up along the vertical axis.

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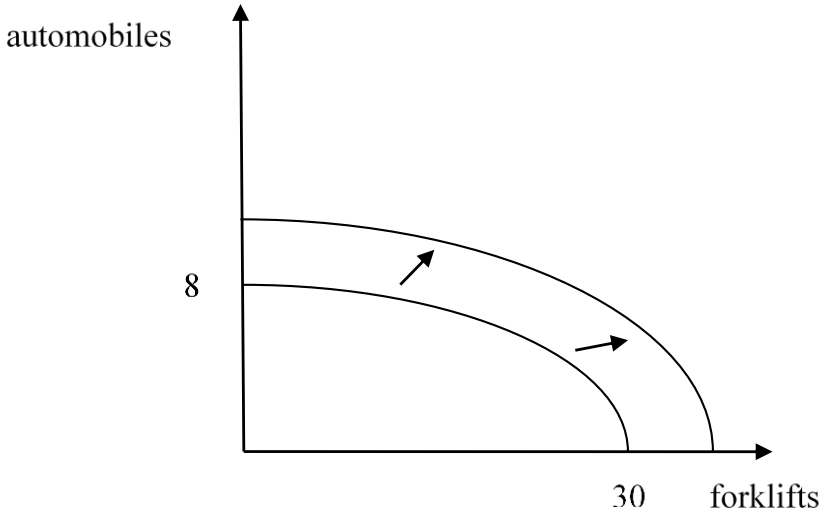
Technological in advance in producing automobiles and forklifts.



Feedback: This implies we can produce more forklifts and automobiles with the given resources, so the schedule will shift up out along the vertical and horizontal axes.

8. Because investment and capital goods are paid for with savings, higher savings rates reflect a decision to consume fewer goods for the present in order to be able to invest in more goods for the future. On average, households in China save 40 percent of their annual income each year, whereas households in Canada save less than 5 percent. Production possibilities are growing at roughly 9 percent annually in China and 3.5 percent in Canada. Use graphical analysis of present goods versus future goods to explain the differences in growth rates. **LO1.8**

Answers: See figures below

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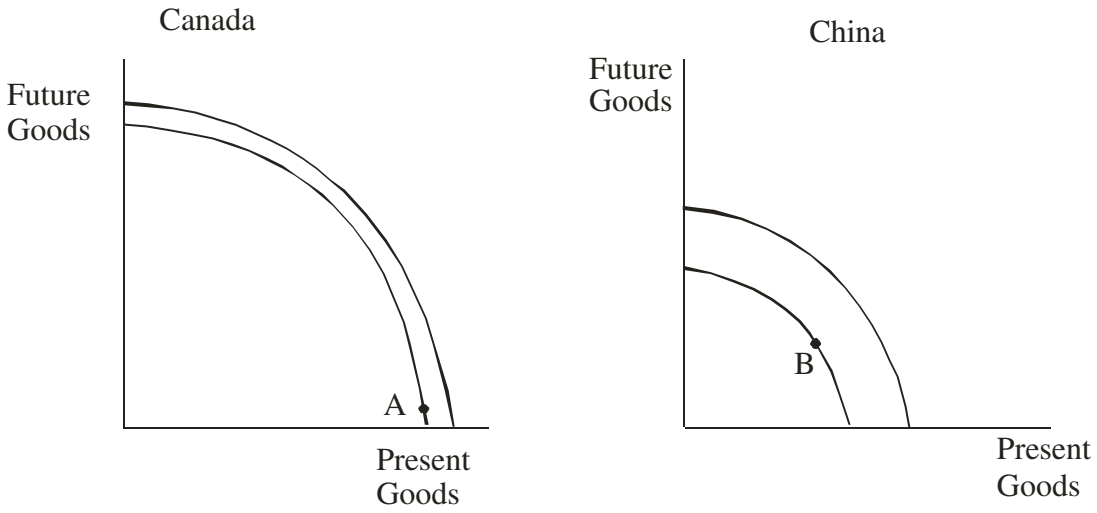

Feedback: Since Canada is consuming more today rather than saving, their production possibilities curve will shift out slower (less) over time because they are accumulating less capital. China's production possibilities curve will shift out faster (more) over time because they are accumulating more capital.

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Demand and Supply - ABA teaching notes

This activity is designed to test students' knowledge of fundamentals of demand and supply:

- a movement along versus a shift of the demand/supply curve (2 questions)
- factors that shift the demand/supply curve (3 questions)
- changes to market equilibrium given a single shift of the demand or supply curve (2 questions)
- changes to market equilibrium given a shift of both the demand and supply curve (1 question)

The student plays the role of a contestant on an economics game show that is similar to Jeopardy. The game board has six different question categories:

- Movement Along or Shift?: Students need to determine if an event causes a movement along or a shift of a curve and the direction of the movement or shift.
- Demand: These questions cover the factors that shift the demand curve. Students need to determine which curve shifts (in a substitute or complement scenario) and the direction of the shift (increase versus decrease).
- Demand Changes to Equilibrium: Given an event that shifts a demand curve, students need to determine the direction of the shift and how the shift changes the market equilibrium price and quantity.
- Supply: These questions cover the factors that shift the supply curve. Given a scenario, students need to determine the direction of the supply curve shift.
- Supply Changes to Equilibrium: Given an event that shifts a supply curve, students need to determine the direction of the shift and how this shift changes the market equilibrium price and quantity.
- Mystery: The mystery questions involve a scenario in which both the demand and supply shift. Students will need to determine the direction of each of the shifts and how the combined shifts change the market equilibrium price and quantity.

Overview of the Simulation 'Play':

- The student plays the role of a contestant playing against another contestant on the game show.
- Students are informed that each category has four questions that are worth $100, $200, $300, and $400 that correspond to the level of difficulty (higher dollar amounts are associated with greater challenge).

- If a question is answered correctly, the contestant earns the dollar amount associated with the question, with the one exception of the Bonus Play question (if the student answers correctly, they earn $500 and the other contestant loses $500 and vice versus if the student does not answer correctly).
- If a non-Bonus Play question is answered incorrectly, no money is lost. If any question is answered incorrectly, the correct answer is explained as feedback.
- The 'winner' is the contestant who has the highest total at the end of the game. It is possible that a contestant can have a negative total earnings.
- While it is possible for either the student to win or the second contestant, the odds are stacked in the student's favour.
- Some choice is given (not scored) as to which question the student would like next and other times the next question is randomly selected.
- Regardless of the path chosen, a total of eight questions are asked (breakdown of the eight questions described above).

CHAPTER 7B

Behavioural Economics

LEARNING OBJECTIVES

LO7B.1 Define behavioural economics and contrast it with neoclassical economics.

LO7B.2 Discuss brain characteristics that affect human decision making.

LO7B.3 Show how prospect theory helps to explain many consumer behaviours.

LO7B.4 Describe how time inconsistency and myopia cause suboptimal long-run decisions.

LO7B.5 Define and give examples of fairness and its effect on behaviour.

Scientific theories are judged by the accuracy of their predictions. Conventional **neoclassical economics** makes many accurate predictions about human behaviour, especially when it comes to financial incentives and how consumers and businesses respond to changing prices. However, many neoclassical predictions fail quite dramatically. These include predictions about how people deal with risk and uncertainty, choices that require willpower or commitment, and decisions that involve fairness, reciprocity, or trust.

Behavioural economics attempts to make better predictions about human behaviour by combining insights from economics, psychology, and biology. This chapter introduces behavioural economics and the areas in which it has most dramatically increased our understanding of economic behaviour.

7B.1 Systematic Errors and the Origin of Behavioural Economics

LO7B.1 Define behavioural economics and contrast it with neoclassical economics.

We tend to think of ourselves as being very good at making decisions. While we may make a few mistakes here and there, we generally proceed through life with confidence, believing firmly that we will react sensibly and make good choices. Ultimately, we feel that our decisions are **rational**, meaning that they maximize our chances of achieving what we want.

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Unfortunately, social scientists have amassed overwhelming evidence to the contrary. People constantly make decision errors that reduce—rather than enhance—the likelihood of getting what they want. In addition, many errors are **systematic errors**, that people tend to repeat over and over.

Behavioural economics developed as a field of study because neoclassical economics could not explain why people make systematic errors. The underlying problem for neoclassical economics is that it assumes that people are fundamentally rational. Under that worldview, people might make some initial mistakes when encountering a new situation, but as they gain experience, they should learn and adapt. As a result, decision errors should be rare and confined to novel situations.

When evidence began to pile up that even highly experienced people make systematic errors, neoclassical economists assumed that people were just ignorant of their best interests. They assumed that a little education would fix everything. But people often persisted in making the same error even after they were informed that their behaviour went against their own interests.

As a result, several researchers realized that it would be necessary to drop the neoclassical assumption that people are fundamentally rational. By doing so, economists were able to develop alternative theories that make more accurate predictions about human behaviour. The collective results of those efforts are what we today call *behavioural economics,* which is based upon people's actual behaviour—which can be irrational, prone to systematic errors, and difficult to modify.

Comparing Behavioural Economics with Neoclassical Economics

According to behavioural economists, neoclassical economists make a number of highly unrealistic assumptions about human capabilities and motivations, including the following:

- People have stable preferences that aren't affected by context.
- People are eager and accurate calculating machines.
- People are good planners who possess plenty of willpower.
- People are almost entirely selfish and self-interested.

Neoclassical economics made these simplifying assumptions for two main reasons. First, they render neoclassical models of human behaviour both mathematically elegant and easy to solve. Second, they allow very precise predictions about human behaviour.

Unfortunately, precision is not the same thing as accuracy. As behavioural economist Richard Thaler has written, "Would you rather be elegant and precisely wrong—or messy and vaguely right?" Behavioural economists err on the side of being messy and vaguely right.

Table 7B-1 summarizes how the two approaches differ in several areas.

FOCUSING ON THE MENTAL PROCESSES BEHIND DECISIONS

While neoclassical economics focuses almost entirely on *predicting* behaviour, behavioural economics puts significant emphasis on the mental processes *driving* behaviour.

Neoclassical economics focuses on prediction because its assumption that people are rational allows it to fully separate what people do from how they do it. Specifically, perfectly rational people will always choose the course of action that will maximize the likelihood of getting what they want. How they actually come to those optimal decisions might be interesting—but that information is not necessary to predict a perfectly rational person's behaviour. Consequently, neoclassical economists ignored the underlying mental processes involved in decision making.

For behavioural economists, the fact that people are not perfectly rational suggests two important reasons for understanding the underlying mental processes that drive decisions:

- We can make better predictions about behaviour.
- We can get people to make better decisions.

IMPROVING OUTCOMES BY IMPROVING DECISION MAKING

Neoclassical economics and behavioural economics differ on how to improve human welfare. Neoclassical economics focuses its attention on providing people with more options. That's because a fully rational person can be trusted to select the best option from any set of options. As a result, the only way to make people even happier is to provide them with more options.

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TABLE 7B-1 Behavioural Economics

Topic	Neoclassical economics	Behavioural economics
Rationality	People are fundamentally rational and will adjust their choices and behaviours to best achieve their goals. Consequently, they will not make systematic errors.	People are irrational and make many errors that reduce their chances of achieving their goals. Some errors are regularly repeated systematic errors.
Stability of preferences	People's preferences are completely stable and unaffected by context.	People's preferences are unstable and often inconsistent because they depend on context (framing effects).
Capability for making mental calculations	People are eager and accurate calculators.	People are bad at math and avoid difficult computations if possible.
Ability to assess future options and possibilities	People are just as good at assessing future options as current options.	People give insufficient weight to future events and outcomes.
Strength of willpower	People have no trouble resisting temptation.	People lack sufficient willpower and are often prey to temptation.
Degree of selfishness	People are almost entirely self-interested and self-centred.	People are often selfless and generous.
Fairness	People do not care about fairness and only treat others well if doing so will get them something they want.	Many people care deeply about fairness and will often give to others even when doing so will yield no personal benefits.

By contrast, the existence of irrationality leads behavioural economists to conclude that it may be possible to make people better off without providing additional options. In particular, improvements in utility and happiness may be possible simply by getting people to make better selections from the set of options that is already available to them.

This focus on improving outcomes by improving decisions is one of the distinguishing characteristics of behavioural economics. This chapter's Last Word reviews several instances in which substantial benefits arise from helping people to make better choices from among the options that they already have.

BEHAVIOURAL ECONOMICS AND NEOCLASSICAL ECONOMICS AS COMPLEMENTS

We should not view behavioural economics and neoclassical economics as fundamentally opposed or mutually exclusive. Instead, many economists prefer to think of them as complementary approaches that can be used together to help improve our understanding of human behaviour.

As an example, consider how using the two approaches can help us better understand how customers behave at a local supermarket.

Neoclassical Economics at the Supermarket

The major neoclassical contribution to our understanding of customers' shopping behaviour can be summarized by the phrase "incentives matter." In particular, the customers will care a great deal about prices. When prices go up, they buy less. When prices go down, they buy more.

Behavioural Economics at the Supermarket

People tend to buy what they happen to see. This behaviour, called "impulse buying," contradicts the neoclassical assumption that consumers carefully calculate marginal utilities and compare prices before making purchases. However, impulse buying is a very common behaviour that retailers often exploit.

For instance, nearly all supermarkets place staple products like milk and eggs against the back walls of their stores. This placement increases impulse buying by forcing customers to walk past hundreds of other items on the way to the milk and eggs. A few of those items will catch their eyes and thereby increase sales as customers end up purchasing products that they had no intention of buying when they entered the store.

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Marketers also know that impulse purchases are highest for items that are stacked on shelves at eye level. Thus, food manufacturers actively pay supermarkets for the privilege of having their brands stacked at eye level. In cereal aisles, the most expensive shelf space isn't at eye level for an adult, but a foot or two lower—at the eye level of a toddler sitting in a shopping cart or of a child walking with a parent. Because kids are even more prone to impulse buying than adults, cereal makers are more than happy to pay to have their products stacked at kid-friendly eye levels.

7B.2 Our Efficient, Error-Prone Brains

LO7B.2 Discuss the brain characteristics that affect human decision making.

The human brain is the most complex object in the universe. One hundred billion neurons share 10,000 times as many connections. Working together, they allow you to observe your environment, think creatively, and interact with people and objects.

The brain, however, is rather error-prone. Its many weaknesses are most dramatically illustrated by visual illusions, such as the one shown in Figure 7B-1. If you follow the instructions printed in that figure, you will quickly discover that your brain can't consistently tell what colour an object is.

The brain devotes more neurons toward processing and interpreting visual information than toward any other activity. So, if the brain makes errors with visual processing, we should expect to find errors in everything else it does, too.

Heuristics Are Energy Savers

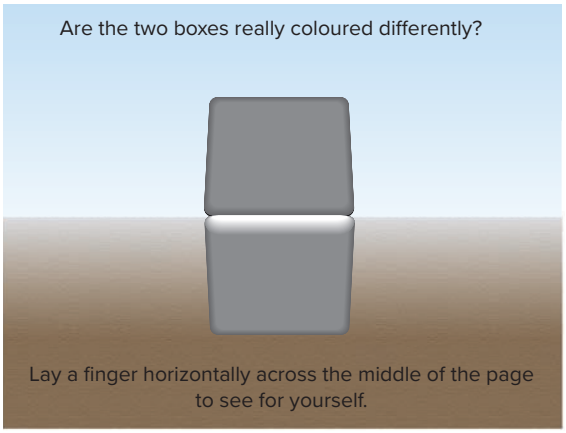
The brain's information-processing limitations are the result of evolutionary pressures. In particular, it was normally very difficult for our ancestors to get enough food to eat. That matters because our brains are extremely energy intensive. In fact, while your brain accounts for just 5 percent of your body weight, it burns 20 percent of all the energy you consume each day. So, back when our ancestors had to hunt and gather and scavenge to survive, getting enough energy was a constant challenge.

In response, the brain evolved many low-energy mental shortcuts, or **heuristics**. Because they are shortcuts, heuristics are not the most accurate mental-processing options. But in a world where calories were hard to come by, a low-energy "good enough" heuristic was superior to a "perfect but costly" alternative.

Your brain's susceptibility to the visual-processing failure demonstrated in Figure 7B-1 is the result of your brain using a host of error-prone heuristics. But think about what a good trade-off you are getting. In everyday life, the visual-processing failure demonstrated in Figure 7B-1 hardly ever comes up, so it would be a waste of resources

FIGURE 7B-1 A Visual Illusion

The human brain uses a large number of heuristics (shortcuts) to process both visual and other types of information. Many of them use context to interpret specific bits of information. When that context changes (as it does here when you put your finger horizontally across the middle of the image), so does the brain's heuristic-filtered interpretation.



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to devote more brainpower to fixing the issue. In economic terms, there are diminishing returns to employing additional units of brainpower. Heuristics are used because the opportunity cost of perfection is too high.

SOME COMMON HEURISTICS

The following examples will help you understand how the brain employs heuristics.

Catching a Baseball with the Gaze Heuristic

Consider the problem faced by a centre fielder in a baseball game when a ball is hit in his general direction. The mentally expensive way to catch the ball would be for the player to use the laws of physics to determine where the ball is heading so that he could run to that spot before the ball arrives.

What baseball players actually do is lock their eyes on the ball and then adjust their position on the field as necessary to keep the ball in front of them and at the same angle as when they first locked their eyes on it. As long as they can run fast enough, this *gaze heuristic* always gets them to the correct place to make the catch. You don't need to learn physics to catch a baseball!

Riding a Bicycle with the Steering Heuristic

There is a simple heuristic for staying upright as you ride a bicycle: If you begin to fall, steer in the direction you are falling. This *steering heuristic* works because turning in the direction of a fall generates a centrifugal force that can be used to hold you up long enough for you to steady the bike. This heuristic is almost never articulated, but it is precisely what little kids subconsciously learn to do when they are using training wheels.

Guesstimating Ranks with the Recognition Heuristic

Which German city has the larger population, Munich or Stuttgart?

Even people who know nothing about Germany tend to get the right answer to this question. They correctly guess Munich by employing the *recognition heuristic,* which says to assume that if one option is more easily recognized, it is probably more important or more highly ranked.

The recognition heuristic isn't foolproof, but it tends to work because relatively important people and places are much more likely to be mentioned in the media. Thus, whichever option is easier to recognize will probably be larger or more important.

A lot of advertising is designed to trigger the recognition heuristic. Indeed, companies spend billions to ensure that consumers are familiar with their products because when it comes time to buy, consumers will be biased toward the products that seem the most familiar.

THE IMPLICATIONS OF HARDWIRED HEURISTICS

As you study the rest of the chapter, keep in mind that most heuristics appear to be hardwired into the brain and, consequently, impossible to unlearn or avoid. That possibility has three important implications:

1. It may be very difficult for people to alter detrimental behaviours or routines even after you point out what they're doing wrong.
2. People may be easy prey for those who understand their hardwired tendencies.
3. If you want people to make a positive behavioural change, it might be helpful to see if you can put them in a situation where a heuristic will kick in and subconsciously lead them toward the desired outcome.

BRAIN MODULARITY

The modern human brain is modular, so that specific areas deal with specific sensations, activities, and emotions—such as vision, breathing, and anger.

This modular structure is the result of millions of years of evolution, with the modern human brain evolving in stages from the much less complex brains of our hominid ancestors. The oldest parts of the brain are located in the back of the head, where the spine enters the skull. The newest parts are up front, near the forehead.

The older parts control subconscious activities, like breathing and sweating, as well as automatic emotional reactions, such as fear and joy. The newer parts allow you to think creatively, imagine the future, and keep track of everyone in your social network. They are largely under conscious control.

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SYSTEM 1 AND SYSTEM 2

It is useful to think of the brain's decision-making systems as falling into two categories. System 1 uses a lot of heuristics in the older parts of your brain to produce quick, unconscious reactions. If you ever get a "gut instinct," System 1 is responsible. By contrast, System 2 uses the newer parts of your brain to undertake slow, deliberate, and conscious calculations of costs and benefits. If you ever find yourself "thinking things over," you are using System 2.

Conflicts may sometimes arise between our unconscious System 1 intuitions and our conscious System 2 deliberations. For example, System 1 may urge you to eat an entire pile of cookies as fast as possible, while System 2 admonishes you to stick to your diet and have only one cookie. A large body of evidence suggests that most decisions are probably either fully or mostly the result of System 1 intuitions and heuristics. That matters because those unconscious mental processes suffer from a variety of cognitive biases.

COGNITIVE BIASES

Cognitive biases are the misperceptions or misunderstandings that cause systematic errors.

Cognitive biases are placed into two general categories. The first are mental-processing errors that result from faulty heuristics. As previously discussed, faulty heuristics are the result of evolution trading off accuracy for speed and efficiency.

The second category of cognitive biases consists of mental-processing errors that result from our brains not having any evolved capacities for dealing with modern problems and challenges, such as solving calculus problems or programming computers. Because our ancestors never encountered math, engineering, or statistics, our brains have a total absence of System 1 heuristics for dealing with those sorts of problems. In addition, our slower and more deliberative System 2 mental processes provide only limited assistance because they were evolved to deal with other types of problems, such as keeping track of everyone in a social network or attempting to think through whether it would be better to go hunting in the morning or in the evening.

As a result, most people find recently developed mental challenges like math and physics to be very tiresome. In addition, System 2 processes that we are recruiting to solve modern problems were in fact designed for pre-modern situations and don't work particularly well when directed at many current situations.

Psychologists have identified scores of cognitive biases. Here are a few that are relevant to economics and decision making.

Confirmation Bias

The term *confirmation bias* refers to the human tendency to pay attention only to information that agrees with one's preconceptions. Information that contradicts those preconceptions is either ignored completely or rationalized away. Confirmation bias is problematic because it allows bad decisions to continue long after an impartial weighing of the evidence would have put a stop to them. When you see someone persisting with a failed policy or incorrect opinion despite overwhelming evidence that he or she should try something else, confirmation bias is probably at work.

Self-Serving Bias

The term *self-serving bias* refers to people's tendency to attribute their successes to personal effort or personal character traits while attributing any failures to factors that were out of their control. Self-serving bias makes it difficult for people to learn from their mistakes because they incorrectly assume that anything that went wrong was beyond their control.

Overconfidence Effect

The *overconfidence effect* refers to people's tendency to be overly confident about how likely their judgments and opinions are to be correct. As an example, people who rated their answers to a particular quiz as being "99 percent likely to be right" were in fact wrong more than 40 percent of the time. Such overconfidence can lead to bad decisions because people will tend to take actions without pausing to verify if their initial hunches are actually true.

Hindsight Bias

People engage in *hindsight bias* when they retroactively believe that they were able to predict past events. As an example, consider an election between candidates named Terence and Philip. Before the election happens, many people will predict that Terence will lose. But after Terence ends up winning, many of those same people will

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convince themselves that they "knew all along" that Terence was going to win. This faulty, "I knew it all along" perspective causes people to massively overestimate their predictive abilities.

Availability Heuristic

The *availability heuristic* causes people to base their estimates about the likelihood of an event not on objective facts but on whether similar events come to mind quickly and are readily available in their memories. Because vivid, emotionally charged images come to mind more easily, people tend to think that events like homicides, shark attacks, and lightning strikes are much more common than they actually are. At the same time, they underestimate the likelihood of unmemorable events. You are five times more likely to die of stomach cancer than to be murdered, but most people rate the likelihood of being murdered as much higher.

The availability heuristic causes people to spend too much of their time and effort attempting to protect themselves against dangers of low actual probability while neglecting to protect themselves against uncharismatic threats of substantially higher probability.

Planning Fallacy

The *planning fallacy* is the tendency people have to massively underestimate the time needed to complete a task. Last-minute test cramming is a good example. The student doing the cramming probably underestimated by many hours how long she needed to prepare. The planning fallacy also helps to explain why construction projects, business initiatives, and government reform efforts all tend to extend beyond their planned schedules.

Framing Effects

Framing effects occur when a change in context (frame) causes people to react differently to a particular piece of information or to an otherwise identical situation.

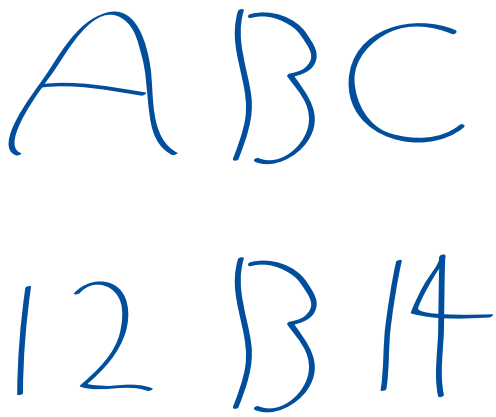
Figure 7B-2 gives an example of a framing effect. The middle symbol is identical in both rows, but it is interpreted differently depending upon whether it is surrounded by letters or numbers. When the symbol is surrounded by letters as in the top row, the brain tends to interpret it as the letter B. When it is surrounded by numbers as in the bottom row, the brain tends to interpret it as the number 13.

Changes in context can also cause extraordinary changes in behaviour. Experiments have shown that ordinary people are twice as likely to litter, steal, or trespass if experimenters tag an area with graffiti and scatter lots of trash around. By changing the area's appearance from neat and orderly to rundown and chaotic, experimenters got ordinary people to subconsciously choose to engage in more crime.

Framing effects can also cause consumers to change their purchases. At the local supermarket, apples command a higher price if each comes with a pretty sticker, and meat sells faster if packaged in shiny plastic containers. At a

FIGURE 7B-2 The Letter Illusion Is the Result of a Framing Effect

In each row, the middle symbol is the same. When that symbol is surrounded by the letters A and C in the top row, our brains tend to register the symbol as the letter B. But when it's surrounded by the numbers 12 and 14 in the bottom row, our brains tend to register it as the number 13. What our brain "sees" is largely a matter of context (frame).



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high-end retailer, expensive packaging increases the perceived value of the merchandise. So does having a nice physical space in which to shop. Thus, high-end retailers spend a lot on architecture and displays.

QUICK REVIEW 7B.1

- Behavioural economics differs from neoclassical economics because its models of decision making take into account the fact that heuristics and cognitive biases cause people to make systematic errors.
- To conserve energy, the brain relies on low-energy mental shortcuts, or heuristics, that will usually produce the correct decision or answer.
- Cognitive biases are systematic misperceptions or bad decisions that arise because (1) heuristics are error-prone in certain situations and (2) evolution did not prepare our brains to handle many modern tasks, such as solving calculus problems.

7B.3 Prospect Theory

LO7B.3 Show how prospect theory helps to explain many consumer behaviours.

Neoclassical economics focuses much of its attention on consumer-choice situations in which people deal with "goods" rather than "bads." When deciding on how to spend a budget, a consumer only considers items that would bring her positive marginal utility—that is, "good" things. She then uses the utility-maximizing rule to select how much of each of those good things she should consume to get as much utility as possible from her limited budget.

Unfortunately, life often forces us to deal with bad things, too. Our houses may burn down. A potential investment may go bad. The money we lend out may not be repaid.

How people cope with negative possibilities is a central focus of behavioural economics. Three very interesting facts summarize how people deal with goods and bads:

- People judge good things and bad things in relative terms, as gains and losses relative to their current situation (that is, the **status quo**).
- People experience both diminishing marginal utility for gains (meaning that each successive unit of gain feels good, but not as good as the previous unit) as well as diminishing marginal disutility for losses (meaning that each successive unit of loss hurts, but less painfully than the previous unit).
- People experience both diminishing marginal utility for gains (meaning that each successive unit of gain feels good, but not as good as the previous unit) as well as diminishing marginal *disutility* for losses (meaning that each successive unit of loss hurts, but less painfully than the previous unit).
- People experience **loss aversion**, meaning that for losses and gains near the status quo, losses are felt *much* more intensely than gains—in fact, about 2.5 times more intensely. Thus, for instance, the pain experienced by an investor who loses one dollar from his status quo level of wealth will be about 2.5 times more intense than the pleasure he would have felt if he had gained one dollar relative to his status quo level of wealth.

These three facts form the basis of **prospect theory**, which sheds important light on how consumers plan for and deal with life's ups and downs, and help to explain why they often appear narrow-minded and fail to "see the big picture." To examine how powerful prospect theory is—and why its pioneer, Daniel Kahneman, was awarded the Nobel Prize in economics—let's use some examples of consumer behaviour that would be hard to explain without the insights provided by prospect theory.

Framing Effects and Advertising

Because people evaluate situations in terms of gains and losses, their decision making can be very sensitive to the mental frame they use to evaluate whether a possible outcome should be viewed as a gain or a loss. Think about the following two examples:

- Would you be happy with a salary of $100,000 per year? You might say yes. But what if your salary last year had been $140,000? Are you still going to say yes? Now that you know you are taking a $40,000 pay cut, does that $100,000 salary seem as good as it did before?

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- Similarly, suppose you have a part-time job. One day, your boss walks in and says she is giving you a 10 percent raise. Would that please you? It probably would. Now, imagine that she also mentions that everyone else at your firm is getting a 15 percent raise. Would you be just as pleased? Or would your raise now seem like a loss compared to what everyone else is getting?

Prospect theory accounts for the fact that people's preferences can change drastically depending on whether contextual information causes them to define a situation as a gain or a loss. It is important to recognize these framing effects because they can be manipulated by advertisers, lawyers, and politicians. For instance, would an advertising company be better off marketing a particular brand of hamburger as "20% fat" or as "80% lean"? Both phrases describe the same meat, but one frames the situation as a loss (20% fat) and the other as a gain (80% lean).

Would you be more willing to take a particular medicine if you were told that 99.9 percent of the people who take it live or if you were told that 0.1 percent of the people who take it die? Continuing to live is a gain, whereas dying is clearly a loss. Which frame sounds better to you?

Framing effects have major consequences for consumer behaviour because any frame that alters whether consumers consider a situation to be a gain or a loss *will* affect their consumption decisions. The Consider This box examines how mental frames about consumption evolve as incomes increase.

Anchoring and Credit Card Bills

Before people can calculate their gains and losses, they must first define the status quo from which to measure those changes. But it turns out that irrelevant information can unconsciously influence people's feelings about the status quo. Here's a striking example. Find a group of people and ask each person to write down the last two digits of his or her Social Insurance Number. Then ask each person to write down his or her best estimate of the value of some object that you display to them—say, a nice wireless keyboard. You will find is that the people whose Social Insurance Numbers end in higher numbers—say, 67 or 89—will give higher estimates for the value of the keyboard than people whose Social Insurance Numbers end in smaller numbers like 18 or 37. The overall effect can be huge. Among students in one MBA class at MIT, those with Social Security Numbers ending between 80 and 99 gave an average estimate of $56 for a wireless keyboard, while their classmates whose Social Insurance Numbers ended between 00 and 20 gave an average estimate of just $16.

CONSIDER THIS

Rising Consumption and the Hedonic Treadmill

For many sensations, people's brains are wired to notice changes rather than states. For example, your brain can sense acceleration—your change in speed—but not speed itself. As a result, standing still feels the same as moving at a constant 50 kilometres per hour. And if you accelerate from one constant speed to another—say from 50 kilometres per hour to 70 kilometres per hour—you will feel the acceleration only while it's happening. Once you settle down at the new higher speed, it will feel like you are standing still again.

Consumption appears to work in much the same way. If you are used to a given level of consumption—say $50,000 per year—then you will get a lot of enjoyment for a while if your consumption accelerates to $100,000 per year. But, as time passes, you will get used to that higher level of consumption, so that $100,000 per year seems ordinary and doesn't bring you any more pleasure than $50,000 per year used to bring you when it was your status quo.

Stewart Cohen/Stockbyte/Getty Images RF

Economist Richard Easterlin coined the term *hedonic treadmill* (pleasure treadmill) to describe this phenomenon. Just as a person walking on a real treadmill gets nowhere, people trying to make themselves permanently happier by consuming more also get nowhere because they end up getting used to any higher level of consumption. Indeed, except for the extremely poor, people across the income spectrum report similar levels of happiness and satisfaction with their lives. This has led several economists, including Robert Frank, to argue that we should all stop trying to consume more because doing so doesn't make us any happier in the long run. What do you think? Should we all step off of the hedonic treadmill?

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Psychologists and behavioural economists refer to this phenomenon as **anchoring**, because people's estimates about the value of the keyboard are influenced, or "anchored," by the recently considered information about the last two digits of their respective identity numbers. Why irrelevant information can anchor subsequent valuations is not fully understood. But the effect is real and can lead people to unconsciously alter how they evaluate different options.

Unfortunately, credit card companies have figured this out. They use anchoring to increase their profits by showing very small minimum-payment amounts on borrowers' monthly credit card statements. The companies could require larger minimum payments, but the minimum-payment numbers that they present are only typically about 2 percent of what a customer owes. Why such a small amount? Because it acts as an anchor that causes people to unconsciously make smaller payments each month. This can make a huge difference in how long it takes to pay off their bill and how much in total interest they will end up paying. For a customer who owes $1000 on a credit card that charges the typical interest rate of 19 percent per year, it will take 22 years and $3398.12 in total payments (including accumulated interest) to pay off the debt if they make only the minimum monthly payments. By showing such small minimum-payment amounts, credit card companies anchor many customers into the expensive habit of paying off their debts slowly rather than quickly.

Mental Accounting and Overpriced Warranties

The utility-maximizing rule (Chapter 7) assumes that people will look at all of their potential consumption options simultaneously when trying to maximize the total utility. But economist Richard Thaler famously noted that people sometimes look at consumption options in isolation rather than simultaneously. Thaler coined the term **mental accounting** to describe this behaviour, because it was as if people arbitrarily put certain options into totally separate "mental accounts" without any thought to options outside of those accounts.

As an example of mental accounting, consider the extended warranties offered by big electronic stores whenever customers purchase expensive products like big-screen TVs. These warranties are very much overpriced given that the products they insure hardly ever break down. Personal financial experts universally tell people not to buy them. Yet many people do buy them because they engage in mental accounting. That is, they mentally label their purchase of the TV as an isolated, individual transaction, sticking it into a separate mental account that might have a title like "Purchase of New TV." Viewing the purchase in isolation exaggerates the size of the loss that might result from a broken TV. Customers who view the transaction in isolation see the possibility of a $1000 loss on their $1000 purchase as a potential total loss—"Holy cow! I could lose $1000 on a $1000 TV!" By contrast, people who can see the big picture are able to compare the potential $1000 loss with the much larger value of their entire future income stream. By following that thought process, they realize that the potential loss is relatively minor—and thus not a good enough reason to purchase an expensive warranty for a product that is very unlikely to break down.

The Endowment Effect and Market Transactions

Prospect theory also offers an explanation for the **endowment effect**, which is the tendency that people have to put a higher valuation on anything that they currently possess (are endowed with) than on identical items that they do not own but might purchase. For instance, if we show a person a new coffee mug and ask him what the maximum amount is that he would pay to buy it, he might say $10. But if we then give the mug to him so that he now owns it, and we then ask how much we would have to pay him to buy it back, he will very likely report a much higher value—say $15.

The mug owner is not just bluffing or driving a hard bargain. Rather, the human brain appears wired to put a higher value on things we own than on things we don't. Economist John List has shown that this tendency can moderate if people are used to buying things for resale. But without such experience, the endowment effect can be quite strong. When it is, it can make market transactions between buyers and sellers harder because sellers will be demanding higher prices for the items they are selling ("Hey, *my* mug is worth $15 to me!") than the values put on those items by potential buyers ("Dude, *your* mug is only worth $10 to me").

Several researchers have suggested that loss aversion may be responsible for the endowment effect and the higher values demanded by sellers. They argue that once a person possesses something, the thought of parting with it seems like a potential loss. As a result, the person will demand a lot of money as compensation if he or she is asked to sell the item. Meanwhile, potential purchasers do not feel any sense of loss, so they end up assigning lower values to the same items.

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Status Quo Bias

Prospect theory also explains **status quo bias**, which is the tendency that people have to favour any option that is presented to them as being the default (status quo) option. As an example, consider Global Perspective 7B.1. It shows, for a selection of European countries, the percentages of their respective populations that have indicated their willingness to participate in organ-donation programs.

As you can see, 7 of the 11 countries have very high participation rates while the other 4 have low participation rates. You might suspect that cultural differences are at play, but that doesn't make sense when you note that countries like Germany and Austria that are culturally very similar still have massively different participation rates.

The explanation lies with the default option that people are given when they are asked whether they wish to participate. In the 7 countries with high participation rates, the default option is participation, so that those who don't want to participate must explicitly check off a box indicating that they don't want to participate. By contrast, in the 4 countries with low participation rates, the default option is *not* participating, so that those wishing to participate must explicitly check off a box indicating that they want to participate.

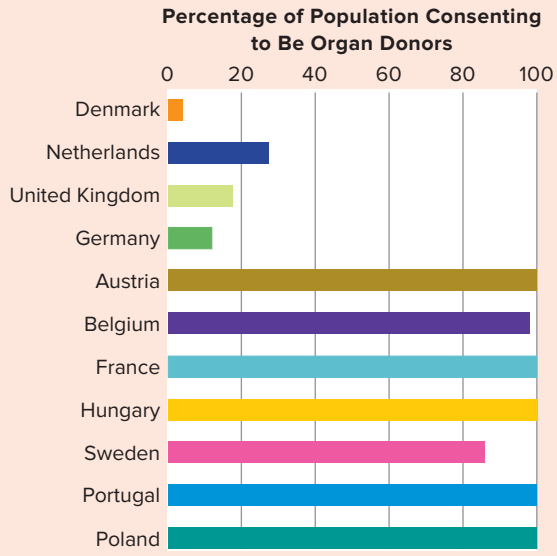
In all countries, nearly everyone chooses to do nothing. That is, they almost never check off the box that is the opposite of the default option. Consequently, they end up agreeing to whatever the default option happens to be. Thus, the huge differences in participation rates among the 11 countries are driven almost entirely by the default option.

Prospect theory explains this and other examples of status quo bias as a combination of the endowment effect and loss aversion. When people are put into a novel situation, they have no pre-existing preferences for any of the options. As a result, the way the options are framed becomes very important. If any of them is presented as the default, people tend to treat it as an endowment that they wish to hold on to. They treat any other option as a prospect that might cause a loss. Loss aversion then kicks in and causes most people to stick with the default option. The result is a bias toward the status quo.

7B.1 GLOBAL PERSPECTIVE

Percent of Population Consenting to Be Organ Donors

People tend to stick with whatever option is presented as the default option. Thus the seven countries with high percentages consenting to be organ donors have organ-donation programs in which the default option is participation. By contrast, the four countries with low percentages consenting to be organ donors have organ-donation programs where the default option is *not* participating.



Source: Wolters Kluwer Health.

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Status quo bias can be used to explain several consumer behaviours. Consider brand loyalty. If you have gotten used to eating Heinz ketchup, status quo bias will make you reluctant to purchase any other brand. Overcoming that feeling of potential loss is a difficult challenge for competing brands. Rivals seeking to challenge an established brand are often forced to resort to deep discounts or free samples to get consumers to even try their products.

7B.4 Myopia and Time Inconsistency

LO7B.4 Describe how time inconsistency and myopia cause suboptimal long-run decisions.

Our ancient ancestors had little cause to spend much time worrying about anything that would happen in the distant future. Infectious diseases, predatory animals, and the constant threat of starvation made life extremely precarious. Consequently, they had to be almost entirely focused on the present moment and how to get through the next few weeks or the next few months.

Today, however, people living in industrialized countries rarely die from infectious diseases, mostly see predatory animals in zoos, and are under little threat of starvation. Living past eighty is now routine and most of us will die of old age. As a result, long-run challenges like planning for retirement and saving for college are now common tasks that nearly everyone faces.

Unfortunately, our brains were designed for our ancestors' more immediate concerns. Thus, we often have difficulty with long-run planning and decisions that involve trade-offs between the present and the future. Two of the major stumbling blocks are myopia and time inconsistency.

Myopia

In biology, myopia, or nearsightedness, refers to a defect of the eye that makes distant objects appear fuzzy, out of focus, and hard to see. By analogy, economists use the word **myopia** to describe the fact that our brains have a hard time conceptualizing the future. Compared with the present, the future seems fuzzy, out of focus, and hard to see.

For example, our brains are very good at weighing current benefits against current costs in order to make immediate decisions. But our brains almost seem "future-blind" when it comes to conceptualizing either future costs or future benefits. As a result, we have difficulty evaluating possibilities that will occur more than a few weeks or months into the future.

As a result of myopia, people who are forced to choose between something that generates benefits quickly and something that won't yield benefits for a long time will typically favour the more immediate option.

Imagine that Terence has $1000 that he can either spend on a vacation next month or save for his retirement in 30 years. Myopia will cause him great difficulty in imagining the additional spending power that he will be able to enjoy in 30 years if he saves the money. In contrast, it is very easy for him to imagine all the fun he could have next month if he goes on vacation. As a result, he will be strongly biased toward spending the money next month. With myopia obscuring the benefits of the long-term option, the short-term option seems much more attractive.

Myopia also makes it hard to stick with a diet or follow an exercise plan. Compared with the immediate and clearly visible pleasures of eating doughnuts or hanging out, the future benefits from eating better or exercising consistently are just too hazy in most people's minds to be very attractive. The Consider This box discusses a green business model that works with, rather than against, people's myopia.

Time Inconsistency

Time inconsistency is the tendency to systematically misjudge at the present time what you will want to do at some future time. This misperception causes a disconnect between what you currently think you will want to do at some particular point in the future and what you actually end up wanting to do when that moment arrives. It is as though your present self does not understand what your future self will want.

Waking up early is a good example. At 8 p.m. on a Tuesday, you may really like the idea of waking up early the next morning so that you can exercise before starting the rest of your day. So you set your alarm 90 minutes earlier than you normally do. But when your alarm goes off the next morning at that earlier time, you loathe the concept, throw the alarm across the room, and go back to sleep. That switch in your preferences from the night before is the essence of time inconsistency. Your future self ends up disagreeing with your current self.

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CONSIDER THIS

A Bright Idea

In sunny areas, a solar panel can make up for the cost of its installation in just a few years by greatly reducing or even eliminating a household's electricity bill. After those years of payback are finished, there will be almost nothing but benefits because the solar panel will continue to provide free electricity at only modest maintenance costs. Consequently, nearly every household in sunny areas could rationally profit from installing solar panels.

Unfortunately, myopia discourages most people from wanting to reap the net benefits. Because people are myopic, they focus too strongly on the upfront costs of installing solar panels while at the same time discounting the long-run benefits from being able to generate their own electricity. The result is major inefficiency as most homeowners end up forgoing solar panels.

A U.S. company, Sunrun, and other solar-panel installers, have figured out a way to work with, rather than against, people's myopia. They do so by offering leasing and financing options that eliminate the need for consumers to pay for the upfront costs of installing a solar system. Instead, the installer pays for the upfront costs and then makes its money by splitting the resulting savings on monthly electricity bills with consumers.

Federico Rostagno/ Shutterstock

This arrangement actually benefits from myopia, because consumers get to focus on instant savings rather than initial costs. The same strategy can also be used to promote other investments that would normally be discouraged by myopia, such as installing energy-efficient furnaces, air conditioners, and appliances.

SELF-CONTROL PROBLEMS

Time inconsistency is important because it is a major cause of **self-control problems**. To see why, imagine that before heading out to a restaurant with friends, you think that you will be happy sticking to your diet and only ordering a salad. After all, that particular restaurant has very tasty salads. But, after you get there, you find the dessert menu overwhelmingly attractive and end up ordering two servings of cheesecake.

Because you were time-inconsistent and didn't understand what your future self would want, you put yourself in a situation in which it was very difficult for you to stick to your diet. If you had instead been able to correctly predict what your future self would want, you might have decided to stay home for the evening rather than putting yourself in temptation's way. Alternatively, you could have gone, but not before making your friends promise to prevent you from ordering dessert.

Time inconsistency also makes it hard for many workers to save money. Before their paycheques arrive, they mistakenly assume that their future selves will want to save money as much as their current selves do. But once the money becomes available, their future selves end up wanting to spend everything and save nothing.

FIGHTING SELF-CONTROL PROBLEMS WITH PRECOMMITMENTS

The key to fighting time inconsistency and self-control problems is to have a good understanding of what your future self is likely to want. You can then make **precommitments** to prevent your future self from doing much damage.

AUTOMATIC PAYROLL DEDUCTIONS

Precommitment strategies have also been used to help future selves save more money. Consider automatic payroll deductions. If a worker named Blaire signs up for such a program, a fixed percentage will be automatically deducted from each of her paycheques and deposited directly into her retirement savings account. Because that money never gets to her chequing account, there is no way for Blaire's future self to fall prey to temptation and spend it. As the old saying goes, "Out of sight, out of mind."

SALARY SMOOTHING

Some school teachers and university professors have the choice of having their annual salaries paid out over nine larger monthly installments (to match the length of the school year) or twelve smaller monthly installments (to

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match the length of the calendar year). If we observe which option they actually choose, we find that the vast majority opt to have their salaries spread out over 12 months rather than 9 months.

They do so because they fear self-control problems. They are afraid that if they opt to be paid over 9 months, they won't have the self-control to save enough money during the 9-month period when they will be getting paid to last them through the 3 months of summer vacation when they won't be getting paid. To avoid that situation, they opt to have their salaries spread out evenly over the entire calendar year. That precommitment ensures that their future selves are never given the chance to blow through all the money too quickly.

EARLY WITHDRAWAL PENALTIES

Sometimes, one cognitive bias can be used to offset another. Retirement accounts that have early-withdrawal penalties are a good example. They use loss aversion to offset time inconsistency and self-control problems.

In some cases, the penalties on these sorts of accounts are as high as 25 percent, meaning that if a saver wanted to withdraw $1000 before reaching retirement, he would have to give up $250 (25 percent of $1000) as a penalty. While that amount is substantial in itself, loss aversion makes it even more painful to contemplate. As a result, most people can't bring themselves to make an early withdrawal.

QUICK REVIEW 7B.2

- Prospect theory models decision making by accounting for the fact that people's choices are affected by whether a possible outcome is perceived as a prospective gain or a prospective loss relative to the current status quo situation.
- Because our ancestors were focused on short-term survival, our brains suffer from myopia and are not good at dealing with decisions that involve the future.
- Precommitments can be used to compensate for time inconsistency and the self-control problems that arise when the future self doesn't want to do what the present self prefers.

7B.5 Fairness and Self-Interest

LO7B.5 Define and give examples of fairness and its effect on behaviour.

Neoclassical models assume that people are purely self-interested. They do so because "pure self-interest" seems like a good basis for predicting many economic behaviours, especially those happening in market situations where people are dealing mostly with strangers and are, consequently, unlikely to be particularly sentimental or charity-minded.

Adam Smith, the founder of modern economics, put this line of thinking into words. The most-quoted passage from *The Wealth of Nations* reads:

> It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves not to their humanity but to their self-love, and never talk to them of our own necessities but of *their* advantages.

Smith, however, did not believe that people are *exclusively* focused on self-love and their own interests. He believed that we are also strongly motivated by emotions such as charity, selflessness, and the desire to work for the common good. He expressed this view at length in his other influential book, *The Theory of Moral Sentiments*. The book's opening sentence reads:

> How selfish soever man may be supposed, there are evidently some principles in his nature which interest him in the fortune of others and render their happiness necessary to him though he derives nothing from it except the pleasure of seeing it.

Behavioural economists have discovered is that this human propensity to care about others extends into every type of economic behaviour. While self-interest is always present, most people care deeply about others and how they are interacting with others. As a result, economic transactions are heavily influenced by moral and ethical factors.

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Field Evidence for Fairness

Field evidence has helped behavioural economists identify the ethical and moral factors that appear to have the largest influence on economic behaviour. Fairness is among the most important.

Fairness is a person's opinion as to whether a price, wage, or allocation is considered morally or ethically acceptable. Standards of fairness vary from person to person and economists generally take no stand on what people consider to be right or wrong. But fairness has been studied extensively because many everyday economic behaviours indicate that people care substantially about fairness and not just about maximizing what they can get for themselves.

Consider the following examples—none of which would be undertaken by a purely self-interested person.

- ***Giving to Charity*** Each year, Canadian charities receive billions of dollars of cash donations and millions of hours of free labour. These donations of time and money are inconsistent with the idea that people are only interested in themselves. In fact, many cash donations are anonymous, which suggests that many donors have extremely pure motives and are not donating just to make themselves look good.
- ***Obeying the Law*** In many countries, the large majority of citizens are law-abiding despite having many opportunities to break the law without getting caught. Similarly, the large majority of taxpayers complete their tax returns honestly despite having many opportunities to cut corners and hide income.
- ***Purchasing "Fair-Trade" Products*** Many consumers are willing to pay premium prices to purchase products that have been certified by the Fair Trade organization as having been produced by companies that meet high standards with respect to workers' rights and environmental sustainability. These customers clearly care about more than just getting the lowest price.

Experimental Evidence for Fairness

Our understanding of fairness and how it affects economic transactions has been refined in recent decades by examining experimental games that were specifically designed to test people's feelings about fairness.

The games' most important feature is that they are played for real money. If people were only motivated by self-interest, you would expect everyone playing the games to utilize only those strategies that are most likely to maximize their own winnings.

As it turns out, however, most players play fairly and generously, often going out of their way to share with less-fortunate players even when they are under no compulsion to do so. That said, their kindness only goes so far. If other players are acting selfishly, the average person will withhold cooperation and may even retaliate.

THE DICTATOR GAME

The strongest experimental evidence against the idea that people are only interested in what they can get for themselves comes from the **dictator game**.

The Rules

In the game, two people interact anonymously. One of them is randomly designated as the dictator. It is the dictator's job to split an amount of money that is put up for that purpose by the researcher running the game. A typical amount is $10.

The dictator can dictate whatever split she or he prefers: keep all the money; give all the money to the other player; or make some other split that adds up to $10 (such as $8.67 to keep and $1.33 for the other person).

Because the game is fully anonymous, the dictator doesn't have to worry about retaliation by the other person. He can get away with being as selfish as he wants.

How Players Behave

What happens when people play the dictator game? After running the experiment many thousands of times in many different countries, experimenters have found that only one-third of dictators keep all of the money for themselves. The other two-thirds show substantial generosity, allocating an average of 42 percent of the money to the other player. In addition, 17 percent of all dictators split the money perfectly evenly and a little over 5 percent of all dictators give the other player everything.

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Implications for Fairness

The way dictators behave suggests two important things about fairness.

First, the majority of people appear to be genuinely concerned about being fair to other people. They are willing to take less for themselves in order to ensure that the other player receives something, too. And they are willing to give substantially to the other player even though the game's guarantee of anonymity would allow them to take everything for themselves without fear of retaliation.

Second, generosity varies quite widely. Between the third of dictators who keep everything for themselves and the five percent who give everything to the other person lie the large majority who allocate some, but not all, of the money to the other person. Within that group, every possible split of the money can be found. Thus, behavioural economists believe that individuals vary widely in their beliefs about fairness. Some are incredibly selfish, others incredibly generous. Most of us lie somewhere in between.

To help get a better handle on how those widely divergent beliefs affect behaviour in more realistic situations, economists designed a slightly more complex game.

THE ULTIMATUM GAME

Like the dictator game, the **ultimatum game** involves two players anonymously splitting an amount of money. But there is no longer a dictator who can arbitrarily decide how the money is spilt. Instead, both players need to agree on any proposed split if it is to take place.

That difference in the rules ensures that the ultimatum game mirrors the many real-world situations in which a project or proposal must obtain the consent and support of all parties if it is to be undertaken. For example, consider a business transaction between a potential seller and a potential buyer. Even if there are substantial net benefits available to both parties, no transaction will take place unless the buyer and the seller can agree on the selling price.

The Rules

As with the dictator game, the researcher puts up an amount of money to be split. This pot of money is similar in spirit to the net benefits that a buyer and a seller can split if they can agree on a price. It also represents the net benefits that will be forgone if the two parties cannot reach an agreement.

At the start of the experiment, one of the players is randomly assigned to be "the proposer" while the other player is randomly assigned to be "the responder." The game begins with the proposer proposing a split. As in the dictator game, the proposed split can range anywhere from suggesting that all the money go to the proposer to suggesting that all the money go to the responder.

The responder examines the proposed split and decides whether to accept it or reject it. If she or he accepts it, the split is made and both players are immediately paid their shares. If the responder rejects the proposed split, neither gets anything; the game simply ends and both players go home without receiving any money at all—a situation similar to when a business negotiation fails and all the potential benefits are forgone.

How Players Behave

When the ultimatum game is played, two behaviours stand out.

First, the splits proposed by proposers in the ultimatum game are much more equal on average than the splits imposed by dictators in the dictator game.Whereas one-third of dictators keep all the money for themselves in the dictator game, almost no proposers suggest allocating all the money to themselves in the ultimatum game.

This large difference in behaviour arises because the people acting as proposers in the ultimatum game realize that suggesting a highly unequal split is almost certain to greatly offend a responder's sense of fairness and lead to a rejection. In addition, most proposers also seem to understand that even moderately unfair offers might also offend responders. As a result, the large majority of proposers suggest either perfectly equal splits or splits that are only slightly biased in the proposer's favour (such as 55 percent going to the proposer).

The second behaviour that stands out is the decisiveness and emotional intensity with which responders reject offers that they consider unfair. In fact, rejection decisions are not made in a cool and calculating fashion. Responders do *not* calmly weigh the costs and benefits of accepting an unfair offer. Rather, they become angry, and reject as a way of retaliating against the proposer. Their rejections are not just negative responses; they are acts of vengeance designed to hurt the proposer by denying him money.

The full extent to which unfair offers make responders angry can be gauged by looking at high-stakes versions of the ultimatum game in which proposers and responders attempt to split hundreds or even thousands of dollars. You might think that when such large amounts of money are on the line, responders would be willing to accept unfair splits.

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But what we actually see is responders continuing to reject splits that they consider to be unfair. Their preference for fair treatment is so strong that they will reject unfair offers even when doing so means giving up a lot of money.

Implications for Market Efficiency

The willingness of proposers to make more generous offers when faced with the threat of rejection can be thought of as the simplest expression of the invisible hand.

As we discussed in Chapter 2, the invisible hand is a metaphor that summarizes the tendency of the market system to align private interests with social interests and get people behaving in ways that benefit not only themselves but other people, too.

In the ultimatum game, the threat of rejection helps to align private interests with social interests. It does so by motivating selfish people to make substantially more generous offers. The result is a higher level of cooperation and utility as offers get accepted and players split the money.

A similar process can be seen in the real world with respect to consumer sovereignty. As discussed in Chapter 2, consumer sovereignty is the right of consumers to spend their incomes on the goods and services that they are most willing and able to buy. Crucially, that right includes the ability to reject any product that does not meet the consumer's expectations.

That right of rejection leads to substantial social benefits because it motivates producers to work hard at producing products that will be acceptable to consumers. Over time, those efforts lead to increased allocative and productive efficiency as better products get produced at lower prices.

QUICK REVIEW 7B.3

- Behavioural economists have found extensive evidence that people care substantially about fairness.
- The dictator and ultimatum games show how people interact anonymously to split pots of money. In the dictator game, one person has total control over the split. In the ultimatum game, both players must agree to the split.
- Player behaviour in the dictator game indicates that many people will share with others even when anonymity allows them to be perfectly selfish and keep all the money for themselves.
- Player behaviour in the ultimatum game shows that people put a very high value on being treated fairly; they would rather reject an unfair offer and get nothing than accept it and get something.

The LAST WORD

The Behavioural Insight Team

Chris Fourie/Shutterstock

A crack team of researchers uses people's behavioural biases to nudge* them into making better decisions.

In 2010, the government of the United Kingdom established the Behavioural Insights Team (BIT). It was tasked with finding low-cost ways to gently nudge people toward making better choices for themselves and others.

A key feature of nudges is that they are subtle. This subtlety means that nudges can cause large changes in behaviour without making people feel bullied or coerced—and also without imposing stringent new rules or having to offer people big monetary incentives or disincentives to get them to do something.

Consider tax collections. The BIT found it could substantially increase the total amount of income tax collected every

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year in the United Kingdom by simply mailing letters to those who had not yet paid stating that most of their neighbours had already paid. That little bit of peer pressure was all it took to get many people to pay up. A similar experiment in Guatemala tripled tax collections.

Under those savings programs, money is automatically deducted each month from a worker's paycheque and deposited in her retirement savings account. It used to be the case that the default for such programs was for workers to start out *not* enrolled in them. To get enrolled, they would have to request to join the program. That is, they would have to choose to go against the default option of not being enrolled.

Little personalized reminders are often all that is needed to make big changes in people's behaviour. The BIT found that it could increase the attendance rates at adult literacy classes by over one-third just by sending students a text message each Sunday night that read, "I hope you had a good break, we look forward to seeing you next week. Remember to plan how you will get to your class."

The BIT uses randomized controlled trials to discover what works. Whenever it comes up with a potential nudge, it tests that potential nudge on a randomly selected group of people. At the same time, it also recruits a control (comparison) group who do not get the nudge. After waiting to see how both groups behave, the potential nudge is only deemed a success if the people receiving it make better choices than the people in the control group.

That was the case when it came to savings behaviour in a poor rural area of the Philippines. The BIT worked with local researchers to see whether local people would save more at their local banks if they were offered a new type of "commitment" savings account. These commitment accounts restricted people from withdrawing money until they reached either a specific date or a specific savings target (that participants chose for themselves). By contrast, the people in the control group received ordinary savings accounts that had no such restrictions—meaning that people could withdraw money at any time they wanted and there were no savings targets.

The results were startling. Over the course of one year, the people with ordinary accounts increased their stockpile of savings by only 12 percent. By contrast, the people randomized into having to use commitment accounts increased their savings by 82 percent—or nearly seven times more.

That large increase in savings is important, because one of the surest ways out of poverty is for poorer people to pile up wealth that can be used for education, starting small businesses, and surviving periods of severe financial distress.

The introduction of commitment accounts made higher savings rates possible by providing locals with a simple way to overcome self-control problems. But please note that successful nudges can be viewed as a form of manipulation. That interpretation can be even more disturbing when you consider that the changes in behaviour generated by successful nudges are most likely unconscious on the part of those being nudged. Keep this in mind as you consider for yourself whether is it morally or ethically acceptable to use nudges to guide people's behaviour.

Question What do you think of the ethics of using unconscious nudges to alter people's behaviour? Before you answer, consider the following argument made by economists Richard Thaler and Cass Sunstein, who favour the use of nudges. They argue that in most situations, we couldn't avoid nudging even if we wanted to, because whatever policy we choose will contain some set of unconscious nudges and incentives that will influence people. Thus, they say, we might as well choose the wisest set of nudges.

*The term "nudge" was popularized by Richard Thaler and Cass Sunstein in their book *Nudge: Improving Decisions About Health, Wealth, and Happiness* (New Haven, CT: Yale University Press, 2008).

Chapter Summary

LO7B.1 Define behavioural economics and contrast it with neoclassical economics.

- Traditional, neoclassical economics assumes that people are fully rational decision makers who will always learn from their mistakes as they try to maximize utility in any given situation. That assumption makes it impossible to account for the fact that people make systematic errors in which they regularly and repeatedly engage in behaviours that reduce their likelihood of achieving what they want.
- Behavioural economics attempts to explain systematic errors by combining insights from economics, psychology, and biology that show that the human brain is prone to information processing errors.

LO7B.2 Discuss the brain characteristics that affect human decision making.

- Our brains make systematic errors for two reasons. First, they were not prepared by evolution for dealing with many modern problems, especially those having to do with math, physics, and statistics. Second, they also make mistakes when dealing with long-standing challenges (like interpreting visual information) because caloric limitations forced our brains to adopt low-energy heuristics (shortcuts) to complete mental tasks.
- Heuristics sacrifice accuracy for speed and low energy usage. In most cases, the lack of accuracy is not important because the errors that result are relatively minor. However, in some cases, those errors can generate cognitive biases

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that substantially impede rational decision making. Examples are confirmation bias, the overconfidence effect, the availability heuristic, and framing effects.

LO7B.3 Show how prospect theory helps to explain many consumer behaviours.

- Prospect theory attempts to accurately describe how people deal with risk and uncertainty. It models a person's preferences about uncertain outcomes as being based on whether those outcomes will cause gains or losses relative to the current status quo situation to which the person has become accustomed.
- Prospect theory also accounts for loss aversion and the fact that most people perceive the pain of losing a given amount of money as being about 2.5 times more intense than the pleasure they would receive from an equal-sized gain.

LO7B.4 Describe how time inconsistency and myopia cause suboptimal long-run decisions.

- Myopia refers to the difficulty that most people have in conceptualizing the future. It causes people to put insufficient weight on future outcomes when making decisions.
- Time inconsistency refers to the difficulty that most people have in correctly predicting what their future selves will want. It causes self-control problems because people are not able to correctly anticipate the degree to which their future selves may fall prey to various sorts of temptation.
- People sometimes use precommitments to help them overcome self-control problems. Precommitments are courses of action that will be very difficult for the future self to alter. They consequently force the future self to do what the present self desires.

LO7B.5 Define and give examples of fairness and its effect on behaviour.

- Behavioural economists have found extensive evidence that people are *not* purely self-interested. Rather, they care substantially about fairness and are often willing to give up money and other possessions in order to benefit other people.
- The field evidence for fairness includes donations to charity, law-abiding behaviour, and the willingness of many consumers to pay premium prices for Fair Trade products.
- The dictator and ultimatum games provide experimental evidence on fairness by showing how pairs of people interact to split a pot of money that is provided by the researcher. In the dictator game, one person has total control over the split. In the ultimatum game, both players must agree to the split.
- The dictator game shows that many people will share with others even when anonymity would allow them to be perfectly selfish and keep all the money for themselves. The ultimatum game shows that people put a very high value on being treated fairly. They would rather reject an unfair offer and get nothing than accept it and get something.

Terms and Concepts

neoclassical economics
behavioural economics
rational
systematic errors
heuristics
cognitive biases
framing effects
status quo
loss aversion
prospect theory
anchoring
mental accounting
endowment effect
status quo bias
myopia
time inconsistency
self-control problems
precommitments
fairness
dictator game
ultimatum game

Discussion Questions

1. Suppose that Joe enjoys and repeatedly does stupid things like getting heavily into debt and insulting police officers. Do these actions constitute systematic errors? If he gets what he wants each time, are his stupid actions even considered to be errors by economists? Explain. [LO7B.1]
2. Why do behavioural economists consider it helpful to base a theory of economic behaviour on the actual mental processes that people use to make decisions? Why do neoclassical economists not care about whether a theory incorporates those actual mental processes? [LO7B.1]
3. Economist Gerd Gigerenzer characterizes heuristics as "fast and frugal" ways of reaching decisions. Are there any costs to heuristics being fast and frugal? Explain and give an example of how a fast and frugal method for doing something in everyday life comes at some costs in terms of other attributes forgone. [LO7B.2]

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4. "There's no such thing as bad publicity." Evaluate this statement in terms of the recognition heuristic. [LO7B.2]
5. For each of the following cognitive biases, come up with at least one example from your own life. [LO7B.2]
   a. Confirmation bias
   b. Self-serving bias
   c. The overconfidence effect
   d. Hindsight bias
   e. The availability heuristic
   f. The planning fallacy
   g. Framing effects
6. Suppose that Amir is loss averse. In the morning, Amir's stockbroker calls to tell him that he has gained $1000 on his stock portfolio. In the evening, his accountant calls to tell him that he owes an extra $1000 in taxes. At the end of the day, does Amir feel emotionally neutral since the dollar value of the gain in his stock portfolio exactly offsets the amount of extra taxes he has to pay? Explain. [LO7B.3]
7. You have just accepted a campus job helping to raise money for your school's athletic program. You are told to draft a fundraising letter. The bottom of the letter asks recipients to write down a donation amount. If you want to raise as much money as possible, would it be better if the text of that section mentioned that your school is ranked third in the nation in sports or that you are better than 99 percent of other schools at sports? Explain. [LO7B.3]
8. In the early 1990s, New Jersey and Pennsylvania in the U.S. both reformed their automobile insurance systems so that citizens could opt for either a less-expensive policy that did not allow people to sue if they got into accidents or a more-expensive policy that did allow people to sue if they got into accidents. In New Jersey, the default option was the less-expensive policy that did not allow suing. In Pennsylvania, the default option was the more-expensive policy that did allow suing. Given those options, which policy do you think most people in New Jersey ended up with? What about in Pennsylvania? Explain. [LO7B.3]
9. Give an example from your own life of a situation where you or someone you know used a precommitment to overcome a self-control problem. Describe why the precommitment is useful and what it compensates for. Avoid any precommitment that was mentioned in the book. [LO7B.4]
10. What does behavioural economics have to say about each of the following statements? [LO7B.5]
    a. "Nobody is truly charitable—they just give money to show off."
    b. "America has a ruthless capitalist system. Considerations of fairness are totally ignored."
    c. "Selfish people always get ahead. It's like nobody even notices!"
11. Do people playing the dictator game show only self-interested behaviour? How much divergence is there in the splits given by dictators to the other player? [LO7B.5]
12. Evaluate the following statement: "We shouldn't generalize from what people do in the ultimatum game because $10 is a trivial amount of money; when larger amounts of money are on the line, people will act differently." [LO7B.5]

Review Questions

1. Which of the following are systematic errors? [LO7B.1]
   a. A colour-blind person who repeatedly runs red lights
   b. An accountant whose occasional math errors are sometimes on the high. side and sometimes on the low side
   c. The tendency many people have to see faces in clouds
   d. Miranda paying good money for a nice-looking apple that turns out to be rotten inside
   e. Elvis always wanting to save more, but spending his whole paycheque, month after month
2. Identify each statement as being associated with neoclassical economics or behavioural economics. [LO7B.1]
   a. People are eager and accurate calculators.
   b. People are often selfless and generous.
   c. People have no trouble resisting temptation.
   d. People put insufficient weight on future events and outcomes.
   e. People only treat others well if doing so will get them something they want.
3. Label each of the following behaviours with the correct bias or heuristic. [LO7B.3]
   a. Your uncle says that he knew all along that the stock market was going to crash in 2008.
   b. When Fred does well at work he credits his intelligence. When anything goes wrong he blames his secretary.
   c. Ellen thinks that being struck dead by lightning is much more likely than dying from an accidental fall at home.
   d. The sales of a TV priced at $999 rise after another, very similar TV priced at $1300 is placed next to it at the store.
   e. The sales of a brand of toothpaste rise after new TV commercials announce that the brand "is preferred by 4 out of 5 dentists."
4. Erik wants to save more, but whenever a paycheque arrives, he ends up spending everything. One way to help him overcome this tendency would be to [LO7B.4]
   a. Teach him about time inconsistency
   b. Tell him that self-control problems are common
   c. Have him engage in precommitments that will make it difficult for his future self to overspend

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5. Many proposers in the ultimatum game offer half to the responder with whom they are paired. This behaviour might be motivated by (select as many as might apply): [LO7B.5]
   a. Fear that an unequal split might be rejected by a fair-minded responder
   b. A desire to induce the responder to reject the offer
   c. A strong sense of fairness on the part of the proposers
   d. Unrestrained greed on the part of the proposers

Problems

1. One type of systematic error arises because people tend to think of benefits in percentage terms rather than in absolute dollar amounts. As an example, Samir is willing to drive 20 minutes out of his way to save $4 on a grocery item that costs $10 at a local market. But he is unwilling to drive 20 minutes out of his way to save $10 on a laptop that costs $400 at a local store. In percentage terms, how big is the savings on the grocery item? On the laptop? In absolute terms, how big is the savings on the grocery item? On the laptop? If Samir is willing to sacrifice 20 minutes of his time to save $4 in one case, shouldn't he also be willing to sacrifice 20 minutes of his time to save $10? [LO7B.2]
2. Anne is a bargain-minded shopper. Normally, her favourite toothpaste costs the same at both of her local supermarkets, but the stores are having competing sales this week. At one store, there is a bonus offer: Buy 2, get 1 free. At the other store, toothpaste is being sold at 40 percent off. Anne instantly opts for the first offer. Was that really the less-expensive choice? (*Hint:* Is "Buy 2, get 1 free" the same as 50 percent off?) [LO7B.2]
3. The coffee shop near the local university normally sells 250 grams of roasted coffee beans for $10. But the shop sometimes puts the beans on sale. During some sales, it offers "33 percent more for free." Other weeks, it takes "33 percent off" the normal price. After reviewing the shop's sales data, the shop's manager finds that "33 percent more for free" sells a lot more coffee than "33 percent off." Are the store's customers making a systematic error? Which is actually the better deal? [LO7B.2]
4. Angela owes $500 on a credit card and $2000 on a student loan. The credit card has a 15 percent annual interest rate and the student loan has a 7 percent annual interest rate. Her sense of loss aversion makes her more anxious about the larger loan. As a result, she plans to pay it off first—despite the fact that professional financial advisors always tell people to pay off their highest-interest-rate loans first. Suppose Angela has only $500 at the present time to help pay down her loans and that this $500 will be the only money she will have for making debt payments for at least the next year. If she uses the $500 to pay off the credit card, how much interest will accrue on the other loan over the coming year? On the other hand, if she uses the $500 to pay off part of the student loan, how much in combined interest will she owe over the next year on the remaining balances on the two loans? By how many dollars will she be better off if she uses the $500 to completely pay off the credit card rather than partly paying down the student loan? (*Hint:* If you owe X dollars at an annual interest rate of Y percent, your annual interest payment will be X × Y, where the interest rate Y is expressed as a decimal.) [LO7B.3]
5. **Advanced Analysis** In the algebraic version of prospect theory, the variable x represents gains and losses. A positive value for x is a gain, a negative value for x is a loss, and a zero value for x represents remaining at the status quo. The so-called value function, $v(x)$, has separate equations for translating gains and losses into, respectively, positive values (utility) and negative values (disutility). The gain or loss is typically measured in dollars while the resulting value (utility or disutility) is measured in utils. A typical person values gains ($x > 0$) using the function $v(x) = x^{0.88}$ and losses ($x < 0$) using the function $v(x) = -2.5*(-x)^{0.88}$. In addition, if she stays at the status quo ($x = 0$), then $v(x) = 0$. First use a scientific calculator (or a spreadsheet program) and the typical person's value functions for gains and losses to fill out the missing spaces in the following table. Then answer the questions. [LO7B.3]

Gain or loss	Total value of gain or loss	Marginal value of gain or loss
−3	−6.57	_____
−2	_____	−2.10
−1	−2.50	−2.50
0	0.00	_____
1	_____	1.00
2	1.84	_____
3	_____	0.79

   a. What is the total value of gaining $1? Of gaining $2?
   b. What is the marginal value of going from $0 to gaining $1? Of going from gaining $1 to gaining $2? Does the typical person experience diminishing marginal utility from gains?
   c. What is the marginal value of going from $0 to losing $1? Of going from losing $1 to losing $2? Does the typical person experience diminishing marginal disutility from losses?
   d. Suppose that a person simultaneously gains $1 from one source and loses $1 from another source. What is the person's total utility after summing the values from these two events? Can a *combination* of events that leaves a person with the same wealth as they started with be perceived negatively? Does this shed light on status quo bias?

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e. Suppose that an investor has one investment that gains $2 while another investment simultaneously loses $1. What is the person's total utility after summing the values from these two events? Will an investor need to have gains that are bigger than her losses just to feel as good as she would if she did not invest at all and simply remained at the status quo?

6. Ted has always had difficulty saving money, so on June 1, he enrolls in a Christmas savings program at a local bank and deposits $750. That money is locked away until December 1 so that Ted can be certain he will still have it once the holiday shopping season begins. Suppose that the annual rate of interest is 10 percent on ordinary savings accounts (that allow depositors to withdraw their money at any time). How much interest is Ted giving up by precommitting his money into the Christmas savings account for six months instead of depositing it into an ordinary savings account? (*Hint:* If you invest X dollars at an annual interest rate of Y percent, you will receive interest equal to $X \times Y$, where the interest rate Y is expressed as a decimal.) [LO7B.4]

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Chapter 1

Limits, Alternatives, and Choices

TEACHING GUIDE CONTENTS

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CONNECT CONTENT MATRIX

The Connect Content Matrix for the entire product can be found in the Instructor's Resources Page on Connect.

WHAT'S NEW IN CHAPTER 2

We have made a major push in this edition (16ce) to streamline the presentation to make it faster to read and easier for busy students to digest the key ideas and concepts.

To that end, this and all subsequent chapters have been edited to "cut out the fat." For instance, secondary and tertiary examples have in many cases been eliminated (but only if the primary example was sufficient on its own).

Space was saved by in some instances by eliminating entire LO sections or subsections within a given LO. But those deletions are relatively few. For the most part, our editorial process involved tightening up language (e.g., active voice sentences are usually shorter than passive voice sentences) and streamlining the presentation. So, if you do a side-by-side comparison of the 15th edition and the 16th edition, you will see a large number of small changes. That is by design.

Any changes in the main body of a chapter caused the author team to modify the end-of-chapter and ancillary content as appropriate. So, there are matching changes to the Summaries, Terms and Concepts, and Questions and Problems within the book itself as well as matching changes in our ancillary materials, including our PPT slides, test banks, and even this Teaching Guide.

The total number of chapters remains the same but the titles and topics of Chapters 4 and 5 have been heavily revised and rearranged. All other chapters retain their previous titles and topics.

We have also totally revised our graphs, figures, charts, and tables to ensure accessibility.

Chapter 1: Limits, Alternatives, and Choices

As with the rest of the book, Chapter 1 features edits to streamline the presentation. There are scores of these, but they do not for the most part affect content or the breadth of coverage. When they do, parallel changes were made to the end-of-chapter material.

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Here are the more substantial *content* changes in Chapter 1:

- The Consider This (CT) boxed piece titled "Free for All" has been replaced with **a new CT titled, "Is Facebook Free?"**
- The CTs about "Fast Food Lines" and "The Economics of War" have been removed.
- The CT about celebrities skipping college has been updated**,** with Ariana Grande replacing Taylor Swift.
- There is a new CT of how COVID-19 will reduce both present and future output.
- The Last Word (LW) on "Pitfalls to Sound Economic Reasoning," has been replaced by a new Last Word that explains how Starbucks uses marginal analysis to make business decisions.
- There is a new Global Perspective on "Gross Capital Formation as a Percentage of National Income" in the section that deals with the PPF.

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TEACHING GUIDE: SUGGESTIONS FOR IMPLEMENTATION

The purpose of this Teaching Guide is to support you in the delivery of your chosen curriculum in either a face-to-face or online classroom format. It also was created to help you address some of the **following challenges in higher education:**

- Addressing the inability to measure student comprehension prior to major assignments such as a midterm or project.
- Overcoming the inability to tailor your lecture to the topics that students find difficult.
- Increasing student engagement by providing opportunities for them to apply the knowledge gained in the classroom to real-world scenarios.
- Providing students with opportunities for self-reflection outside of classroom activities.
- Increasing students' critical-thinking and problem-solving skills.

You will learn that we created many different teaching resources you can use either before, during, or after class. Because of the quantity of options, the goal of this implementation guide is to provide an overview of how you might select the many teaching resources at your disposal.

So What Assets Can I Chose From?

Generally, a typical class session for any course comprises three touch points: before, during, and after class. For a face-to-face course, your class session would normally be the day you lecture to students. For an online course, the class session would be when you recorded the lecture or when the live lecture is streamed on the Web.

Our teaching resources fall into ten categories:

- **SmartBook 2.0** SmartBook 2.0 makes study time as productive and efficient as possible. Students move between reading and practice modes to learn the content within the chapter. As they progress, the adaptive engine identifies knowledge gaps and offers up content to reinforce areas of weakness. Clickpath in Connect: HOME > Add Assignment > LearnSmart
- **Connect® Exercises (Test Bank and End-of-Chapter)** End-of-chapter problems reinforce chapter content through a variety of question types including questions that make use of the graphing tool. Problems with algorithmic variations are also available.

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Clickpath in Connect: HOME > Add Assignment > Question Bank > Chapter X > Exercises

- **Application-Based Exercises (ABAs)** New immersive real-life scenarios engage students and put them in the role of everyday economists. Students practice their economic thinking and problem-solving skills as they apply course concepts, and see the implications of their decisions as they go. Each activity is designed as a 15-minute experience, unless students eagerly replay for a better outcome.
  Clickpath in Connect: HOME > Add Assignment > Application-Based Activity
- **Economics Videos** The "Connect the Dots" video series takes important economic concepts and explains them in an engaging, relatable manner. Patrick Walsh walks students through examples that help contextualize concepts in ways that make them easier to understand and apply. Each includes a related assessment item to test student understanding.
  Clickpath in Connect: HOME > Add Assignment > Question Bank > Economics Videos
- **Interactive Graph Assignments** These are designed to help students visualize and interpret economic concepts, graphs, and real data. All graphs are accompanied by assignable assessment questions and feedback to guide students through the experience of learning to read and interpret graphs and data.
  Clickpath in Connect: HOME > Add Assignment > Question Bank > Interactive Graphs
- **Economics and Ethics Discussion Questions** Over 60 discussion questions that highlight the challenge of ethical decision making within the economic study of allocating resources. Set-up as multiple-choice questions without a correct answer, just an explanation to help spur discussion. All ethical dilemmas are wrapped around standard economic topics like price discrimination and scalping, the Edgeworth box and Pareto optimality, interest and usury outsourcing, environmentalism as a normal/luxury good, and more.
  Clickpath in Connect: HOME > Add Assignment > Question Bank > Economics and Ethics Discussion Questions

Assigning SmartBook 2.0 and Connect® Exercises

Connect® gives you a wide array of flexibility in making assignments and creating grading policies. You may choose to:

- Assign as many assignments as appropriate.
- Determine point values for each question/application exercise individually.
- Make available multiple attempts per assignment with options of accepting the highest score or averaging all the scores together.

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- Deduct points for late submissions of assignments (percentage deduction per hour/day/week/so forth) or create hard deadlines.
- Show feedback on exercises/questions immediately or at your preference.
- Provide for study-attempts to allow for completion of the assignment after the due date without assigning a point value.

Some recommendations include:

- Before selecting the option for one attempt only, select unlimited or multiple attempts on the first few assignments to allow students a chance to learn and navigate the system.
- Provide a low point value for each question because multiple questions are usually assigned for each chapter. A good rule of thumb would be to make test bank questions worth 1 point each and Connect exercises like the end-of-chapter problems worth 5 to 10 points each because these require more time and thought.
- Select feedback to be displayed after the assignment due date in order to limit students from giving the correct answers to other students while the application exercise is still available.

So When Do I Assign Each Type of Teaching Resource?

Wouldn't it be wonderful if you could transition from simply assigning readings, lecturing, and testing to actually adapting your teaching to student needs? By utilizing the teaching resources outlined below during the three touch points, you can significantly impact students' learning and create a learning environment that is more engaging, involving, and rewarding. In other words, you can now tailor your classrooms to pinpoint and address critical challenges, thereby creating the greatest impact and assisting students develop higher-order thinking skills.

You can identify which of the other resources can be used with the Connect Content Matrix.

Before Class

The learning goals we have for students determine our assignments before, during, and after class. For example, you may want to focus on mastering content, applying content, or using content to solve problems. Alternatively, you may want to achieve all three goals.

A reading assignment—typically a chapter from the product in use—is a student's initial exposure to course content. Requiring students to complete a SmartBook 2.0 module prior to class or an online lecture allows you to gauge their comprehension of the material. Having a better sense *before* class of which concepts your students are "getting" and which ones they are not, allows you to more effectively and efficiently plan your time with them *during* class. To ascertain student competency, use the reporting function of SmartBook 2.0, where you can view general results of their performance.

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Below is a screenshot of a general results report. In the sample report of student comprehension by topic, note the percent of questions answered correctly in the last column of the report.

Sample Report of Student Comprehension by Topic shows you what topics students are struggling with.

Self-study work
Number of assigned items: 73

Chapter section	Average time spent (hh:mm:ss)	Average questions per student correct / total	Correctness 0% 100%
Global Management Managing across Borders	0:05:27	55 / 73	75%
4.1 Globalization: The Collapse of Time & Distance	0:00:41	7 / 8	86%
4.2 You & International Management	0:00:29	5 / 6	82%
4.3 Why & How Companies Expand Internationally	0:01:04	11 / 14	76%
4.4 The World of Free Trade: Regional Economic Cooperation	0:01:35	16 / 21	78%
4.5 The Importance of Understanding Cultural Differences	0:01:36	16 / 24	67%

Additionally, Connect® exercises, such as Problems, Review Questions, Discussion Questions, and Test Banks offer students a second exposure to important sections of the chapter after their completion of a SmartBook 2.0 assignment.

During Class

The Teaching Guide offers a host of additional materials and experiential activities you can use to bring chapter content to life.

Guided Peer Instruction (GPI)

When using GPI, students do some basic preparation as homework—reading and tackling the easier problems at home—and then come to class to work out more difficult problems while you're there to guide them in their analysis. What we want them to do in class is to think beyond the basics in the textbook or in the lecture and learn to think critically and apply economic concepts.

In GPI:

- In-class questions are meant to be harder than the basic homework questions.
- We expect most students will get the questions wrong individually (30% – 50% correct).
- We expect most groups will get the questions right (75% – 85% correct).

Example question from biology:

Think of a large oak tree. Where does most of the mass of the tree come from?

A. The soil

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B. The water

C. The atmosphere

D. Sunlight

The answer is not at all obvious. But if you think long enough, you will perhaps realize that the correct answer is c, the atmosphere. That's because when the tree engages in photosynthesis, it uses sunlight to break up CO2 molecules from the atmosphere. The carbon from those CO2 molecules ends up forming the large majority of the mass of the tree.

However, the answer isn't necessarily important. From the pedagogical point of view, the point of this question is not to assess student understanding but to create it. It has a non-obvious answer that students can't get from just memorizing the book. The answer requires students to build on what they know and apply it. It makes them stretch from rote memorization to application and insight.

Other In-Class Activities

If your goal is content mastery and you are utilizing SmartBook 2.0, you can plan class activities and lectures based on results from the general results report and the metacognitive skills report. This allows for a more tailored class period that enhances student engagement and more opportunities to resolve gaps in knowledge.

If your goal is to jointly engage your students while applying content from the text, you can select a self-assessment follow-up activity (all follow-up activities are found in the Teaching Guide). These assets are especially useful if you are "flipping" your classroom, wherein the class session is used for application and analysis of key concepts rather than lecture.

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After Class

After the face-to-face class session, or online lecture, you can assign Connect® exercises as homework to further reinforce the material covered in the textbook and lecture. You may also want to assign a "Connect the Dots" video if you notice that students are struggling with a particular topic, even after class. To further gauge student comprehension, you can also assign a quiz or exam. The test banks in Connect® focus more on defining and explaining material, and the test banks focus more on application and analysis.

Finally, if you are looking to have students think critically to solve real-world problems, then you may want to utilize an application-based activity after class. Application-based activities are mini-simulations that allow students to make decisions and see their impact immediately. There are both theory-based questions that have right and wrong answers, and there are also branching questions that allow students to make ideal, sub-ideal, and incorrect decisions based on the theory they've learned. A student's particular path in the activity will depend on the decisions made on the branching questions. as Because they do not introduce new material, application-based activities should be utilized after a student has had at least one pass at the chapter content. Rather, they encourage students to apply, analyze, and evaluate material they already understand.

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LEARNING OBJECTIVES

1.1 List the ten key concepts to retain for a lifetime.

1.2 Define economics and the features of the economic perspective.

1.3 Describe the role of economic theory in economics.

1.4 Distinguish microeconomics from macroeconomics and positive economics from normative economics.

1.5 Explain the individual's economic problem and how trade-offs, opportunity costs, and attainable combinations can be illustrated with budget lines.

1.6 List the categories of scarce resources and delineate the nature of society's economizing problem.

1.7 Apply production possibilities analysis.

1.8 Explain how economic growth and international trade increase consumption possibilities.

1.A1.1 (Appendix) Understand graphs, curves, and slopes as they relate to economics.

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OVERVIEW OF CHAPTER 1

This chapter begins with a discussion of the meaning and importance of economics. In this first chapter, however, we will not plunge into problems and issues; instead we consider some important preliminaries. We first look at the economic perspective—how economists think about problems. Next, we examine the specific methods economists use to examine economic behaviour and the economy, including distinguishing between macroeconomics and microeconomics. We then look at the economizing problem from both an individual and societal perspective. For the individual we develop the budget line, for society the production possibilities model. In our discussion of production possibilities, the concepts of opportunity costs and increasing opportunity costs, unemployment, growth, and present versus future possibilities are all demonstrated.

The appendix to Chapter 1 provides an important introduction to graphical analysis. While this will be review material for most students, for some this may be new. Instructors are strongly urged to confirm that their students understand this section before proceeding. The software supplement can provide effective remedial help for those students who are not familiar with graphical analysis, or just need a refresher.

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COMMENTS AND TEACHING SUGGESTIONS

1. This chapter and related classroom activities will set the tone for the rest of the course. The methods used in the initial class meetings set the expectations and attitudes of the students. Making dramatic changes later can be confusing and the outcome less successful than desired. Please refer to the preface for detailed suggestions. If you plan to make current events an integral part of the class, consider offering educational subscriptions to *The Globe and Mail*, or one of the weekly news or business publications such as *The Economist*.

2. On the level of personal decision-making, students might be asked to list all of the economic choices they had to make that day or that week. This impresses upon them that, as Alfred Marshall said in the 1890s, "economics is the study of man in the ordinary business of life." To illustrate the rational basis of their decisions, students could analyze one or two of these choices in terms of the alternatives they gave up. What other choices did they have? What criteria were used to judge the alternatives? A discussion of how rational our decisions are might also follow, providing an opportunity to introduce problems such as imperfect information and short- versus long-term objectives.

3. There are many dimensions to the topic of "utility" that introductory students will benefit from contemplating. With these many dimensions comes the danger in taking students too deep too quickly. It is useful for students to understand that utility may be obtained both through material and nonmaterial means. Accordingly, it may be difficult to express how much one is willing to pay (or otherwise sacrifice) to obtain utility through a given activity.

When discussing rational behaviour, and seemingly irrational decisions, is may be useful to point out that for some people their utility is interdependent. You can have a bit of fun telling students that economists define love as "strongly interdependent utility functions." The main point, of course, is that there are many situations where people obtain utility through seeing others having material and nonmaterial wants satisfied. Likewise, some gain utility from watching others suffer, even if it means that they are themselves worse off in material terms.

If a question arises about the measurement of utility, the distinction between cardinal and ordinal utility can be made, but there is little to be gained from an elaborate discussion. Students may find it interesting that Jeremy Bentham (whom they meet in Origin of the Idea 1.2) envisioned some sort of "util-o-meter," a contraption that one might strap to the head to record brain waves in an attempt to measure utility from an activity. Even suggesting that one might use "utils" as a measure of satisfaction often amuses students and helps them better recall this topic.

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4. As the text suggests, it may be useful to discuss several noneconomic examples to illustrate the importance of models or simplification—for example, explaining that a road map is a model or simplification of the real world. The amount of detail on any road map would be determined by the needs of the traveler, i.e., "I need to travel between Saskatoon and Sudbury as quickly as possible," versus, "I would like to visit some historical museums as I am traveling through Alberta.." Neither road map would have the details of the real world. Devoting some time and effort to this point can help students see the importance of using economic models to represent the real world. You may wish to use the example below.

Concept Illustration – Abstractions and Models

> *"What do you consider the largest map that would be really useful?"*
>
> *"About six inches to the mile."*
>
> *"About six inches!" exclaimed Mein Herr. "We very soon got six yards to the mile. And then came the grandest idea of all! We actually made a map of the country on a scale of a mile to a mile!"*
>
> *"Have you used it much?" I enquired.*
>
> *"It has never been spread out yet," said Mein Herr. "The farmers objected. They said it would cover the whole country and shut out the sunlight!"*

Lewis Carroll
Silvie and Bruno, 1889

In many ways, good economic models are like good maps. Both are abstractions that purposely leave out irrelevant facts and circumstances. Both are useful and practical *because* they simplify complex realities.

Maps not only help us understand geographical relationships but also serve as useful tools. A road map of Canada, for instance, helps us understand where Alberta is located relative to New Brunswick. It also is highly practical in helping us drive between British Columbia and Manitoba.

In much the same way, economic models are helpful and useful. For example, a model indicating how consumers respond to a change in a product's price helps us understand a significant facet of human behaviour. That model also is highly practical; among other things, it identifies the primary way a business can reduce an overstock of unsold goods.

The appropriate map or appropriate economic model is the simplest one that accomplishes a specific goal. Although we may need a highly detailed street map of Edmonton to find a specific residence there, we need only a general road map to drive between Edmonton and Calgary.

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Similarly, we need a highly complex, detailed economic model to predict the economic effects of a general reduction of Canadian tariffs (taxes on imported goods) on the relative outputs of various Canadian industries. In contrast, a much simpler model will suffice to show how a reduced Canadian tariff on imported beef will affect the total consumption of beef in Canada.

You will discover many economic models in your study of economics. The trick is to use the right model for the right purpose. Think of these models as highly useful, highly practical "maps," which help us better understand elements of the highly complex economy.

5. Most students are all too familiar with the problem of scarcity. Although income and time are not resources in the way in which we define resources in economics, these are what are most scarce to students. Explain how making a budget is dealing with the problem of their limited financial resources and their virtually unlimited wants. Other examples can be how businesses choose between two products when allocating their limited resources and choose between two resources when allocating their limited revenues. Further discussion can bring in examples of allocating federal and/or state tax revenues, especially when state revenues compete with funding the state university.

6. To personalize the problem of opportunity cost, ask what else they could be doing during a specific economics class; what are their foregone alternatives? Why might it be more expensive for older students to attend the class than younger ones? Encourage students to find examples of opportunity cost in newspaper articles and magazines. Choice is a necessary part of life; every action has its costs and benefits. Identifying and quantifying these trade-offs is at the heart of economic analysis.

You may also want to use the following illustration to facilitate student understanding of opportunity cost.

Concept Illustration – Opportunity Cost

The concept of opportunity cost can be illustrated through the eyes of a small child. Suppose that a young girl named Amber receives a $30 gift certificate from her grandparents to be used at Toys4Me. The grandparents take the girl to the store, where she spots several toys she would like—all priced above $30. After gaining a sense of what is affordable, Amber narrows her focus to small stuffed animals ($10 each) and picture books ($5 each).

The grandparents tell Amber that she can buy three stuffed animals, six books, or some limited combinations of the two items. She initially settles on one stuffed animal at $10 and four picture books at $5 each. The grandparents assure her that this selection works; it will exactly use up the $30 certificate. Amber takes the goods to the checkout counter.

But while waiting to pay, she changes her mind. She decides she wants another stuffed animal because they are so cute. What should she do? The grandparents tell her to go pick out a second stuffed animal and then return two of her four books to the shelf. She

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makes the exchange, ending up with two stuffed animals at $10 each and two picture books at $5 each.

From an adult's perspective, the second stuffed animal cost $10. But in the eyes of the child, *it cost two picture books*. To get the second stuffed animal, Amber had to give up two books. That sacrifice was the *opportunity cost* of her last-minute decision. Amber's way of looking at cost is one of the fundamental ideas in economics.

7. Current news articles can serve many purposes in a principles class. Most instructors assign a high priority to helping students apply the general principles of economics to the specific problems and decisions they make. Short essays, oral reports, class discussion and longer-term projects are all examples of how current news could be incorporated into the course. A term project focused on current issues such as health care, welfare reform, environmental problems, defense spending, or education can help students develop an appreciation of the problem of scarcity and the trade-offs that need to be considered when formulating public policy.

8. The problems of underdeveloped countries could also be used to illustrate the seriousness of choosing between capital goods and consumer goods. Focusing a project on the problems of a single developing country can be interesting. It would allow students to make many comparisons including the impact of differing economic systems, degree of government regulation, environmental quality standards, differences in resource availability, climate, educational levels, and the choice between consumer and capital goods.

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STUDENT STUMBLING BLOCKS

1. Instructors cannot take for granted students' background knowledge of economics. Students generally have no idea about the magnitude of common economic measurements and, therefore, their reading of the news may be colored by this lack of knowledge. One teaching tip that has worked for others is to give students a pretest during the first week of class, in which simple questions are asked about the Canadian economy. For example, questions can be asked about the size of population and labour force, unemployment and inflation rates, GDP, federal budget, deficits and debt. You will find wildly different answers to these questions with most far away from "ball park" figures. This exercise accomplishes two things. First, it lets students know that they have a lot to learn about "everyday" news items. Second, the correct answers can give them some early perspective on news events as they relate to the course. As the course progresses, don't forget to reinforce these facts by reminding students of them.

2. The specialized definitions in economics sometimes frustrate students, especially when they are familiar with a term in a different context. You may wish to use the following example to help students appreciate that specialized definitions are common in our everyday lives.

Concept Illustration – Specialized Definitions

> *"Then you should say what you mean," the March Hare went on.*
>
> *"I do," Alice hastily replied; "at least I mean what I say—that's the same thing you know."*
>
> *"Not the same thing a bit!" said the Hatter.*
>
> *"Why, you might just as well say that 'I see what I eat' is the same thing as 'I eat what I see!'"*

Lewis Carroll,
Alice in Wonderland, 1865

In an indirect way, the specialized terms used in games such as soccer, baseball, bowling, and so forth provide insights on the study of economics. Consider the game of pool, for example. The following terms are used in pool but have slightly or totally different meanings in everyday language: "pool," "cue," " kiss," "bank," "bridge," "combination," "break," "lag," "run," "rack," "scratch," "chalk," and "rail." Economics, too, uses terms that have different meanings than in everyday usage. In economics "labour" usually means all productive effort, not simply blue-collar workers; "capital" means human-made productive resources, not money used to buy resources. Also, "investment" means spending to pay for production and accumulation of capital goods,

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not purchases of stocks and bonds; “public good” means goods that have special characteristics, not the good of society; and so forth.

Learning to communicate in the game of pool (or any other game) requires learning the meaning of specialized terms. It’s the same with economics! It is not enough to “mean what you say,” in economics. To communicate effectively (and to do well on exams!) you must “say what you mean,” using the precise terms of the discipline.

3. Principles of economics students are often frustrated by the apparent lack of precision and definitive answers in the discipline. Economists establish a framework of rational decision-making based on maximizing utility, only to have that utility be immeasurable, or decision outcomes to be less than optimal because of imperfect information or seemingly irrational behaviour. It is important to help students understand that, among other things, they are gaining more of an analytical toolkit than a set of hard and fast rules or immutable natural laws. To help students appreciate this, it is useful to appeal back to the road map illustration. Using a road map, one can find the shortest (and presumably fastest) route from one point to another. Even if someone has driven a route many times, there are factors such as traffic, weather, and road construction that may cause the otherwise quickest route to be less than ideal for that day’s travel. Maps, like economic models, are often effective at telling people what they need to know. They are, however, limited in their effectiveness by factors beyond view.

4. In the discussion of marginal analysis, students often bring up examples that include “sunk” costs. For example, if you ask students why they came to class, many will answer that they paid tuition and imply that they would somehow lose that money if they didn’t attend. If probed further, however, students will acknowledge that the college is unlikely to refund their money for any missed classes. That doesn’t mean there wouldn’t be future expenditures (paying tuition later to retake a failed class). It also doesn’t mean that there aren’t some psychological benefits to “getting what you paid for,” but many students will erroneously identify that tuition payment as a marginal cost of attending a given day of class. While your intention may be to discuss sunk costs in a later chapter, student questions and discussion may require you to be prepared to introduce the concept earlier.

5. The concept of “full employment” is potentially problematic, particularly for those courses that will eventually cover macroeconomics. The use of the term in this chapter refers to the use of all available resources, human and non-human. In macroeconomics the concept is used to describe general conditions in labour markets and the economy as a whole, but is usually focused on the economy’s use of its human resources. Even then it is recognized that under conditions of full employment there is unemployed labour. There is also the potential for confusion as the concept applies to the land resource. Fully employed deposits of coal or petroleum do not imply exhaustion of those resources. It is more a question of whether there is an adequate amount of these non-human resources available to sustain full employment in labour markets. A full discussion of this is probably not appropriate with students at this point, but you may find it useful to emphasize here that the concept is most often applied to the human

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resources. Then, when the topic arises again (for those covering macroeconomics), students will be less likely to feel that you are changing definitions on them.

6. The production possibilities curve simplifies many concepts for students who don't have "graph anxiety." However, for those who are uncomfortable with graphs, this model may confuse rather than simplify. Computerized tutorials will be especially helpful for these students.

7. Some topics may elicit emotional and/or politically charged responses from students. While one must be sensitive, especially regarding those directly and negatively impacted by those events, it presents an opportunity to demonstrate how economists attempt to detach their emotional and political biases to achieve a more objective economic analysis. It is also an opportunity to point out that the usual role of the economist is to tell us what choices are available, not what choices should be made.

8. The instructor could treat the appendix on graphical analysis as a supplement for those students who have weak backgrounds in reading or constructing simple graphs. There is often a wide disparity among student abilities here. Instructors may wish to have a remedial session and special assignments for students deficient in graphing skills. Comparing graphs to maps seems to help students who have "graph anxiety." Instructors may also administer a math assessment on the basic math skills necessary to succeed in the course early in the course term.

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LECTURE OUTLINE

As opposed to providing a traditional outline, the author team would like to direct instructors to the McConnell 16e PowerPoints to serve as chapter outlines. The chapter PowerPoints offer the most organized outline of the chapter and can be downloaded from the Instructor's Resource page in Connect. Instructors can use their connect username and password to access these resources.

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QUIZ

The following questions are unique to this Teaching Guide and cannot be found in Connect. They are included for instructors who want to provide in-class quizzes or otherwise have some chapter-aligned content available outside of Connect. Many additional auto-graded problems can be found in Connect and can be sorted by difficulty, learning objective, and other criteria.

1. Economics is a social science concerned with:
   A. the best use of scarce resources to achieve the maximum satisfaction of economic wants.
   B. increasing the level of productive resources so there is a minimum level of income.
   C. increasing the level of productive resources so there is maximum output in society.
   D. the best use of scarce resources paid for at the minimum level of cost to consumers and businesses.

   Answer: A

2. A person should consume more of something when its marginal:
   A. benefit exceeds its marginal cost.
   B. cost exceeds its marginal benefit.
   C. cost equals its marginal benefit.
   D. benefit is still positive.

   Answer: A

3. The process of developing hypotheses, testing them against facts, and using the results to construct theories is called:
   A. Opportunity cost calculation
   B. Microeconomics
   C. Marginal analysis
   D. The scientific method

   Answer: D

4. Which is an illustration of a microeconomic question?
   A. What is the current national rate of unemployment?
   B. Is the economy experiencing a decline in the rate of inflation?
   C. Will a new type of television set increase the number of buyers?
   D. Is the production of goods and services in the economy greater this year than last year?

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Answer: C

5. A schedule or curve that shows the various combinations of two products a consumer can purchase with a specific amount of money income is:
   A. A trade-off
   B. A budget line
   C. A tangent point
   D. An optimal output

   Answer: B

6. Which of the following is real capital?
   A. a pair of stockings
   B. a construction crane
   C. a savings account
   D. a share of Shopify stock

   Answer: B

7. A point inside a production possibilities curve best illustrates:
   A. unemployment.
   B. the efficient use of resources.
   C. the use of best-available technology.
   D. unlimited wants.

   Answer: A

8. A normative statement is one that:
   A. is based on the law of averages.
   B. applies only to microeconomics.
   C. applies only to macroeconomics.
   D. is based on value judgments.

   Answer: D

9. The problems of aggregate inflation and unemployment are:
   A. major topics of macroeconomics.
   B. not relevant to the Canadian economy.
   C. major topics of microeconomics.
   D. peculiar to command economies.

   Answer: A

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10. On a production possibilities curve, the single optimal or best combination of output for any society:
    A. Is at a point near the top of the curve
    B. Is at the precise midpoint of the curve
    C. Is at a point near the bottom of the curve
    D. Depends upon the preferences of society

    Answer: D

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