

# Principles of Microeconomics



Sayre  
Morris

# Principles of Microeconomics

**NINTH EDITION**

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**PRINCIPLES OF MICROECONOMICS**  
**Ninth Edition**

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To my first granddaughter:

Addy

(JES)

————— AND —————

To the ones I love:

Brian, Trevor, and in memory of Jean

(AJM)



## ABOUT THE AUTHORS

**John E. Sayre** earned a BSBA at the University of Denver and an MA from Boston University. He began teaching principles of economics while in the Peace Corps in Malawi. He came to Vancouver to do PhD studies at Simon Fraser University and ended up teaching at Capilano University for the next thirty-nine years. John was honoured with the designation of Professor Emeritus by Capilano University in June of 2014. Now retired from Capilano, John is an avid golfer who also enjoys walking with his dog, and listening to New Age and classical music.

**Alan J. Morris**, though loath to admit it, first worked as an accountant in England, where he became an Associate of the Chartered Institute of Secretaries and obtained his first degree in 1971 in Manchester, U.K. He subsequently obtained his Master's degree at Simon Fraser University, B.C., in 1973. He worked on his doctorate at Leicester University, U.K., and returned to work in business in Vancouver, B.C., until his appointment at Capilano University in 1988. Now retired, he currently lives in North Vancouver and is an avid devotee of classical music, birding, soccer, and beer. To his knowledge, he has never been an advisor to the Canadian government.



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## PREFACE

### TO THE STUDENTS

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So, you may well ask, why take a course in economics? For many of you, the obvious answer to this question is, “Because it is a requirement for the program or educational goal that I have chosen.” Fair enough. But there are other reasons. It is a simple truth that if you want to understand the world around you, you have to understand some basic economics. Much of what goes on in the world today is driven by economic considerations, and those who know nothing of economics often simply cannot understand why things are the way they are. In this age of globalization, we are all citizens of the world and we need to function effectively in the midst of the enormous changes that are sweeping across almost every aspect of the social/political/economic landscape. You can either be part of this, and all the opportunities that come with it, or not be part of it because you cannot make sense of it.

It is quite possible that you feel a little apprehensive because you have heard economics is difficult. Though there may be a grain of truth in this, we are convinced that almost any student can succeed in economics if he or she makes the effort.

Here are some tips on the general approach to this course that you might find helpful. First, read the **Economics Toolkit** that appears at the beginning of the book. The section “The Canadian Reality” offers basic information on Canada and its economic picture. “Graphing Reality” gives a quick lesson on graphs, which are an essential part of economics. These two sections will give you a solid foundation on which to build your knowledge of economics.

Second, before each lecture, quickly look over the chapter that will be covered. (In this lookover, you do not need to worry about the glossary boxes, the Added Dimension boxes, the Test Your Understanding questions, or the integrated Study Guide.) Third, take notes as much as you can during the lecture, because the process of forcing yourself to express ideas *in your own words* is a crucial stage in the learning process. Fourth, reread the chapter, again taking notes and using your own words (do not just copy everything word for word). While doing this, refer to your classroom notes and try to integrate them into your reading notes. When you finish, you will be ready to take on the Study Guide.

Painful as it might be to hear, we want to say loud and clear that you should do *all* the questions and problems in the Study Guide. You may be slow at first, but you will be surprised at how much faster you become in later chapters. This is a natural aspect of the learning process. It might be helpful for you to form a study group with one or two other students and meet once or twice a week to do the questions. You may be amazed to find that explaining an answer to a fellow student is one of the most effective learning techniques.

If you ever come across a question you simply cannot understand, it is a sure sign that you need to approach your instructor (or teaching assistant) for help. Do not get discouraged when this happens; it will probably happen more at the beginning of your learning process than later on in the term.

We are convinced that if you follow this process consistently, beginning in the very *first* week of class, you will succeed in the course—and most likely do well. All it takes is effort, time management, and consistent organization.

Finally, an enormous part of becoming educated is gaining self-confidence and a sense of accomplishment. An A in a “tough” economics course can be a great boost. We wish you all the best.

### TO THE INSTRUCTORS

---

**GENERAL PHILOSOPHY** Over the years, we have become increasingly convinced that most economics textbooks are written to impress other economists rather than to enlighten beginning students. Such books tend to be encyclopedic in scope and intimidating in appearance. Small wonder, then, that students often emerge from an economics course feeling that the discipline really is

daunting and unapproachable. We agree that the study of economics is challenging, but our experience is that students can also see it as intriguing and enjoyable if the right approach is taken. It starts with a really good textbook that is concise without sacrificing either clarity or accepted standards of rigour.

In preparing this book, we attempted to stay focused on four guiding principles. The first was to create a well-written text: to write as clearly as possible, to avoid unnecessary jargon, to speak directly to the student, and to avoid unnecessary abstraction and repetition.

Of equal importance was our second principle, a focused emphasis on student learning. Many years of teaching the principles courses have convinced us that students *learn* economics by *doing* it. To this end, Test Your Understanding questions are scattered throughout each chapter. This encourages students to apply what they have just read and gives them continuous feedback on their comprehension of the material being presented. Further, we feel that we offer the most comprehensive and carefully crafted Study Guide on the market, which has evolved over the years as a result of continued use in our own classes. In addition, all the chapter sections end with a Section Summary.

Our third principle has been to avoid making an encyclopedic text. It seems that in an effort to please everyone, authors sometimes include bits and pieces of almost everything. The result is that students are often overwhelmed and find it difficult to distinguish the more important from the less important.

The fourth principle was to avoid problems of continuity that can occur when different groups of authors prepare separate parts of a total package. Accordingly, we are the sole authors of the text, the instructor's manual, and the integrated Study Guide. We have also carefully supervised the development of all supplementary materials. We have tried to ensure that as much care and attention went into the ancillary materials as into the main textbook.

Few things are more satisfying than witnessing a student's zest for learning. We hope that this textbook adds a little to this process.

## NINTH EDITION CHANGES

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There are eight additions or changes in each of the thirteen chapters. First, we have added a new feature, In a Nutshell, a half-page visual (humorous and/or thoughtful) that seeks to convey an important idea found within the chapter. Second, we have added a new feature at the beginning of each Study Guide section entitled What's the Big Idea?, in which we try to present the thrust of the chapter very simply and straightforwardly. Our third addition is a feature called It's News to Me, which consists of a short news item relating to material in the chapter along with two or more multiple-choice questions on the article.

Fourth, the end-of-chapter summaries are gone, replaced by Section Summaries throughout each chapter. Fifth, we have updated all data to the latest available (2016 or 2017). Sixth, we have moved the position of the Comprehensive Problem to the beginning of the Study Problems and provided answers and explanations alongside the question. Seventh, we are pleased to be able to present the Study Guide sections in single columns, which makes them easier to read. Finally, the Study Tips section has been removed from the Study Guide and made available to students on the McGraw-Hill online resource.

- In **Chapter 1**, we have reduced the number of Controversies in Section 1.1 from six to four and tried to give them a more topical slant. We reduced the size of the example of a student's choice of activities and more clearly brought out the point that opportunity cost involves lost benefits. A brief section on the five ways goods and services can be allocated was added. We divided Section 1.5 into two separate sections: The Three Fundamental Questions and Four Types of Economies: The Four Cs (giving both ancient and modern examples of each type). A Great Economists box on Karl Marx was included, as was a new Added Dimension (AD) box, "Just What Is an Economist?" Finally, we have added one more problem to Problems for Further Study.
- In **Chapter 2**, we have changed the name of one of the determinants of supply from "business taxes" to "government taxes and subsidies." Glossary items for the terms "taxes" and "subsidies" were added. In the initial introduction to demand we now include a brief mention of all the other factors—in addition to price—that would also affect quantities demanded. We provided a new AD box, "Just What Is a Product?" We added two new graphical Study Problems that require students to shift curves.

- We have changed **Chapter 3** quite extensively by old deleting Section 3.5, Some Elaborations, as being of only minor significance to most instructors (and students). In addition, we added a new Section 3.6 on quotas and moved some of the material from the discussion of price floors to this new section. We also wrote a new Section 3.7 on taxes and subsidies and moved some of the material from Chapter 4, Section 4.4, on taxes to this new section. In addition, we added three new Test Your Understanding questions, four new Connect Study Problems and two new Problems for Further Study. Finally, we added an AD box on temporary foreign workers and moved the material from the AD box on the minimum wage into the text and rewrote that section.
- In **Chapter 4**, we rewrote Section 4.1 entirely, reducing its size and using simpler numerical examples. We also rewrote and moved Section 4.3 on the determinant of price elasticity into Section 4.1. In addition, we wrote a new Section 4.2 showing how to calculate price elasticity using the same numerical examples from Section 4.1. Finally, we moved Section 4.2 on graphing elasticity to Section 4.3 so that it now comes after the calculation of elasticity, and eliminated the example of the effect of a sales tax since this is now done in Chapter 3.
- In **Chapter 5**, we expanded the explanation of the optimal purchasing rule. We also wrote a new section that extended the conclusion to the numerical example in Section 5.2 and added two graphs to illustrate. We also added an AD box on economic behaviorism.
- In **Chapter 6**, we converted the introductory material into a new Section 1 in which we more clearly define the term “firm” and give examples of five different types of business organizations. As well, in Section 6.5 we more explicitly note that technological change will also shift the short-run curves. We also added an AD box on zero marginal costs and wrote a new Comprehensive Problem.
- In **Chapter 7**, we expanded Section 7.1 and explained in more detail the distinction between the long and the short run and also why a firm might have difficulty relocating. We re-wrote the Section on changes in short- and long-run costs and added a graph showing the effects of a decrease in input prices or technological improvement. We also re-drew Figure 7.4 so that it clearly shows that the LAS is a curve that envelopes the short-run curves. Finally, we shifted Section 7.5 so that it now comes after the section determining on the right size of firm, as it had somewhat interrupted the narrative flow.
- In **Chapter 8**, we expanded the introduction and tightened up Section 2 by eliminating some of the less-important material. We moved the material on average costs from the end of Section 3 into Section 4 and revised Section 4 so that it now illustrates, in order, the break-even price, a profitable firm and shutdown price with a graph for each. We reduced the contents of the AD boxes on competition and the Internet and on perfect competition and the market system.
- In **Chapter 9**, we added calculations to the section on producer and consumer surplus to help clarify the ideas and added a new AD box on day care in Canada. We also revised and updated the AD boxes on the rich and the poor and on Canada’s record on greenhouse gas emissions. In Section 9.4 we added information regarding Canada’s carbon tax. We added a Great Economists box for Richard Lipsey and new questions on consumer and producer surpluses in Test Yourself, Connect Study Problems, and Problems for Further Study.
- In **Chapter 10**, Section 10.1, we changed our example from that of a brewer to that of an ink refill company so as to deal in single, discrete units rather millions. We replaced old Figure 10.9 so that it now depicts the same firm and the same cost increase in both graphs. We also added an AD box on monopolists that are little known to the public.
- In **Chapter 11**, Section 11.3, we more clearly explained the two factors that determine the elasticity of demand for the monopolistically competitive producer. We also replaced Figure 11.3 with two graphs so that the contrast between monopolistic and perfect competition is clearer. We defined and more fully explained the term *franchise* and added a table showing the world’s biggest franchises. In addition, we rewrote and tightened up parts of Section 11.5 and, in doing so, eliminated Table 11.2. Finally, we updated the AD boxes on oil prices and on the world’s largest economic entities.
- In **Chapter 12**, we moved and rewrote the portions on the long-run supply, demand, and productivity from Section 12.2 to Section 12.1 and in doing so made Section 12.1 a self-contained section,

“The Competitive Labour Market.” We moved “The Case for Monopsony” from Section 12.1 to Section 12.2, the latter of which is now titled “Imperfect Labour Markets.” We revised Figure 12.13 so that it more accurately reflects the short- and the long-run supply of oil. We also repositioned Figure 12.4 to be adjacent to Figure 12.3 and more clearly show the link between the two. In addition, we revised the AD boxes on David Ricardo and hockey prices and on the Luddites and the fear of machines, and added a Great Economists box for Schumpeter.

- In **Chapter 13**, we expanded the discussion of the various types of factor endowments and the discussion of trade protection. We revised the AD boxes on Canada as the “Great Trader” and on NAFTA, and added a new box, “Trade, Politics, and the Future.” Study Problem 4 was simplified, and we added a new Test Your Understanding question and a new Study Problem question.

## TEXTBOOK FEATURES

As an initial review, and an ongoing resource, the book opens with the **Economics Toolkit**. The first section, The Canadian Reality, offers basic information on Canada and its economy. The second section, Graphing Reality, provides the student with a primer on how to interpret and create tables and graphs. We have provided a number of features to help the student come to grips with the subject matter.

**Learning Objectives**, listed at the beginning of each chapter, form a learning framework throughout the text, with each objective repeated in the margin at the appropriate place in the body of the chapter. Each chapter opens with a vignette that provides context and an overview.

### LEARNING OBJECTIVES

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

- L01** Explain the concept of demand.
- L02** Explain the concept of supply.
- L03** Explain the term *market*.
- L04** Explain the concept of (price and quantity) equilibrium.
- L05** Demonstrate the causes and effects of a change in demand.
- L06** Demonstrate the causes and effects of a change in supply.
- L07** Explain why demand and supply determine price and the quantity traded, and not the reverse.

**Glossary** terms, given in bold type in the main text, indicate the first use of any term that is part of the language of economics. The Glossary itself appears at the end of the book.

**Test Your Understanding** question boxes appear at important points throughout the body of each chapter. They give students immediate feedback on how well they understand the more abstract concept(s) discussed. In doing this, we have tried to establish what we believe to be a minimum standard of comprehension all students should strive for. Students can check their own progress by comparing their answers with those in the Student Answer Key, which is available on the McGraw-Hill online resource.



### TEST YOUR UNDERSTANDING

Find answers on the McGraw-Hill online resource.

1. The data in the table indicate the weekly demand for litres of soy milk by Al, Bo, and Cole (the only three people in a very small market).
  - a) Fill in the blanks in the table.
  - b) What is the basic shape of the demand curve in this market?
  - c) What is the highest price at which all three will buy at least one litre of milk?

Price	Quantity Demanded: Al	Quantity Demanded: Bo	Quantity Demanded: Cole	Total (Market) Quantity Demanded
\$4.00	1	0	0	_____
3.50	1	1	0	_____
3.00	1	1	1	_____
2.50	2	1	1	_____
2.00	2	2	1	_____

**Added Dimension** boxes identify material that is either general information or supplementary material that we hope adds a little colour to students' reading.



#### ADDED DIMENSION

##### **Just What Is an Economist?**

When a person says "I am an economist" he/she might actually be doing one of a variety of jobs. Broadly speaking these work types fall into four categories.

You are familiar with the first type: *academic economists* who are found teaching in educational institutions. In addition to their teaching duties, these economists also engage in research activities and sometimes are seconded to governments and other organizations for specific projects or advisory duties.

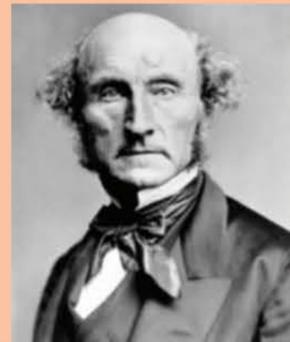
The second type might be called *financial economists*. These work in the many wealth-management firms and often engaged directly with members of the general public to help them plan their retirement or establish a safe, steady flow of income from the money they have acquired through their work or from an inheritance. These economists might also be employed at banks engaging in similar

**Great Economists** boxes include short biographies of some of the major economists, past and present, so that students can have an insight into the lives of the creators of the ideas that are the cornerstones of our discipline.



#### GREAT ECONOMISTS: JOHN STUART MILL

John Stuart Mill (1806–73) is considered the last great economist of the classical school. His *Principles of Political Economy*, first published in England in 1848, was the leading textbook in economics for 40 years. Raised by a strict disciplinarian father (James), John Stuart began to learn Greek at the age of three, authored a history of Roman government by 11, and studied calculus at 12—but did not take up economics until age 13. Not surprisingly, this unusual childhood later led to a mental crisis. Mill credited his decision to put his analytical pursuits on hold and take up an appreciation of poetry as the primary reason for his recovery. He was a true humanitarian, who held a great faith in human progress, had a love of liberty, and was an advocate of extended rights for women.



**A Question of Relevance** boxes relate the material of the chapter to the lifetime experience of the reader.

#### A QUESTION OF RELEVANCE ...

Jon and Ashok are both avid soccer fans and play for local teams. They both like old movies and chess and use Twitter. They are both seventeen years of age, neither has a steady girlfriend, and both are vegetarians. The other thing they have in common is that their fathers are in banking. Jon's father is the executive vice-president of customer relations for the Royal Bank of Canada in Toronto. Ashok's father is a night janitor at a branch of the Bank of India in the dock area of Bombay. All of these points are relevant in forming a mental picture of a person, but you will probably agree that a person's economic circumstances have an enormous impact. In truth, economics is one of the most relevant subjects you will study.

Each chapter's **What's Ahead** box presents a brief summary of the topics to be covered in the chapter.



#### WHAT'S AHEAD ...

In this first chapter, we introduce you to the study of economics and hope to arouse your curiosity about this fascinating discipline. First, we present four controversial statements to illustrate how relevant economics really is. Next, we discuss the nature of the discipline. From this, we derive a formal definition of economics. Then, we examine what efficiency means and why it is so important. The next step is to look at three of the fundamental questions that all societies face and see how four different types of economies address them. Following that, we introduce the production possibilities model, which enables us to illustrate many of these concepts. Finally, we discuss seven important macroeconomic goals and briefly look at the policy tools used to achieve them.

Each **Section Summary** presents a brief review of the main topics of each section.

**SECTION SUMMARY**

- a) Demand is the price–quantity relationship of a product that consumers are willing and able to buy per period of time.
- b) The demand curve is downward sloping because of
  - the substitution effect
  - income effect
- c) Products can be related as
  - complements
  - substitutes
- d) Market demand is the conceptual summation of each individual's demand within a given market.

The **It's News to Me** feature consists of a short news item relating to material in the chapter along with two or more multiple-choice questions on the article.

**IT'S NEWS TO ME ...**

Starbucks Corporation recently announced its plan to raise prices for packaged coffee and over-the-counter cups. They cited an increase in the price of Arabica coffee beans, caused by a severe harvest, as the reason for this action. A spokesperson for Starbucks said that, for both its package coffee and retail business, the overall cost structure was a major determining factor in its pricing policies.

The increased price for the consumer translate into about 10 to 25 cents per over-the-counter cup and \$1 a bag for packaged coffee.

Source: Star Power Reporting, Summer 2016.

I. The increase in price of coffee was the result of

- a) an increase in demand
- b) a decrease in demand
- c) an increase in supply
- d) a decrease in supply

II. The increase in price of coffee beans was the result of

- a) an increase in demand
- b) a decrease in demand
- c) an increase in supply
- d) a decrease in supply

The **In a Nutshell** feature is a half-page visual (humorous and/or thoughtful) that seeks to convey an important idea found within the chapter.

**IN A NUTSHELL ...**

The price of Kenyan Tea (per kilo)

**What Caused it?**

Demand

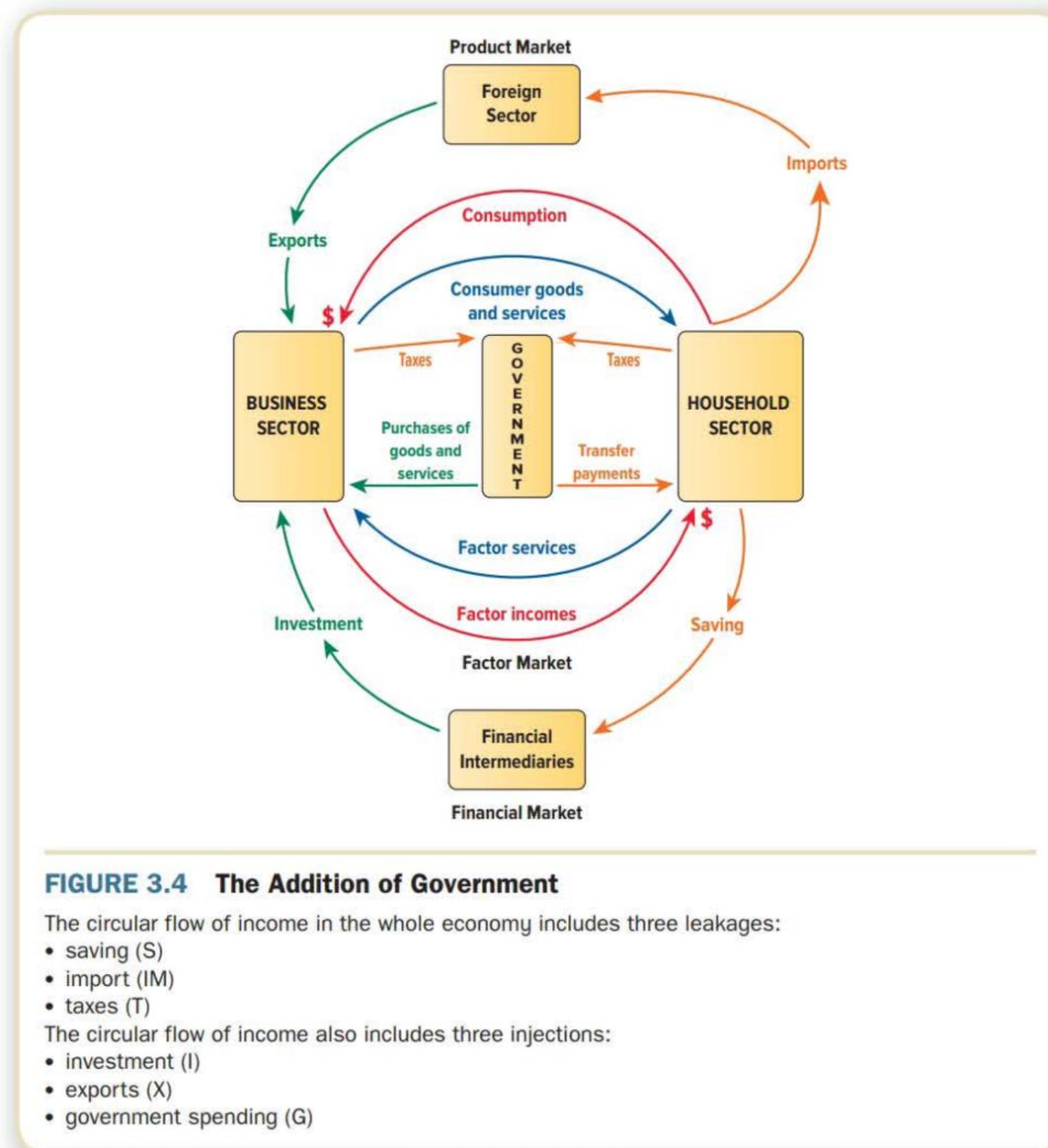
Supply

**Highlighted concepts** are important ideas pulled out and presented in a separate box—signalling to students that this material is particularly relevant and crucial to their understanding.

An increase in price will lead to an increase in the quantity supplied and is illustrated as a movement up the supply curve.

A decrease in price will cause a decrease in the quantity supplied and is illustrated as a movement down the supply curve.

Simple, clear, and uncomplicated **visuals** are found throughout the text, supported by captions that thoroughly explain the concepts.



## Integrated Study Guide Features

As mentioned earlier, we believe that answering questions and doing problems should be an *active part of the students' learning process*. For this reason, we have chosen to integrate a complete study guide within the covers of this text. The **Study Guide** immediately follows each chapter. We have been careful to write the questions in the Guide to cover all the material, but only the material found in the text itself. We hope the Guide's colourful, user-friendly design will encourage significant student participation.

The Study Guide is divided into two sections: a Review and a set of problems. These include a *Comprehensive Problem, Study Problems, and Problems for Further Study*.

The Review section contains a feature called *What's the Big Idea?* that sums up the main idea of the chapter in a student-friendly manner. There is also a section that lists *New Glossary Terms and Key Equations*. *Study Tips* (now on the McGraw-Hill online resource) are organized by learning objective and provide suggestions to help students manage the material in the chapter.



## Review

### WHAT'S THE BIG IDEA?

The production possibilities model is a good way to look at some of the important aspects of economics. Although it is used mostly to describe what happens in an economy, it is equally useful in adding insights to business or everyday life.

Imagine yourself as the CEO of production facility that has a maximum capacity to produce either 1000 trucks or 20/00 SUVs per week and you have decided to produce one-half each kind of vehicle—500 trucks and 1000 SUVs. Things are humming along fine for a while, but this begins to change. You notice that while you continue to sell all of the 1000 SUVs the demand for trucks must have increased, as your orders for more trucks begin to exceed the output of 500 per week. Since

### NEW GLOSSARY TERMS

allocative efficiency	land	productive efficiency
capital	law of increasing costs	profit
consumer goods and services	macroeconomics	rent
enterprise	microeconomics	resources
factors of production	normative statements	scientific method
inputs	opportunity cost	technology
interest	positive statements	wages
labour	production possibilities curve	

The **Comprehensive Problem** addresses several key chapter learning objectives and is complete with answers and explanations.

## Comprehensive Problem

(LO 2, 4, 5) Assume that there is only one movie theatre and only one video streaming outlet in a small mining town in northern Manitoba. The weekly demand, by all the townspeople, for movies and streamed video rentals is given in Table 4.9.

TABLE 4.9

Prices of Movies	Quantity of Movies Demanded	Total Revenue	Prices of Videos	Quantity of Streamed Videos Demanded	Total Revenue
\$3	450	_____	\$2.00	950	_____
4	400	_____	2.50	900	_____
5	350	_____	3.00	825	_____
6	300	_____	3.50	750	_____
7	250	_____	4.00	650	_____
8	200	_____	4.50	550	_____
9	150	_____	5.00	425	_____

The **Study Problems** have been grouped into three learning levels: basic, intermediate, and advanced. Students can judge their progress by working through these problems, and checking their answers against those in the Student Answer Key available on the McGraw-Hill online resource.

## Study Problems

Find answers on the McGraw-Hill online resource.

### Basic (Problems 1–5)

- (LO 1) Given Jan's total utility from consuming packets of potato chips in Table 5.13, calculate her marginal utility for each unit.

TABLE 5.13

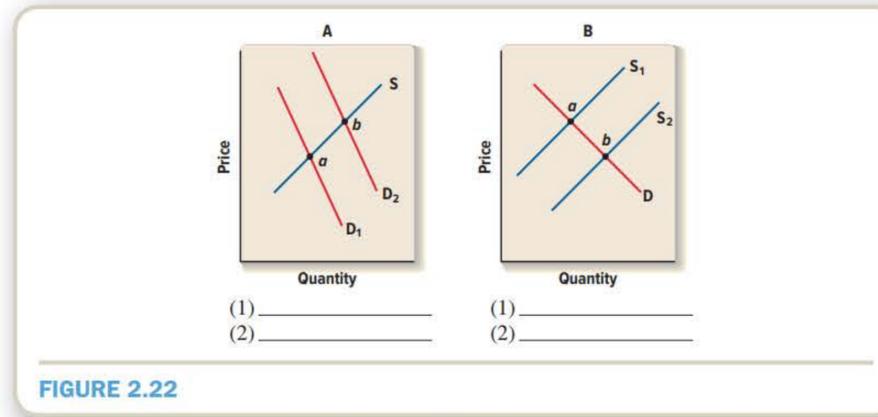
Quantity	Total Utility	Marginal Utility
1	60	_____
2	110	_____
3	140	_____
4	155	_____
5	167	_____
6	177	_____
7	186	_____
8	192	_____
9	195	_____
10	196	_____

Finally, there is a set of **Problems for Further Study** (with answers for instructors found on the McGraw-Hill online resource).

### Problems for Further Study

#### Basic (Problems 1–6)

- (LO 5) Circle which of the following factors will lead to an increase in the demand for cranberry juice (which is a normal good).
  - a decrease in the price of cranberry juice
  - a decrease in the price of cranberries
  - the expectation by consumers that the price of cranberry juice is likely to increase
  - an increase in the price of apple juice
  - an increase in consumers' average income
  - an improvement in the juicing process that lowers the cost of producing cranberry juice
- (LO 1, 2, 5, 6) In each of the two graphs in Figure 2.22, explain the change in equilibrium from *a* to *b* in terms of:
  - an increase (or decrease) in demand (or supply)
  - an increase (or decrease) in the quantity demanded (or quantity supplied)



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For more information, please visit us online: <http://www.mheducation.ca/he/solutions>.

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Most particularly, we wish to acknowledge the continued help and support of Kevin O'Hearn, our Senior Product Manager. Kevin immediately took an active interest in the book, and his desire to make it better is always apparent.

We are pleased to mention the high degree of professionalism displayed by Melissa Hudson, our Product Developer. Working with her involved many pleasant encounters. In addition we acknowledge the work of Jessica Barnoski, our Supervising Editor.

Rodney Rawlings' editing and proofing provided excellent professional skills, which are greatly appreciated.

In the end, of course, any errors or confusion that remain are our responsibility.

Finally, we wish to acknowledge the continued love and support of our families and those close to us.

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- Make smarter decisions by using real-time data to guide course design, content changes, and remediation.



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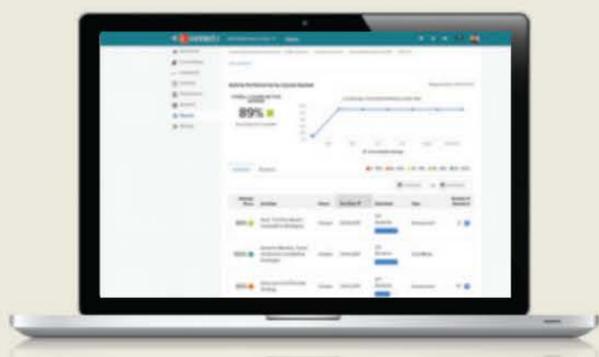
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# ECONOMICS TOOLKIT

Some students take economics because it is a requirement for a program they have chosen or degree they are working toward. Some are interested in a career in business, and taking economics seems like a natural choice. Some even take it because they think that they might like it. Whatever your reasons for taking economics, we are glad you did and hope you will not be disappointed. Economics is a challenging discipline to learn, but it is also one of the most rewarding courses you will ever take. The logic and analysis used in economics is very powerful, and successfully working your way through the principles of economics over the next term will do for your mind what a serious jogging program will do for your body. Bon voyage!

## THE CANADIAN REALITY

---

### The Land

Canada is a huge country—in fact, the second-largest country on this planet. It contains 7 percent of the world's land mass. It stretches 5600 kilometres from the Atlantic to the Pacific Ocean and encompasses six time zones. Ontario alone, which is the second-largest province (after Quebec), is larger than Pakistan, Turkey, Chile, France, or the United Kingdom. Canada's ten provinces range in size from tiny Prince Edward Island to Quebec, which is nearly 240 times as large. In addition, its three territories—the Northwest Territories, Yukon, and Nunavut—demand that we describe this country's reach as being from sea to sea *to sea*.

Within Canada, there are at least six major mountain ranges: the Torngats, Appalachians, and Laurentians in the east, and the Mackenzie, Rocky, and Coast ranges in the west. Any one of these rivals the European Alps in size and grandeur. In addition, Canada has vast quantities of fresh water—9 percent of the world's total—in tens of thousands of lakes and numerous rivers, of which the St. Lawrence and the Mackenzie are the largest.

Canada is richly endowed with natural resources, including gas, oil, gold, silver, copper, iron, nickel, potash, uranium, zinc, fish, timber, and, as mentioned above, water—lots of fresh water. The conclusion is inescapable: Canada is a big, beautiful, and rich country.

### The People

The word *Canada* comes from a Huron-Iroquois word meaning *village*. In a sense this is very appropriate, because, big as the nation is geographically, it is small in terms of population. Its over 35 million people make up only 0.5 percent of the world's population. In fact, there are more people in California or in greater Tokyo than there are in the whole of Canada. Interestingly, Canada's annual

population growth rate, at 1 percent, is the highest among G8 countries, primarily because of Canada's high rate of immigration. Thirty-eight percent of Canadians live in the province of Ontario and 24 percent in Quebec. On the other hand, Prince Edward Island has a population of only 140 000, less than that of the cities of Sherbrooke, in Quebec, or North Vancouver, in British Columbia.

Despite the popular images of small Maritime fishing villages, lonely Prairie grain farmers, or remote B.C. loggers, Canada is, in fact, an urban nation. Over 80 percent of Canadians live in what Statistics Canada calls "urban" areas. There are six Canadian metropolitan areas with populations of over 1 million: Toronto, with 5.6 million; Montreal, with 3.8 million; Vancouver, with 2.3 million; Calgary and Edmonton, each with 1.2 million; and Ottawa–Gatineau, with 1.2 million. It is also true that the vast majority of the nearly 36 million Canadians live in a narrow band stretching along the border with the United States, which, incidentally, is the longest unguarded border in the world.

Approximately half of the Canadian population is active in the labour force. The labour-force participation rate in 2015 was 71 percent for males and 61 percent for females.

## Multiculturalism

Within this vast, thinly populated country there is a truly diverse, multicultural mix of people. This reality was officially recognized in 1988 when Parliament passed the *Multiculturalism Act*.

There are two official languages in Canada, yet 18 percent of Canadians speak a language other than English or French. In fact, at least 60 languages are spoken in this country. In each year of the 2000s, more than 200 000 new immigrants arrived in Canada. Over 18 percent of the entire population are first-generation Canadians. In both Toronto and Vancouver, over half the students in the public school system are from non-English-speaking homes. There are over 100 minority language publications in Toronto, and Vancouver has three daily Chinese-language newspapers.

Canada's First Nations people number 1.1 million (3.8 percent of the total population), and a quarter of them live in Ontario.

## Government

Canada is a constitutional monarchy with a democratic parliament made up of the House of Commons, with 308 elected members, and the Senate, with 105 appointed members. In addition to Parliament, the other two decision-making divisions of the federal government are the Cabinet, composed of the prime minister and 25 (or so) ministers and their departments, and the judiciary, which includes the Supreme Court as well as the federal and tax courts.

Just as there are two official languages in this country, Canada has two systems of civil law—one uncodified and based on common law in English Canada, and the other a codified civil law in Quebec. Canada's current constitution, the first part of which is the *Canadian Charter of Rights and Freedoms*, came into being in 1982, a full 115 years after Confederation created the country in 1867.

The fact that Canada is a confederation means the federal government shares responsibilities with the provinces. For example, while the federal government has jurisdiction in national defence, international trade, immigration, banking, criminal law, fisheries, transportation, and communications, the provinces have responsibility for education, property rights, health, and natural resources. Inevitably, issues arise from time to time that do not fit neatly into any one of these categories, with the result that federal–provincial disputes are a continuous part of the Canadian reality.

## Canada the Good

Most Canadians are well aware that they live in a good country. But perhaps many do not realize just how good. The average family after-tax income is currently over \$74 000, which puts the Canadian living standard among the highest in the world.

The United Nations maintains a Human Development Index that considers factors in addition to average income levels, including lifespans and years of schooling. In 2014, this index ranked Canada as the number nine nation in the world in which to live. One reason for this high ranking is that Canadian governments spend over 10 percent of the country's gross domestic product (GDP) on health care.

More than 70 percent of Canadians own their homes, well over 90 percent are literate, and over 80 percent of all Canadians have access to the Internet. All three of these statistics are among the highest in the world.

## Canada the Odd

Canada is a good country in which to live; however, it does have its oddities. In 1965–98 years after Confederation—it was decided that Canada really should have a national flag. A parliamentary selection committee was set up to choose one, and received no less than two thousand designs. The flag debate was acrimonious, to say the least, although today most Canadians seem quite comfortable with the Maple Leaf. The English-language lyrics of Canada's national anthem, "O Canada," were formally approved only in 1975. Canada adopted the metric system of measurement in the 1970s. But the imperial system is still in wide use; for example, Statistics Canada still reports the breadth of this country in miles, we sell sizes of wood in inches (such as  $2 \times 4$ s), and football fields are 110 yards long.

In this bilingual country, it is odd to note that there are more Manitobans who speak Cree than British Columbians who speak French. In this affluent country of ours, it is also interesting to note that 4 percent of Canadian homes are heated exclusively by burning wood. Canada's official animal is—the beaver.

On a more serious note, it is a sad fact that the trade of many goods, and even some services, between any one province and the United States is freer than trade between provinces. There is an interesting history concerning trade patterns in North America. At the time of Confederation, trade patterns on this continent were mostly north–south. The Maritimes traded with the New England states, Quebec with New York, Ontario with the Great Lakes states to its south, and the West Coast with California. Canada's first prime minister, John A. Macdonald, was also elected as its third. During his second administration, he implemented his party's National Policy, which resulted in (1) the building of a railway to the west coast, which encouraged British Columbia to join Canada; (2) an offer of free land to new immigrants on the prairies in order to settle this area; and (3) the forcing of trade patterns into an east–west mode by erection of a tariff wall against American imports. British Columbia did join Confederation; people were enticed to settle in Manitoba, Saskatchewan, and Alberta; and the pattern of trade did become more east–west.

So was the National Policy a success? Some would argue yes, pointing out that it built a nation and that Canada as we know it might not exist today without it. Others are not so sure, and would argue that it set back Canada's development by encouraging and protecting new, less efficient industries through the creation of a branch-plant economy. This occurred because American firms that had previously exported to Canada simply jumped over the tariff walls and established Canadian branch plants. Some believe that the National Policy also promoted Canadian regionalism and aggravated relations between regions because both the West and the Maritimes felt that most of its economic benefits favoured central Canada.

In any case, as a result of the North American Free Trade Agreement (NAFTA) of 1992, trade with the United States (and Mexico) is now mostly without tariffs and north–south trade patterns are re-emerging. Historically, Canadian policy has come full circle. However, the trade barriers between provinces, which were built piece by piece over a century, remain.

## The Economy

Canada is among the ten largest economies in the world, despite its small population. In 2015, Canada's GDP was \$1983 billion. This figure can be broken down as illustrated in [Table T.1](#).

Category	Amount (\$billions)	% of GDP
Personal expenditures	1140	57.5
Investment spending	389	19.6
Government spending	500	25.2
Exports	547	31.5
Less imports	583	33.8
Net exports	<46>	<2.3>
Total GDP	1983	

Source: Adapted by the authors from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Table 380-0064, July 5, 2016.

The provincial breakdown of the 2015 GDP figure of \$1983 billion is shown in [Table T.2](#).

Province	Population (millions)	GDP (\$billions)	GDP per Capita (\$thousands)
Newfoundland (and Labrador)	0.53	30.1	56.8
Prince Edward Island	0.15	6.2	41.3
Nova Scotia	0.94	40.2	42.8
New Brunswick	0.75	33.1	44.1
Quebec	8.26	381.0	46.1
Ontario	13.80	763.3	55.3
Manitoba	1.30	65.9	50.7
Saskatchewan	1.13	79.4	70.3
Alberta	4.18	326.4	78.1
British Columbia	4.69	250.0	53.3
Yukon	0.04	2.7	72.5
Northwest Territories (pre-Nunavut)	0.04	4.8	109.1
Nunavut	0.04	2.5	67.0

Source: Adapted by the authors from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Tables 384-0038 and 051-0001, May 11, 2017.

This table illustrates the wide disparity in GDP per capita between provinces, from a low of \$41 300 per person in Prince Edward Island to a high of \$78 100 in Alberta.

In most years the economy grows and the GDP figure rises. To accurately compare growth in GDP, however, we need to use a common set of prices so that a simple rise in prices is not confused with an actual increase in the output of goods and services. Using *real* GDP figures, which correct for inflation, accomplishes this. [Table T.3](#) looks at some recent real GDP figures, using 2007 prices.

Year	Real GDP (\$billions)	Increase/Decrease (\$billions)	% Increase
2011	1640	+47	+3.0
2012	1669	+29	+1.8
2013	1706	+37	+2.2
2014	1748	+42	+2.5
2015	1767	+19	+1.1

Source: Adapted by the authors from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Table 380-0064, July 5, 2016.

Next, let us look at a breakdown of Canada's GDP by industry in [Table T.4](#), presented in order of importance.

TABLE T.4

Industry	Percentage of GDP
Real estate	12.9
Trade (wholesale and retail)	11.1
Manufacturing	10.6
Professional and technical	8.7
Mining/oil	8.1
Construction	7.2
Finance and insurance	7.0
Health	6.8
Public administration	6.5
Education	5.2
Transportation	4.3
Information and cultural	3.1
Utilities	2.3
Accommodation and food	2.1
Other services	2.0
Agriculture, fishing, and forestry	1.6
Arts and entertainment	0.7

Source: Adapted from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Table 379-0031, July 5, 2016.

This information is helpful in many ways. For example, it is certainly time to put to rest the idea that Canada is a resource-based economy and that Canadians are simply “hewers of wood and drawers of water,” as many of us were taught in school. In fact, agriculture/fishing/forestry and mining/oil make up less than 10 percent of our economy’s GDP. Only 4 percent of working Canadians are employed in primary industries, down dramatically from 13 percent a quarter of a century ago.

In contrast, one can marshal the argument that Canada is quite a sophisticated and technologically advanced economy. For example, it is not generally recognized that Canada was the world’s third nation to go into space, with the *Alouette I* satellite in 1962. Canadian industries pioneered long-distance pipeline technology, and Canada is a world leader in several areas of aviation, including turboprop, turbofan, and firefighting aircraft, not to mention the well-known Canadarm used on space shuttles. Canada is also a world leader in commercial submarine technology, and routinely maintains one of the world’s longest and most efficient railway systems.

One can also point to many outstanding Canadian companies that are truly world leaders in technology and performance, including Bombardier in transportation equipment, Ballard Power in fuel cell technology, SNC Lavalin in aluminum plant design, Rio Tinto in mining, Trizec Hahn in real estate development, and Magna International in automobile parts manufacturing.

## Exports: The Engine That Drives the Economy

Exports are a fundamental part of the Canadian economy. Over 30 percent of its GDP is exported, which makes Canada one of the world’s greatest trading nations. Exports to the United States alone directly support over 1.5 million Canadian jobs, and a \$1 billion increase in exports translates into 11 000 new jobs. Again, contrary to historical wisdom, only 25 percent of Canadian exports are resources—the figure was 40 percent a quarter of a century ago.

**Table T.5** breaks down the \$625 billion worth of goods and services Canada exported in 2015 into nine categories in order of size.

TABLE T.5

Export Category	Percentage of Total Exports
Industrial goods	18.0
Services	16.0
Automotive products	14.0
Machinery and equipment	13.7
Energy products	13.4
Consumer goods	11.2
Forestry products	6.4
Agricultural and fishing products	5.1
Others	2.3

Source: Adapted from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Tables 228-0059, July 5, 2016.

## A Mixed Economy

At the start of the twenty-first century, the market system dominates most of the world's economies, and Canada is no exception. Yet government also plays a big role in our economy. For example, in 2009 the three levels of government collected \$586 billion in tax revenue, which represented over 38 percent of Canada's 2009 GDP. [Table T.6](#) shows the sources and the uses of this revenue.

TABLE T.6

Government Revenues	% of Total	Government Expenditures	% of Total
Personal income taxes	32.3	Social services	25.6
Consumption taxes	18.3	Health	20.5
Property taxes	9.4	Education	16.1
Investment income	9.2	Protection of persons and property	8.5
Sales of goods and services	9.2	Debt charges	7.6
Corporate incomes taxes	8.5	Environment	6.3
Social security premiums	6.0	Transportation	5.4
Other taxes	5.3	Government services	3.8

Source: Adapted by the authors from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Table 385-0001, January 12, 2011.

The largest single source of the government's tax revenue, 32 percent, was personal income taxes. Consumption taxes include, most significantly, the GST (goods and services tax) and the PST (provincial sales tax) as well as gasoline, alcohol, and tobacco taxes, customs taxes, and gaming income. These indirect (consumption) taxes accounted for 18 percent of total revenue. Thus, we can see that the majority of the government's tax revenue comes from individual Canadians in the form of direct income taxes or consumption taxes.

And how does government spend these billions of dollars of tax revenue? The right column of [Table T.6](#) shows us.

Here, we see that government's largest single category of spending, 26 percent, was on social service payments to individuals. The lion's share of this expenditure (approximately two-thirds) was social services (pensions, unemployment benefits, and welfare) payments. Thus, we see that a large percentage of spending by government is an attempt to direct income to poorer Canadians. Since all Canadians pay for most of these expenditures, we can see that government is actively involved in

*transferring* income from higher-income to lower-income families and individuals. This income distribution role is seen by many Canadians as an important function of government.

On the other hand, some Canadians take the view that government has gone too far in its interventionist role and yearn for less governmental involvement in the economy. They often point to the United States as an example of an economy in which welfare, unemployment, and pension payments to individuals and direct government aid to poor regions of the country are lower. The difference in the general approach of the two governments may well lie in historical differences in the attitudes of Canadians and Americans toward government. Over the years, Canadians, by and large, have trusted governments to act in their best interests and have been more tolerant of government attempts at income redistribution. Americans, on the other hand, have a history of being suspicious of big government and have repeatedly rejected attempts to expand its role. The recent controversy in the United States over attempts to implement a national health care (Obamacare) policy is an example. Another is the Canadian government's direct aid to cultural endeavours, including the funding of national television and radio networks, while no such efforts exist in the United States.

The next two largest categories of spending are on two essentials, health and education. In 2009, the Canadian government allocated 21 and 16 percent of spending in these two areas. The fourth category, protection of persons and property, includes expenditures on the military, police, fire departments, court system, and prisons. Interest on the national debt was the fifth-biggest item of spending at just under 8 percent. The amount spent in this area has steadily declined in the last few years as Canada has started to get government budget deficits under control. (As recently as 1998, servicing the national debt amounted to as much as 30 percent of total spending.) The other categories include a host of such items as culture (the Canada Council), housing, foreign affairs, immigration, labour, and research.

This completes our brief look at the Canadian economic reality. We hope that it has helped fill in some gaps in your knowledge of the country. We are confident that you will come to know your country much better after a thorough grounding in the principles of economics, for, in a very real sense, economics is about understanding and improving on what we already know.

## GRAPHING REALITY

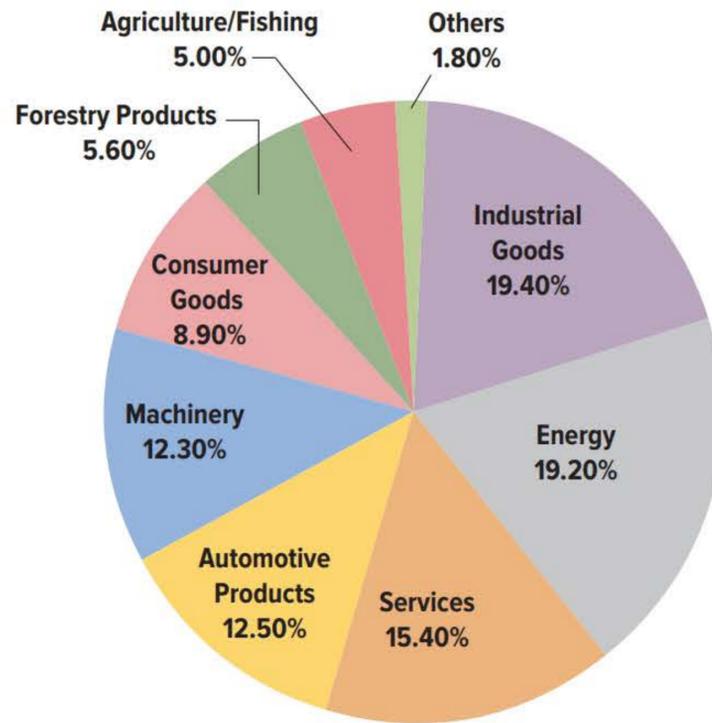
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Let's face it, a lot of students hate graphs. For them a picture is not worth a thousand words. It may even be true that they seem to understand some economic concepts just fine until the instructor draws a graph on the board. All of a sudden, they lose confidence and start to question what they previously thought they knew. For these students, graphs are not the solution but the problem. This section is designed to help those students overcome this difficulty. For those other, more fortunate students who can handle graphs and know that they are used to illustrate concepts, a quick reading of this section will reinforce their understanding.

It is probably true that if an idea can be expressed clearly and precisely with words, then graphs become an unnecessary luxury. The trouble is that, from time to time, economists find themselves at a loss for words and see no way of getting a certain point across except with the use of a graph. On the other hand, by themselves graphs cannot explain everything; they need to be accompanied by a verbal explanation. In other words, they are not a substitute for words but a complement. The words accompanied by a picture can often give us a much richer understanding of economic concepts and happenings.

### Graphing a Single Variable

The graphing of a single variable is reasonably straightforward. Often, economists want to concentrate on a single economic variable, such as Canada's exports, or consumers' incomes, or the production of wine in Canada. In some cases, they want to look at the composition of that variable, say different categories of exports. In other cases, they are interested in seeing how one variable changed over a period of time, such as total exports for each of the years 2005 through 2009. In the first instance, we would be looking at a cross-section; in the second instance, we are looking at a time series.



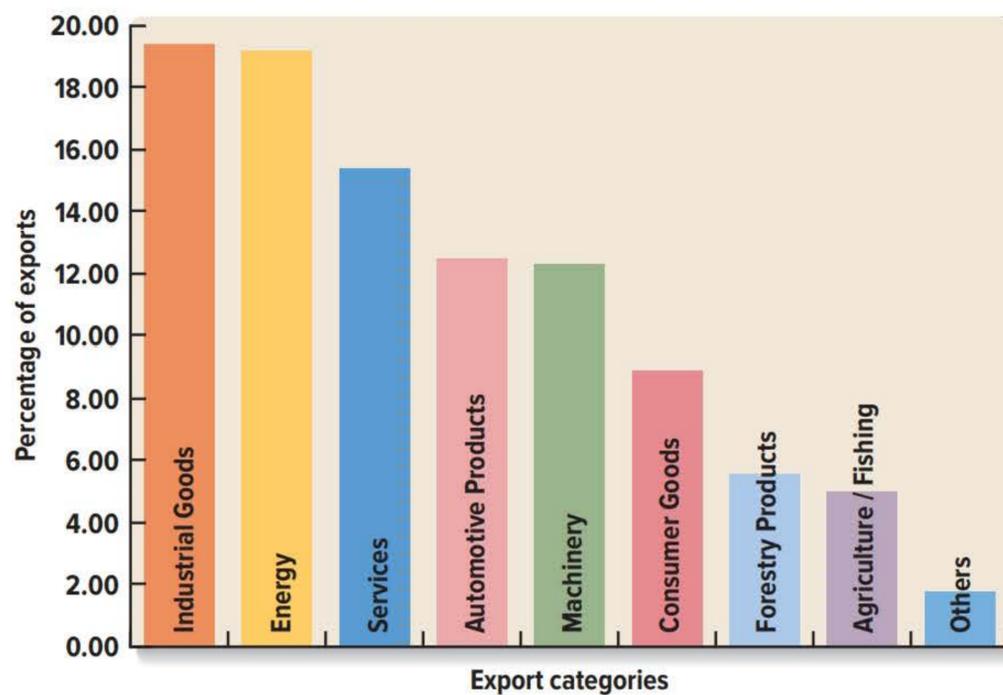
**FIGURE T.1** Composition of Canadian Exports, 2012

Source: Adapted from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Tables 228-0059, January 9, 2014.

## Cross-Sectional Graphs

One popular way of showing cross-sectional data is in the form of a pie chart. **Figure T.1**, for instance, shows the composition of Canada's exports for 2012 in terms of the type of goods or services that Canada sells abroad. (This is the same data as presented in **Table T.5**. Which presentation format—table or graph—do you prefer? Which do you find easier to read and understand?) The size of each slice indicates the relative size of each category of exports. But the picture by itself is not 'always enough. We have added the percentage of total exports that each type represents. Note, however, that there are no dollar amounts for the categories.

Alternatively, the same information could be presented in the form of a bar graph, as in **Figure T.2**. Unlike the pie chart, the bar graph allows us to more easily compare the relative sizes of each category since they are now placed side by side.



**FIGURE T.2** Composition of Canadian Exports, 2012

Source: Adapted from the Statistics Canada CANSIM database, <http://cansim2.statcan.ca>, Tables 228-0059, January 11, 2011.