

Seventh Canadian Edition

PRINCIPLES OF
macro
ECONOMICS

MANKIW KNEEBONE McKENZIE

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PART 6: THE MACROECONOMICS OF OPEN ECONOMIES

- Chapter 12** Open-Economy Macroeconomics:
Basic Concepts ————— *A nation's economic interactions with other nations are described by its trade balance, net foreign investment, and exchange rate.*
- Chapter 13** A Macroeconomic Theory of
the Small Open Economy ————— *A long-run model of the small open economy explains the determinants of the trade balance, the real exchange rate, and other variables.*

PART 7: SHORT-RUN ECONOMIC FLUCTUATIONS

- Chapter 14** Aggregate Demand and
Aggregate Supply
- Chapter 15** The Influence of Monetary
and Fiscal Policy on Aggregate
Demand
- Chapter 16** The Short-Run Tradeoff between
Inflation and Unemployment
- The model of aggregate demand and aggregate supply explains short-run economic fluctuations, the short-run effects of monetary and fiscal policy, and the short-run linkage between real and nominal variables.*

PART 8: FINAL THOUGHTS

- Chapter 17** Five Debates over
Macroeconomic Policy ————— *A capstone chapter presents both sides of five major debates over economic policy.*

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N. Gregory Mankiw

HARVARD UNIVERSITY

Ronald D. Kneebone

UNIVERSITY OF CALGARY

Kenneth J. McKenzie

UNIVERSITY OF CALGARY



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Anne Williams

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To Catherine, Nicholas, and Peter, my other
contributions to the next generation

To our parents and Cindy, Kathleen, and Janetta—
thanks for your support and patience

ABOUT THE AUTHORS



Kevin LeBlanc

N. Gregory Mankiw is Professor of Economics at Harvard University. As a student, he studied economics at Princeton University and MIT. As a teacher, he has taught macroeconomics, microeconomics, statistics, and principles of economics. He even spent one summer long ago as a sailing instructor on Long Beach Island.

Professor Mankiw is a prolific writer and a regular participant in academic and policy debates. His work has been published in scholarly journals such as the *American Economic Review*, *Journal of Political Economy*, and *Quarterly Journal of Economics*, and in more popular forums such as *The New York Times*, *The Financial Times*, *The Wall Street Journal*, and *Fortune*. He is also author of

the best-selling intermediate-level textbook *Macroeconomics* (Worth Publishing). In addition to his teaching, research, and writing, Professor Mankiw has been a research associate of the National Bureau of Economic Research, an adviser to the Federal Reserve Bank of Boston and the Congressional Budget Office, and a member of the Educational Testing Service (ETS) test development committee for the advanced placement exam in economics. From 2003 to 2005, he served as Chairman of the President's Council of Economic Advisers.

Ronald D. Kneebone is Professor in the Department of Economics and the School of Public Policy at the University of Calgary. He received his Ph.D. from McMaster University. Professor Kneebone has taught courses in public finance and in macroeconomics from principles through to the Ph.D. level, and he is a two-time winner of the Faculty of Social Sciences Distinguished Teacher Award at the University of Calgary. His research interests are primarily in the areas of public-sector finances and fiscal federalism, but he has recently worked on the problems of homelessness and poverty reduction. He shared with Ken McKenzie the Douglas Purvis Memorial Prize for the best published work in Canadian public policy in 1999. Since 2008, he has been Director of Economic and Social Policy Research in The School of Public Policy at the University of Calgary.

Kenneth J. McKenzie is Professor in the Department of Economics and The School of Public Policy at the University of Calgary. He received his Ph.D. from Queen's University. Specializing in public economics with an emphasis on taxation and political economy, Professor McKenzie has published extensively in these areas. He is the winner of the 1996 Harry Johnson Prize (with University of Calgary colleague Herb Emery) for the best article in the *Canadian Journal of Economics*, a two-time winner of the Douglas Purvis Memorial Prize for a published work relating to Canadian public policy (1999 with Ron Kneebone and 2011 with Natalia Sershun), and a Faculty of Social Sciences Distinguished Researcher Award winner at the University of Calgary. Professor McKenzie has taught microeconomics and public economics from the principles to the graduate level, and has received several departmental teaching awards.

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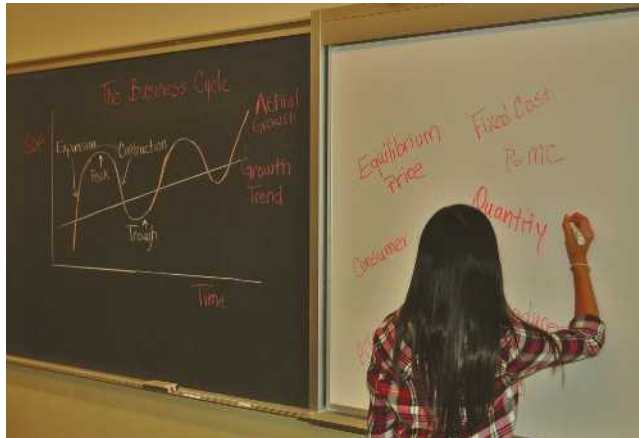
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As soon as we got our hands on the first U.S. edition of *Principles of Macroeconomics*, it was clear to us that “this one is different.” If other first-year economics textbooks are encyclopedias, Gregory Mankiw’s was, and still is, a handbook.

Between us, we have many years of experience teaching first-year economics. Like many instructors, we found it harder and harder to teach with each new edition of the thick, standard texts. It was simply impossible to cover all of the material. Of course, we could have skipped sections, features, or whole chapters, but then, apart from the sheer hassle of telling students which bits to read and not to read, and worries about the consistencies and completeness of the remaining material, we ran the risk of leaving students with the philosophy that what matters is only what’s on the exam.

We do not believe that the writers of these other books set out with the intention of cramming so much material into them. It is a difficult task to put together the perfect textbook—one that all instructors would approve of and that all students would enjoy using. Therefore, to please all potential users, most of the books end up covering a wide range of topics. And so the books grow and grow.

Professor Mankiw made a fresh start in the first U.S. edition. He included all the important topics and presented them in order of importance. And in the seventh U.S. edition, he has resisted the temptation to add more and more material. We have, in adapting the text for Canadian students, taken a minimalist approach: “If it isn’t broken, don’t fix it!” While the book is easily recognizable as Mankiw’s, we have made changes that increase its relevance to Canadian students. Some of these changes reflect important differences between the Canadian and U.S. economies. For example, the Canadian economy is much smaller and more open than the U.S. economy, and this fact is explicitly recognized in this edition. Other changes reflect important institutional differences between the two countries, including the structure of the tax system and the nature of competition policy. Finally, the Canadian edition focuses on issues and includes examples that are more familiar and relevant to a Canadian audience.

We would not have agreed to participate in the Canadian edition if we were not extremely impressed with the U.S. edition. Professor Mankiw has done an outstanding job of identifying the key concepts and principles that every first-year student should learn.

It was truly a pleasure to work with such a well-thought-out and well-written book. We have enjoyed teaching from the earlier Canadian editions and we look forward to using the seventh Canadian edition. We hope you do, too.

How the Book Is Organized

To write a brief and student-friendly book, Mankiw considered new ways to organize familiar material. What follows is a whirlwind tour of this text. This tour, we hope, will give you a sense of how the pieces fit together.

Introductory Material

Chapter 1, “Ten Principles of Economics,” introduces students to the economist’s view of the world. It previews some of the big ideas that recur throughout economics, such as opportunity costs, marginal decision making, the role of incentives, the gain from trade, and the efficiency of market allocations. Throughout the text an effort is made to relate the discussion back to the ten principles of economics introduced in Chapter 1. The interconnections of the material with the ten principles are clearly identified throughout the text.

Chapter 2, “Thinking Like an Economist,” examines how economists approach their field of study, discussing the role of assumptions in developing a theory and introducing the concepts of an economic model. It also discusses the role of economists in making policy. The appendix to this chapter offers a brief refresher course on how graphs are used and how they can be abused.

Chapter 3, “Interdependence and the Gains from Trade,” presents the theory of comparative advantage. This theory explains why individuals trade with their neighbours, as well as why nations trade with other nations. Much of economics is about how market forces coordinate many individual production and consumption decisions. As a starting point for this analysis, students see in this chapter why specialization, interdependence, and trade can benefit everyone.

The Fundamental Tools of Supply and Demand

The next chapter introduces the basic tools of supply and demand. Chapter 4, “The Market Forces of Supply and Demand,” develops the supply curve, the demand curve, and the notion of market equilibrium.

More Macroeconomics

Our overall approach to teaching macroeconomics is to examine the economy in the long run (when prices are flexible) before examining the economy in the short run (when prices are sticky). We believe that this organization simplifies learning macroeconomics for several reasons. First, the classical assumption of price flexibility is more closely linked to the basic lessons of supply and demand, which students have already mastered. Second, the classical dichotomy allows the study of the long run to be broken up into several more easily digested pieces. Third, because the business cycle represents a transitory deviation from the economy’s long-run growth path, studying the transitory deviations is more natural after the long-run equilibrium is understood. Fourth, the macroeconomic theory of the short run is more controversial among economists than the macroeconomic theory of the long run. For these reasons, most upper-level courses in macroeconomics now follow this long-run-before-short-run approach; our goal is to offer introductory students the same advantage.

Returning to the detailed organization, we start the coverage of macroeconomics with issues of measurement. Chapter 5, “Measuring a Nation’s Income,” discusses the meaning of gross domestic product and related statistics from the national income accounts. Chapter 6, “Measuring the Cost of Living,” discusses the measurement and use of the consumer price index.

The next three chapters describe the behaviour of the real economy in the long run. Chapter 7, “Production and Growth,” examines the determinants of the large variation in living standards over time and across countries. Chapter 8, “Saving, Investment, and the Financial System,” discusses the types of financial institutions in our economy and examines their role in allocating resources. Chapter 9, “Unemployment and Its Natural Rate,” considers the long-run determinants of

the unemployment rate, including job search, minimum-wage laws, the market power of unions, and efficiency wages.

Having described the long-run behaviour of the real economy, the book then turns to the long-run behaviour of money and prices. Chapter 10, “The Monetary System,” introduces the economist’s concept of money and the role of the central bank in controlling the quantity of money. Chapter 11, “Money Growth and Inflation,” develops the classical theory of inflation and discusses the costs that inflation imposes on a society.

The next two chapters present the macroeconomics of open economies, maintaining the long-run assumptions of price flexibility and full employment. Chapter 12, “Open-Economy Macroeconomics: Basic Concepts,” explains the relationship among saving, investment, and the trade balance; the distinction between the nominal and real exchange rate; and the theory of purchasing-power parity. Chapter 13, “A Macroeconomic Theory of the Small Open Economy,” presents a classical model of the international flow of goods and capital. The model sheds light on various issues, including the link between budget deficits and trade deficits and the macroeconomic effects of trade policies. Because instructors differ their emphasis on this material, these chapters are written so that they can be used in different ways. Some may choose to cover Chapter 12 but not Chapter 13, others may skip both chapters, and still others may choose to defer the analysis of open-economy macroeconomics until the end of their courses.

After fully developing the long-run theory of the economy in Chapters 5 through 13, the book turns to explaining short-run fluctuations around the long-run trend. This organization simplifies teaching the theory of short-run fluctuations because, at this point in the course, students have a good grounding in many basic macroeconomic concepts. Chapter 14, “Aggregate Demand and Aggregate Supply,” begins with some facts about the business cycle and then introduces the model of aggregate demand and aggregate supply. Chapter 15, “The Influence of Monetary and Fiscal Policy on Aggregate Demand,” explains how policymakers can use the tools at their disposal to shift the aggregate-demand curve. Chapter 16, “The Short-Run Tradeoff between Inflation and Unemployment,” explains why policymakers who control aggregate demand face a tradeoff between inflation and unemployment. It examines why this tradeoff exists in the short run, why it shifts over time, and why it does not exist in the long run.

The book concludes with Chapter 17, “Five Debates over Macroeconomic Policy.” This capstone chapter considers controversial issues facing policymakers: the proper degree of policy activism in response to the business cycle, the choice between rules and discretion in the conduct of monetary policy, the desirability of reaching zero inflation, the importance of reducing the government’s debt, and the need for tax reform to encourage saving. For each issue, the chapter presents both sides of the debate and encourages students to make their own judgments.

The purpose of this text is to help students learn the fundamental lessons of economics and to show how such lessons can be applied to the world in which they live. Toward that end, various learning tools recur throughout the book.

Chapter Openers Well-designed chapter openers act as previews that summarize the major concepts to be learned in each chapter.



CHAPTER 4

The Market Forces of Supply and Demand

LEARNING OBJECTIVES

In this chapter, you will ...

- 1 Learn the nature of a competitive market
- 2 Examine what determines the demand for a good in a competitive market
- 3 Examine what determines the supply of a good in a competitive market
- 4 See how supply and demand together set the price of a good and the quantity sold
- 5 Consider the key role of prices in allocating scarce resources in market economies

virtuous circle in the late 1990s and early 2000s. This enabled federal election campaigns during the early to mid-2000s to be fought over the choices that a virtuous circle provides: tax cuts versus spending increases versus debt reduction.

By 2008, the effects of a financial crisis that significantly slowed economic growth around the world began to be felt in Canadian government budgets. After 12 straight years of surpluses, the federal budget fell into deficit in 2009. At the time, most analysts believed the economy would require only a few years before it improved enough to return the budget to surplus. Early in 2016, however, a new government announced its intention to run large deficits in the hope of stimulating economic activity. The return to balanced federal budgets now seems unlikely for some years to come.

case study **The Accumulation of Government Debt in Canada**
Budget deficits became a chronic problem in Canada only in the mid-1970s. From 1950 to 1974, the federal government ran budget surpluses as often as it ran budget deficits. These budget imbalances were generally small. In 1975, the federal government posted a large deficit and did so in every year until 1997. Between 1975 and 1997, the federal government accumulated about \$550 billion in debt. In 1997, the string of deficits was broken and the federal government reported a budget surplus of \$3.0 billion—the first time in 28 years that the federal government has actually paid down a portion of its debt. Between 1997 and 2008, the federal government ran a string of surpluses that enabled it to reduce its debt by over \$90 billion. After 2008, however, the federal government returned to budget deficits. Between 2008 and 2014, the federal government added \$166 billion to its net debt.

Figure 8-5 shows the net debt of the federal government and the combined net debts of the provinces and territories as a percentage of GDP. **Government net debt** is the difference between the value of the financial liabilities and the value of the financial assets it owns. Throughout the 1950s and until 1975, the federal government's debt-to-GDP ratio declined. Although the federal government ran budget deficits during many of these years, the deficits were small enough that the government's debt grew less rapidly than the overall economy. Because GDP is a rough measure of the government's ability to raise tax revenue, a declining debt-to-GDP ratio indicates that the economy is, in some sense, living within its means. By contrast, in the years following 1975 when the federal government's budget deficit ballooned, the debt started rising more rapidly than the overall economy. As a result, the debt-to-GDP ratio quickly increased. On three occasions—1982, 1989, and 1996—the federal government managed to halt the rise in its debt-to-GDP ratio. The first two efforts managed to halt the rise only temporarily. On both occasions, an economic slowdown caused government spending to increase and tax revenues to fall so that debt began to accumulate again. The effort initiated in 1996 proved more successful, and the federal government actually managed to reduce its debt-to-GDP ratio from its high of 73 percent in 1996 to 32 percent in 2009. Unfortunately, as a result of an economic slowdown that began in 2007, the federal budget returned to deficit in 2009. This pushed the federal debt-to-GDP ratio up to 37 percent by 2010 (from 32 percent in 2009). By 2014, the debt-to-GDP ratio had stabilized at 36 percent. In 2016, the federal government announced its intention to introduce significantly larger deficits than planned previously. Most analysts believe that despite this, so long as at least modest economic growth can be maintained, the debt-to-GDP ratio is not likely to rise significantly beyond what it was in 2014.

NEL

government net debt is the difference between the value of government financial liabilities and financial assets.

Case Studies Economic theory is useful and interesting only if it can be applied to understanding actual events and policies. Updated or replaced with more current Canadian examples, the numerous case studies apply the theory that has just been developed.

Figures and Tables Colourful and eye-catching visuals are used to make important economic points and to clarify Canadian and other key economic concepts. They have also proved to be valuable and memorable teaching aids.

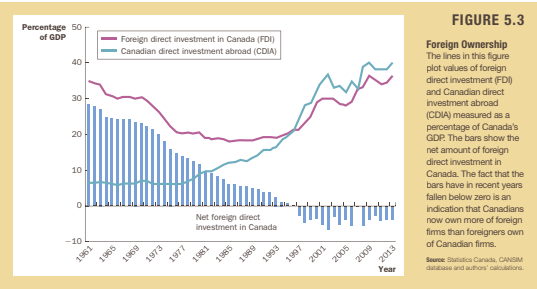


TABLE 1.1
Ten Principles of Economics

How People Make Decisions
#1: People face tradeoffs.
#2: The cost of something is what you give up to get it.
#3: Rational people think at the margin.
#4: People respond to incentives.

How People Interact
#5: Trade can make everyone better off.
#6: Markets are usually a good way to organize economic activity.
#7: Governments can sometimes improve market outcomes.

How the Economy as a Whole Works
#8: A country's standard of living depends on its ability to produce goods and services.
#9: Prices rise when the government prints too much money.
#10: Society faces a short-run tradeoff between inflation and unemployment.

“In the News” Features One benefit that students gain from studying economics is a new perspective and greater understanding about news from Canada and around the world. To highlight this benefit, excerpts from many Canadian news articles, including opinion columns written by prominent economists, show how basic economic theory can be applied.

IN THE NEWS Even Criminals Respond to Incentives

Principle #4, people respond to incentives, is at the core of the study of economics. As the following article explains, this principle applies to all sorts of activities, even of the criminal kind.

Risk, Reward and the Economics of the Criminal Mind

By Todd Hirsch

Last week's *Economist* magazine carried a headline reading, “The Curious Case of the Fall in Crime.” It seems that all around the industrialized world—including Canada—all kinds of criminal activity are on the decline. Contrary to the belief that evil thugs lurk around every corner, we are actually safer than we have been in decades. In today's underground economy, identify theft makes better economic sense than stealing a flat-screen television. The magazine's editorial offers only guesses as to why crime rates are falling. Aging demographics may play a role, along with better theft-prevention technologies. Stiffer punishment and “get tough on crime” policies might make for good political posturing, but they seem to have little impact. Crime rates are falling in countries where sentencing has become tougher as well as where it has been loosened.

The *Economist* failed to mention the most obvious reason for the change: economic incentives. Thieves are simply doing what most of us do every day: They are responding to market signals. This is particularly true of property crimes such as residential break-and-enter, car theft and armed robbery. The possible payoff for stealing from a home is dwindling. What is there worth taking? Electronics are increasingly less valuable—a computer or a television in the 1980s would have been worth thousands of



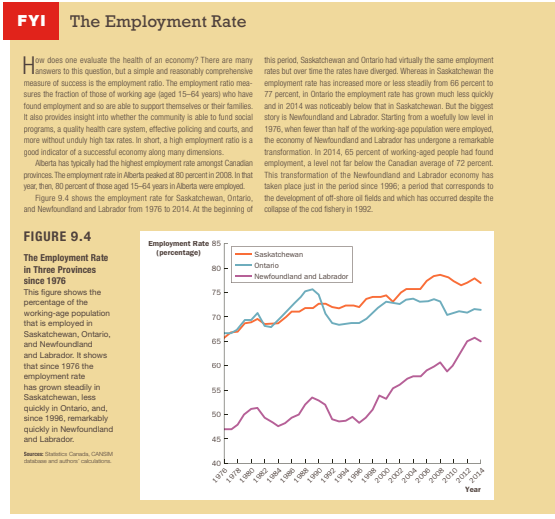
dollars on the street; now they would fetch a few hundred bucks. Why buy a stolen iPod dock out of the back of some guy's truck when you can get a new one for less than \$100? Car theft is down dramatically, too. According to Statistics Canada, car theft in Ontario plunged to 141 per 100,000 people last year, down from 443 in 1996. Better technology, car alarm systems and anti-theft devices have deterred most would-be thieves. And lower-priced cars without car alarms probably are not worth stealing anyway. The bad guys aren't less bad, they're just good economists.

Muggings and purse snatchings are increasingly less common as well. But let's not overthink the reasons why fewer thieves are snatching purses. It has nothing to do with the culprit's age or job situation. Whether there was a father present in the thief's childhood or whether he or she played violent video games are irrelevant. The reason is that there's just not much of value inside purses or wallets anymore. Cash has been largely replaced by debit and credit cards, and as long as the PIN is secure, the thief gets away with nothing more than plastic cards and chewing gum. Cellphones are more costly, but stolen ones are difficult to wipe and resell.

Criminals, like all of us, respond to market signals. If the potential payoff for any activity is too low, we weigh the risks and decide it isn't worth it. For noncriminals, the question isn't “Should I steal this car?” but something along the lines of “Should I put in new bathroom tile before I list my house?” People are quite good at reading and responding to market signals. Still, we shouldn't think that poor economic incentives are making crime go away. Crime is simply morphing. Traditional crime statistics tend to focus on activities such as robbery, property theft and murder. Fewer long-term trend statistics are available for crimes that are doubtless increasing, such as identity theft and cyber-crime. Not only are they potentially more lucrative, they are global in scope and much more difficult to track.

Thieves are also getting smarter, using technology for evil deeds. Internet scams abound, and bank-card skimming and credit-card fraud is a serious problem. Banks have had to fight back with their own technology and it has been costly. Economic incentives play a huge role motivating us in almost everything we do. Certain actions are no doubt spurred by altruism and generosity, such as helping our neighbour shovel snow or donating to charity (although we still want the tax receipt). Weighing the financial incentives against the potential risks is the basis of our economy. Criminals may not know they're doing it, but they're just responding to market signals—and doing a good job of it.

Source: “Risk, Reward and the Economics of the Criminal Mind,” by Todd Hirsch, August 1, 2013, *The Globe and Mail*. Reprinted by permission of the author.



“FYI” Features These features provide additional material “for your information.” Some of them offer a glimpse into the history of economic thought. Others clarify technical issues. Still others discuss supplementary topics that instructors might choose either to discuss or skip in their lectures.

interest rate. As long as the Canadian and the foreign assets are close substitutes, the difference in interest rates provides an arbitrage opportunity for either borrowers or savers.

The logic by which the real interest rates in Canada should adjust to equal the real interest rate in the rest of the world should remind you of our discussion of the law of one price and purchasing-power parity. This is because the concepts are closely related. Just as we discussed earlier in the context of the prices of goods, people taking advantage of arbitrage opportunities will ensure that price differentials disappear. The only difference is that here the price we are talking about is the price of borrowing, the real interest rate. The theory that the real interest rate in Canada should equal that in the rest of the world is known as **interest rate parity**.

12-4c Limitations to Interest Rate Parity

Just as there are limitations to purchasing-power parity explaining how exchange rates are determined, there are also limitations to interest rate parity explaining

Interest rate parity

a theory of interest rate determination whereby the real interest rate on comparable financial assets should be the same in all economies with full access to world financial markets

QUICK Quiz

Why is a country better off not isolating itself from all other countries? • Why do we have markets and, according to economists, what roles should government play in them?

QuickQuizzes After each major section, students are offered a quick quiz to check their comprehension of what they have just learned. If students cannot readily answer these quizzes, they should stop and reread the material before continuing.

Key Concept Definitions When key concepts are introduced in the chapter, they are presented in **bold** typeface. In addition, their definitions are placed in the margin and in the Glossary at the back of the book. This treatment helps students learn and review the material.

Chapter Summaries Each chapter ends with a brief summary that reminds students of the most important lessons that they have just learned. Later in their study, it offers an efficient way to review for exams.

summary

- The fundamental lessons about individual decision making are that people face tradeoffs among alternative goals, that the cost of any action is measured in terms of forgone opportunities, that rational people make decisions by comparing marginal costs and marginal benefits, and that people change their behaviour in response to the incentives they face.
- The fundamental lessons about interactions among people are that trade can be mutually beneficial, that

markets are usually a good way of coordinating trade among people, and that the government can potentially improve market outcomes if there is some market failure or if the market outcome is inequitable.

- The fundamental lessons about the economy as a whole are that productivity is the ultimate source of living standards, that money growth is the ultimate source of inflation, and that society faces a short-run tradeoff between inflation and unemployment.

KEY concepts

scarcity, p. 2
economics, p. 2
efficiency, p. 3
equity, p. 3
opportunity cost, p. 4
rational people, p. 4

marginal changes, p. 4
incentive, p. 6
market economy, p. 9
property rights, p. 10
market failure, p. 11
externality, p. 11

market power, p. 11
productivity, p. 12
inflation, p. 13
business cycle, p. 14

QUESTIONS FOR REVIEW

- Which do you think has a greater effect on the consumer price index: a 10 percent increase in the price of chicken or a 10 percent increase in the price of cavat? Why?
- Describe the three problems that make the consumer price index an imperfect measure of the cost of living.
- If the price of a military aircraft rises, is the consumer price index or the GDP deflator affected more? Why?
- Over a long period of time, the price of a candy bar rose from \$0.10 to \$0.60. Over the same period, the consumer price index rose from 150 to 300. Adjusted for overall inflation, how much did the price of the candy bar change?
- Explain the meaning of *nominal interest rate* and *real interest rate*. How are they related?

QUICK CHECK multiple choice

- The consumer price index measures approximately the same economic phenomenon as which of the following?
 - nominal GDP
 - real GDP
 - the GDP deflator
 - the unemployment rate
- What is the largest component in the basket of goods and services used to compute the CPI?
 - food and beverages
 - housing
 - transportation
 - apparel
- If a Manitoba gun manufacturer raises the price of rifles it sells to the Canadian Army, which of the following will be increased by the price hike?
 - both the CPI and the GDP deflator
 - neither the CPI nor the GDP deflator
 - the CPI but not the GDP deflator
 - the GDP deflator but not the CPI
- Which of the following occurs because consumers can sometimes substitute cheaper goods for those that have risen in price?
 - the CPI overstates inflation
 - the CPI understates inflation
 - the GDP deflator overstates inflation
 - the GDP deflator understates inflation
- If the consumer price index was 200 in 1980 and 300 today, then \$600 in 1980 has the same purchasing power as what amount today?
 - \$400
 - \$500
 - \$700
 - \$900
- You deposit \$2000 in a savings account, and a year later you have \$2100. Meanwhile, the consumer price index rises from 200 to 204. In this case, what are the nominal interest rate and the real interest rate, respectively?
 - 1 percent; 5 percent
 - 3 percent; 5 percent
 - 5 percent; 1 percent
 - 5 percent; 3 percent

PROBLEMS AND applications

- Suppose that people consume only three goods, as shown in this table:

	Tennis Balls	Tennis Rackets	Gatorade
2014 price	\$2	\$40	\$1
2014 quantity	100	10	200
2015 price	\$2	\$60	\$2
2015 quantity	100	10	200

 - What is the percentage change in the price of each of the three goods? What is the percentage change in the overall price level?
 - Do tennis rackets become more or less expensive relative to Gatorade? Does the well-being of some people change relative to the well-being of others? Explain.
- Suppose that the residents of Vegopia spend all of their income on cauliflower, broccoli, and carrots. In 2014 they buy 100 heads of cauliflower for \$200, 50 bunches

List of Key Concepts A list of key concepts at the end of each chapter offers students a way to test their understanding of the new terms that have been introduced. Page references are included so that students can review terms they do not understand in the original context.

Questions for Review At the end of each chapter questions for review cover the chapter's primary lessons. Students can use these questions to check their comprehension and to prepare for exams.

Quick Check Multiple Choice New in this edition, these end-of-chapter questions provide a quick check of the student's understanding of the material in a multiple-choice format.

Problems and Applications Each chapter also contains a variety of problems and applications that ask students to apply the material they have learned. Some instructors may use these questions for homework assignments. Others may introduce them as a starting point for classroom discussion.

New in This Seventh Canadian Edition

The seventh Canadian edition of *Principles of Macroeconomics* has been carefully revised to ensure its contents are current and its examples reflect the interests and concerns of the student market. In the sixth edition, responding to reviewer requests for more emphasis on math, we added a new appendix “The Mathematics of Market Equilibrium” at the end of Chapter 4. With this new edition we have built on this foundation by including technical questions in the chapters 2 and 4 end-of-appendix assignments to raise the difficulty level. New topics discussed in this edition include the employment ratio and Statistics Canada’s new definitions of the income components in national income accounting. Sections have been updated to include more analyses of the implications of the financial challenges experienced in 2008–09. Case Studies have been revised and updated to reflect current world trends. New FYI and In the News boxes address such issues as core inflation and why gold has been used as money throughout history. Examples, key figures, and graphs have been updated throughout the text. Most photos have been replaced and many new photos are added throughout the new edition. As well, the text’s interior has a fresh new design.

Here is a chapter-by-chapter list of significant changes:

Chapter 1 A new FYI feature on the opportunity cost of gasoline has been provided.

Chapter 2 A new Graphing Functions section has been included in the appendix.

Chapter 4 The appendix “The Mathematics of Market Equilibrium,” which guides the student through the process of solving market equilibrium for linear demand and supply curves, has been simplified using a strictly numerical approach.

Chapter 5 With this edition we adopt Statistics Canada’s new categories of total income for deriving GDP and include data on the UN’s Human Development Index in our case study of international differences in the quality of life.

Chapter 8 The existing case study “The Accumulation of Government Debt in Canada” has been adjusted to discuss the reversal of movements toward lower levels of government debt caused by the slowing of the Canadian economy in 2015.

Chapter 9 A new FYI feature discusses the employment rate as a measure of the health of an economy and reports on the remarkable transformation of the economy of Newfoundland and Labrador since 1996. Our discussion of frictional unemployment has been supplemented with a new Table 9.4 that reports rates of job creation and destruction in periods of recession and expansion. Finally, the existing FYI feature on the minimum wage now includes a discussion of how taking taxes into consideration affects the ranking of provinces according to which offers the highest minimum wage.

Chapter 10 A new In the News feature explains why throughout history it has made sense for societies to use gold as money. Our discussion of the tools available to the Bank of Canada to control the money supply now includes Figure 10.2, showing how the central bank’s overnight rate responded to the onset of recession in 2008 and the halting recovery since that time. Finally,

another new In the News feature discusses research being done at the Bank of Canada that seeks to learn lessons from the 2008–09 financial crisis and to understand how monetary policy might need to change to accommodate innovations such as Bitcoin.

Chapter 11 A new FYI feature defines, discusses, and shows data on the Bank of Canada’s measure of “core CPI inflation” and how it compares to the rate of inflation measured using the total CPI. The distinction is important for understanding the Bank’s monetary policy choices.

Chapter 13 In this edition we clarify our discussion of supply and demand in the market for foreign-currency exchange.

Chapter 14 Our existing Case Study on the recession of 2008–09 now includes a long quote from Bank of Canada Governor Stephen Poloz in which he emphasizes that one of the lessons to be drawn from that recession is the need for the Bank to be ever vigilant to excessive risk taking.

Chapter 15 With this edition we include in the opening paragraphs an explanation of why it is important to treat all cases of aggregate demand policy—fiscal and monetary policy in both open and closed economies—in a single chapter.

Instructor Resources



The **Nelson Education Teaching Advantage (NETA)** program delivers research-based instructor resources that promote student engagement and higher-order thinking to enable the success of Canadian students and educators. Visit Nelson Education’s **Inspired Instruction** website at <http://www.nelson.com/inspired/> to find out more about NETA.

The following instructor resources have been created for Mankiw, *Principles of Macroeconomics*, Seventh Canadian Edition. Access these ultimate tools for customizing lectures and presentations at www.nelson.com/instructor.

NETA Test Bank

This resource was written by Judith Street, Mount Royal University. It includes over 2800 multiple choice questions written according to NETA guidelines for effective construction and development of higher-order questions. The technical check was performed by Norm Smith, Georgian College. Also included are approximately 340 true/false and 170 short-answer questions, as well as 120 problems.

The NETA Test Bank is available in a new, cloud-based platform. **Nelson Testing Powered by Cognero®** is a secure online testing system that allows instructors to author, edit, and manage test bank content from anywhere Internet access is available. No special installations or downloads are needed, and the desktop-inspired interface, with its drop-down menus and familiar, intuitive tools, allows instructors to create and manage tests with ease. Multiple test versions can be created in an instant, and content can be imported or exported into other systems. Tests can be delivered from a learning management system, the classroom, or



wherever an instructor chooses. Nelson Testing Powered by Cognero for Mankiw, *Principles of Macroeconomics*, Seventh Canadian Edition, can be accessed through www.nelson.com/instructor.

NETA PowerPoint

Microsoft® PowerPoint® lecture slides for every chapter have been created by Marc Prud'Homme, University of Ottawa. There is an average of 35–45 slides per chapter, many featuring key figures, tables, and photographs from Mankiw, *Principles of Macroeconomics*, Seventh Canadian Edition. These slides also include instructor notes of suggested classroom activities and links to videos and news articles for classroom discussion. NETA principles of clear design and engaging content have been incorporated throughout, making it simple for instructors to customize the deck for their courses.

Image Library

This resource consists of digital copies of figures, short tables, and photographs used in the book. Instructors may use these jpegs to customize the NETA PowerPoint or create their own PowerPoint presentations.

TurningPoint® Slides

TurningPoint® classroom response software has been customized for Mankiw, *Principles of Macroeconomics*, Seventh Canadian Edition. Instructors can author, deliver, show, access, and grade, all in PowerPoint, with no toggling back and forth between screens. With JoinIn instructors are no longer tied to their computers. Instead, instructors can walk about the classroom and lecture at the same time, showing slides and collecting and displaying responses with ease. Anyone who can use PowerPoint can also use JoinIn on TurningPoint.

NETA Instructor's Manual

The Instructor's Manual to accompany Mankiw, *Principles of Macroeconomics*, Seventh Canadian Edition, has been prepared by Phil Ghayad and Michel Mayer at Dawson College. This manual contains sample lesson plans, learning objectives, suggested classroom activities, and a resource integration guide to give instructors the support they need to engage their students within the classroom.

Instructor's Solutions Manual

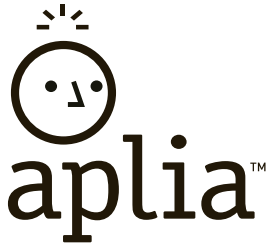
This manual, prepared by the text authors Ron Kneebone and Ken McKenzie at University of Calgary, has been independently checked for accuracy by Norm Smith, Georgian College. It contains complete solutions to the text's QuickQuizzes, Questions for Review, Quick Check Multiple Choice questions, and Problems.

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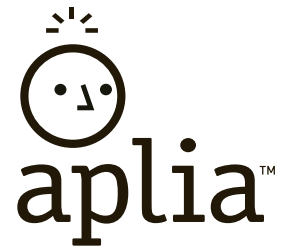
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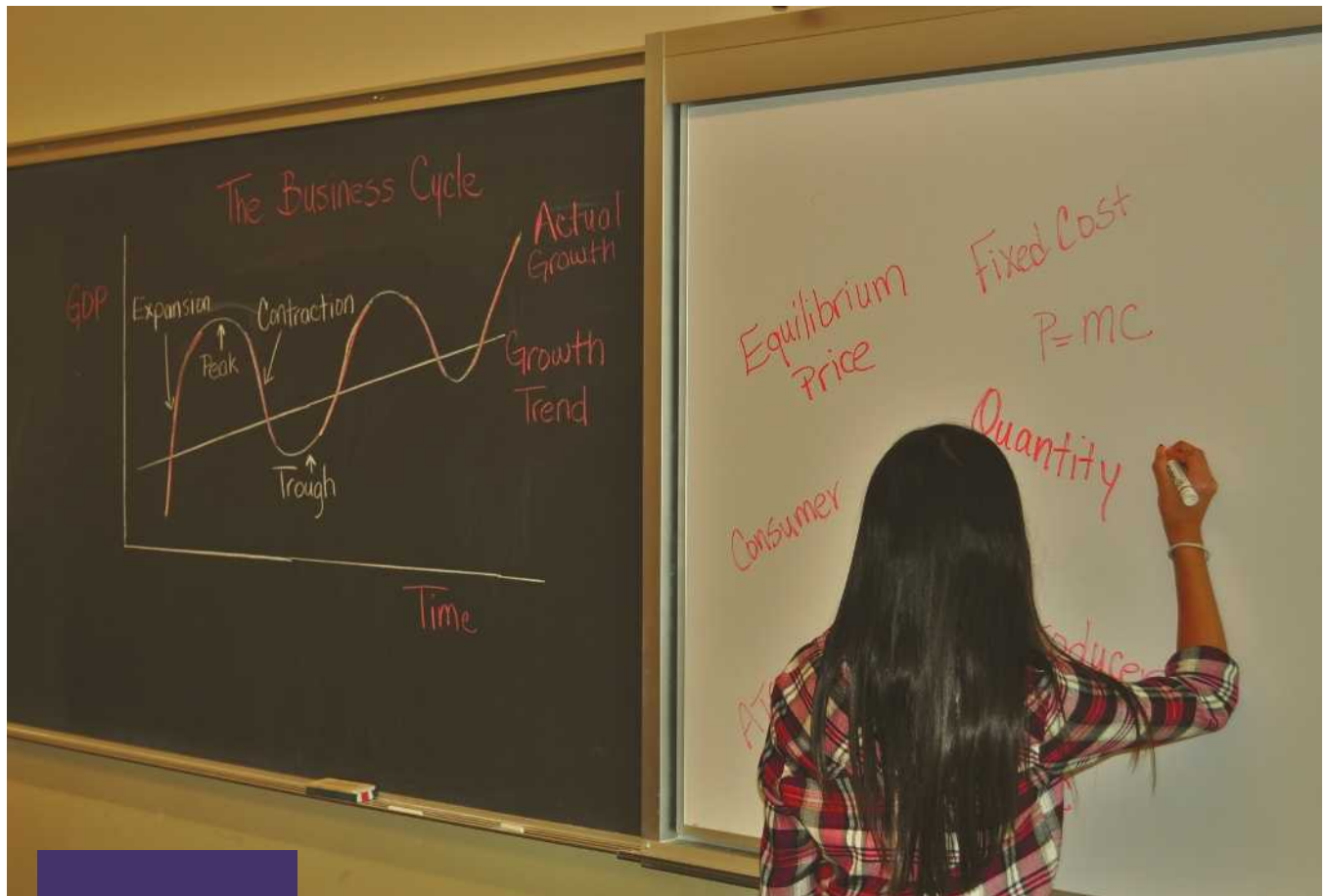
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Ronald D. Kneebone

Kenneth J. McKenzie

August 2016



CHAPTER

1

Ten Principles of Economics

LEARNING objectives

In this chapter, you will ...

- 1 Learn that economics is about the allocation of scarce resources
- 2 Examine some of the tradeoffs that people face
- 3 Learn the meaning of *opportunity cost*
- 4 See how to use marginal reasoning when making decisions
- 5 Discuss how incentives affect people's behaviour
- 6 Consider why trade among people or nations can be good for everyone
- 7 Discuss why markets are a good, but not perfect, way to allocate resources
- 8 Learn what determines some trends in the overall economy

The word *economy* comes from the Greek word for “one who manages a household.” At first, this origin might seem peculiar. But, in fact, households and economies have much in common.

A household faces many decisions. It must decide which members of the household do which tasks and what each member gets in return: Who cooks the meals? Who does the laundry? Who gets the extra dessert at dinner? Who gets to choose what TV show to watch? In short, the household must allocate its scarce resources among its various members, taking into account each member’s abilities, efforts, and desires.

Like a household, a society faces many decisions. A society must decide what jobs will be done and who will do them. It needs some people to grow food, other people to make clothing, and still others to design computer software. Once society has allocated people (as well as land, buildings, and machines) to various jobs, it must also allocate the output of goods and services that they produce. It must decide who will eat caviar and who will eat potatoes. It must decide who will drive a Ferrari and who will take the bus.

The management of society’s resources is important because resources are scarce. **Scarcity** means that society has limited resources and therefore cannot produce all the goods and services people wish to have. Just as each member of a household cannot get everything he or she wants, each individual in a society cannot attain the highest standard of living to which he or she might aspire.

Economics is the study of how society manages its scarce resources. In most societies, resources are allocated not by a single central planner but through the combined actions of millions of households and firms. Economists, therefore, study how people make decisions: how much they work, what they buy, how much they save, and how they invest their savings. Economists also study how people interact with one another. For instance, they examine how the multitude of buyers and sellers of a good together determine the price at which the good is sold and the quantity that is sold. Finally, economists analyze forces and trends that affect the economy as a whole, including the growth in average income, the fraction of the population that cannot find work, and the rate at which prices are rising.

The study of economics has many facets but it is unified by several central ideas. In this chapter, we look at ten principles of economics. Don’t worry if you don’t understand them all at first or if you aren’t completely convinced. We explore these ideas more fully in later chapters. The ten principles are introduced here just to give you an overview of what economics is all about. Consider this chapter a “preview of coming attractions.”

scarcity

the limited nature of society’s resources

economics

the study of how society manages its scarce resources

1-1 How People Make Decisions

There is no mystery to what an economy is. Whether we are talking about the economy of Vancouver, of Canada, or of the whole world, an economy is just a group of people interacting with one another as they go about their lives. Because the behaviour of an economy reflects the behaviour of the individuals who make up the economy, we start our study of economics with four principles of individual decision making.

1-1a Principle #1: People Face Tradeoffs

You may have heard the old saying, “There ain’t no such thing as a free lunch.” Grammar aside, there is much truth to this adage. To get one thing that we like,

we usually have to give up another thing that we like. Making decisions requires trading off one goal against another.

Consider a student who must decide how to allocate her most valuable resource—her time. She can spend all of her time studying economics, spend all of it studying psychology, or divide it between the two fields. For every hour she studies one subject, she gives up an hour she could have used studying the other. And for every hour she spends studying, she gives up an hour that she could have spent napping, bike riding, watching TV, or working at her part-time job for some extra spending money.

Or consider parents deciding how to spend their family income. They can buy food, clothing, or a family vacation. Or they can save some of the family income for retirement or the children’s college or university education. When they choose to spend an extra dollar on one of these goods, they have one less dollar to spend on some other good.

When people are grouped into societies, they face different kinds of tradeoffs. One classic tradeoff is between “guns and butter.” The more society spends on national defence and security (guns) to protect its shores from foreign aggressors, the less it can spend on consumer goods (butter) to raise the standard of living at home. Also important in modern society is the tradeoff between a clean environment and a high level of income. Laws that require firms to reduce pollution raise the cost of producing goods and services. Because of the higher costs, these firms end up earning smaller profits, paying lower wages, charging higher prices, or some combination of these three. Thus, while pollution regulations give us the benefit of a cleaner environment and the improved health that comes with it, they have the cost of reducing the incomes of the regulated firms’ owners, workers, and customers.

Another tradeoff society faces is between efficiency and equity. **Efficiency** means that society is getting the maximum benefits from its scarce resources. **Equity** means that the benefits of those resources are distributed fairly among society’s members. In other words, efficiency refers to the size of the economic pie, and equity refers to how the pie is divided into individual slices.

When government policies are designed, these two goals often conflict. Consider, for instance, policies aimed at achieving a more equal distribution of economic well-being. Some of these policies, such as the welfare system or Employment Insurance, try to help those members of society who are most in need. Others, such as the individual income tax, ask the financially successful to contribute more than others to support the government. Although these policies have the benefit of achieving greater equity, they have a cost in terms of reduced efficiency. When the government redistributes income from the rich to the poor, it reduces the reward for working hard; as a result, people work less and produce fewer goods and services. In other words, when the government tries to cut the economic pie into more equal slices, the pie gets smaller.

Recognizing that people face tradeoffs does not by itself tell us what decisions they will or should make. A student should not abandon the study of psychology just because doing so would increase the time available for the study of economics. Society should not stop protecting the environment just because environmental regulations reduce our material standard of living. The poor should not be ignored just because helping them distorts work incentives. Nonetheless, people are likely to make good decisions only if they understand the options that they have available. Our study of economics, therefore, starts by acknowledging life’s tradeoffs.

efficiency

the property of society getting the most it can from its scarce resources

equity

the property of distributing economic prosperity fairly among the members of society

1-1b Principle #2: The Cost of Something Is What You Give Up to Get It

Because people face tradeoffs, making decisions requires comparing the costs and benefits of alternative courses of action. In many cases, however, the cost of an action is not as obvious as it might first appear.

Consider the decision whether to go to college or university. The main benefits are intellectual enrichment and a lifetime of better job opportunities. But what are the costs? To answer this question, you might be tempted to add up the money you spend on tuition, books, and room and board. Yet this total does not truly represent what you give up to spend a year in college or university.

There are two problems with the calculation. First, it includes some things that are not really costs of going to college or university. Even if you quit school, you would need a place to sleep and food to eat. Room and board are costs of going to college or university only to the extent that they are more expensive there than elsewhere. Second, this calculation ignores the largest cost of going to college or university—your time. When you spend a year listening to lectures, reading textbooks, and writing papers, you cannot spend that time working at a job. For most students, the wages given up to attend school are the largest single cost of their education.

The **opportunity cost** of an item is what you give up to get that item. When making any decision, decision makers should be aware of the opportunity costs that accompany each possible action. In fact, they usually are. College or university-age athletes who can earn millions if they drop out of school and play professional sports are well aware that their opportunity cost of a postsecondary education is very high. It is not surprising that they often decide that the benefit of this education is not worth the cost. Remember, an opportunity cost is an opportunity lost.

opportunity cost

whatever must be given up to obtain some item

1-1c Principle #3: Rational People Think at the Margin

Economists normally assume that people are rational. For the most part the assumption that people are rational serves us very well. **Rational people** systematically and purposefully do the best they can to achieve their objectives, given the opportunities they have. As you study economics, you will encounter firms that decide how many workers to hire and how much of their product to manufacture and sell to maximize profits. You will also encounter individuals who decide how much time to spend working and what goods and services to buy with the resulting income to achieve the highest possible level of satisfaction.

Rational people know that decisions in life are rarely black and white, but usually involve shades of grey. At dinnertime, the decision you face is not “Should I fast or eat like a glutton?” More likely, you will be asking yourself “Should I take that extra spoonful of mashed potatoes?” When exams roll around, your decision is not between blowing them off or studying 24 hours a day, but whether to spend an extra hour reviewing your notes instead of watching TV. Economists use the term **marginal changes** to describe small incremental adjustments to an existing plan of action. Keep in mind that “margin” means “edge,” so marginal changes are adjustments around the edges of what you are doing. Rational people often make decisions by comparing *marginal benefits* and *marginal costs*.

For example, suppose you are considering calling a friend on your cell phone. You decide that talking with her for 10 minutes would give you a benefit that you value at about \$7. Your cell phone service costs you \$40 per month plus \$0.50 per minute for whatever calls you make. You usually talk for 100 minutes a month,

rational people

those who systematically and purposefully do the best they can to achieve their objectives

marginal changes

small incremental adjustments to a plan of action

FYI

The Opportunity Cost of Gasoline

The opportunity cost of an item is what you give up to get it. As discussed earlier, out of pocket monetary costs can be a misleading indicator of opportunity cost. For example, consider the opportunity cost of gasoline. The price of gasoline has increased quite significantly over the years. For example, the average price of gasoline in Ontario rose from about 56 cents per litre in 1997 to over \$1.28 in 2014, with several ups and downs in between. This represents an increase of almost 130 percent over this 17-year period.

However, this is misleading. Gasoline is not something that is consumed directly, but rather is used to drive your car. It is better to think of the price of gasoline in terms of how much it costs per kilometre driven. To do this we need to take account of how the fuel efficiency of cars has changed over this period. In 1997 the fuel efficiency of the average North American car was about 8.5 kilometres per litre (KPL). By 2014 this had increased to 10.3 KPL. So it took about 17.5 percent less gasoline to drive a car in 2014 than it did in 1997.

But this is not all. In order to buy the gasoline you need money. To earn that money you need to work. A useful way to think about the opportunity cost of gasoline, or any good for that matter, is in terms of the amount of time you have to work in order to pay for it. In this regard, consider the number of minutes you need to work in order to pay for gasoline on a per-kilometre basis. Let's call this minutes worked per kilometre driven (MWPKD). The average hourly wage in Ontario in 1997 was about \$15.60 per hour; in 2014 it was \$24.50, an increase of 57 percent. To calculate MWPKD, take the price of gasoline and divide it by the product of the wage rate (measured in dollars per minute, so \$15.60 per hour is

26 cents per minute in 1997) and average fuel economy. For 1997 this gives $MWPKD = .56 / (.26 \times 8.5) = .2533$. So, in 1997, in order to pay for the gasoline required to drive a car one kilometre, an average individual in Ontario had to work .2533 minutes, or 15.2 seconds. In 2014 the MWPKD was .3043, or 18 seconds. So, the opportunity cost of gasoline in 2014 measured in terms of the number of seconds of work needed to drive one kilometre was 18 seconds compared to 15 seconds in 1997! While the price of gasoline at the pump has indeed increased significantly since 1997, fuel economy has increased as well, as have wages, keeping the opportunity cost of gasoline relatively constant. Figure 1.1 shows MWPKD for Ontario for every year from 1997 to 2014.

The above calculations are based on fleet averages for cars in North America. Of course if you drive a more fuel-efficient car, or earn a higher than average wage, you have to work less to pay for the gasoline required to drive your car. For example, the hybrid Toyota Prius gets about 21 KPL, compared to the 2014 fleet average of 10.3. If you drive a Prius you have to work just under nine seconds per kilometre driven to pay for the gasoline. On the other hand, if you drive a Ford F150 truck (9.4 KPL), you have to work almost 20 seconds.

On his blog, Ed Dolan has undertaken similar calculations for the United States. Fuel economy is the same in the two countries, as we drive basically the same vehicles. However, gasoline prices are lower in the United States (due largely to lower taxes) and average wages are higher. For 2014 Dolan calculates that, on average, it costs a little under 7 seconds of work in the United States to pay for a kilometre of driving, significantly less than the 18 seconds in Canada.

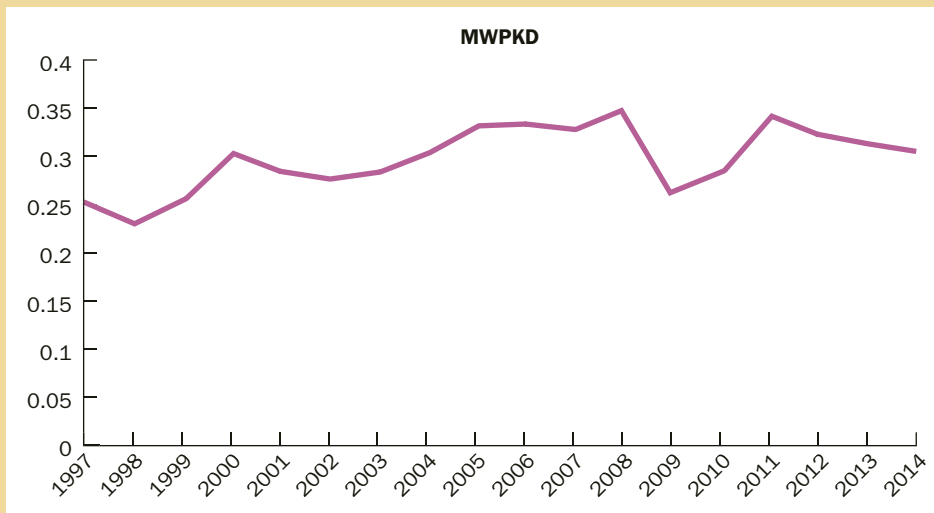


FIGURE 1.1

Minutes Worked per
Kilometre Driven

so your total monthly bill is \$90 (\$0.50 per minute times 100 minutes, plus the \$40 fixed fee). Under these circumstances, should you make the call? You might be tempted to reason as follows: “Because I pay \$90 for 100 minutes of calling each month, the average minute on the phone costs me \$0.90. So a 10-minute call costs \$9. Because that \$9 cost is greater than the \$7 benefit, I am going to skip the call.” That conclusion is wrong, however. Although the *average* cost of a 10-minute call is \$9, the *marginal* cost—the amount your bill increases if you make the extra call—is only \$5. You will make the right decision only by comparing the marginal benefit and the marginal cost. Because the marginal benefit of \$7 is greater than the marginal cost of \$5 ($.50 \times 10 = \5), you should make the call. This is a principle that people innately understand: Cell phone users with unlimited minutes (that is, minutes that are free at the margin) are often prone to make long and frivolous calls.

Thinking at the margin works for business decisions as well. Consider an airline deciding how much to charge passengers who fly standby. Suppose that flying a 200-seat plane across Canada costs the airline \$100 000. In this case, the average cost of each seat is $\$100\,000/200$, which is \$500. One might be tempted to conclude that the airline should never sell a ticket for less than \$500. Actually, a rational airline can often find ways to raise its profits by thinking at the margin. Imagine that a plane is about to take off with 10 empty seats, and a standby passenger is waiting at the gate willing to pay \$300 for a seat. Should the airline sell the ticket? Of course it should. If the plane has empty seats, the cost of adding one more passenger is tiny. Although the *average* cost of flying a passenger is \$500, the *marginal* cost is merely the cost of the bag of peanuts and can of soda that the extra passenger will consume. As long as the standby passenger pays more than the marginal cost, selling him a ticket is profitable.

Marginal decision making can help explain some otherwise puzzling economic phenomena. Here is a classic question: Why is water so cheap, while diamonds are so expensive? Humans need water to survive, while diamonds are unnecessary; but, for some reason, people are willing to pay much more for a diamond than for a cup of water. The reason is that a person’s willingness to pay for a good is based on the marginal benefit that an extra unit of the good will yield. The marginal benefit, in turn, depends on how many units a person already has. Water is essential but the marginal benefit of an extra cup is small because water is plentiful. By contrast, no one needs diamonds to survive, but because diamonds are so rare people consider the marginal benefit of an extra diamond to be large.

A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost. This principle can explain why people use their cell phones as much as they do, why airlines are willing to sell a ticket below average cost, and why people are willing to pay more for diamonds than for water. It can take some time to get used to the logic of marginal thinking, but the study of economics will give you ample opportunity to practise.

1-1d Principle #4: People Respond to Incentives

An **incentive** is something (such as the prospect of a punishment or a reward) that induces a person to act. Because rational people make decisions by comparing costs and benefits, they respond to incentives. You will see that incentives play a central role in the study of economics. One economist went so far as to suggest that the entire field could be summarized simply: “People respond to incentives. The rest is commentary.”

incentive

something that induces a person to act

Incentives are crucial to analyzing how markets work. For example, when the price of an apple rises, people decide to eat fewer apples. At the same time, apple orchards decide to hire more workers and harvest more apples. In other words, a higher price in a market provides an incentive for buyers to consume less and an incentive for sellers to produce more. As we will see, the influence of prices on the behaviour of consumers and producers is crucial for how a market economy allocates scarce resources.

Public policymakers should never forget about incentives. Many policies change the costs or benefits that people face and, as a result, alter their behaviour. A tax on gasoline, for instance, encourages people to drive smaller, more fuel-efficient cars. That is one reason why people drive smaller cars in Europe, where gasoline taxes are high, than in Canada, where gasoline taxes are lower. A gasoline tax also encourages people to carpool, take public transportation, and live closer to where they work. If the tax were larger, more people would drive hybrid cars, and if it were large enough, they would switch to electric cars.

When policymakers fail to consider how their policies affect incentives, they often end up with unintended consequences. For example, consider public policy regarding auto safety. Today all cars have seat belts, but that was not true 50 years ago. In the 1960s, Ralph Nader's book *Unsafe at Any Speed* generated much public concern over auto safety. Parliament responded with laws requiring seat belts as standard equipment on new cars.

How does a seat belt law affect auto safety? The direct effect is obvious: When a person wears a seat belt, the probability of surviving an auto accident rises. But that's not the end of the story, because the law also affects behaviour by altering incentives. The relevant behaviour here is the speed and care with which drivers operate their cars. Driving slowly and carefully is costly because it uses the driver's time and energy. When deciding how safely to drive, rational people compare the marginal benefit from safer driving to the marginal cost. As a result, they drive more slowly and carefully when the benefit of increased safety is high. For example, when road conditions are icy, people drive more attentively and at lower speeds than they do when road conditions are clear.

Consider how a seat belt law alters a driver's cost-benefit calculation. Seat belts make accidents less costly because they reduce the likelihood of injury or death. In other words, seat belts reduce the benefits to slow and careful driving. People respond to seat belts as they would to an improvement in road conditions—by driving faster and less carefully. The result of a seat belt law, therefore, is a larger number of accidents. The decline in safe driving has a clear, adverse impact on pedestrians, who are more likely to find themselves in an accident but (unlike the drivers) don't have the benefit of added protection.

At first, this discussion of incentives and seat belts might seem like idle speculation. Yet in a classic 1975 study, economist Sam Peltzman argued that auto-safety laws have had many of these effects. According to Peltzman's evidence, these laws produce both fewer deaths per accident and more accidents. He concluded that the net result is little change in the number of driver deaths and an increase in the number of pedestrian deaths.

Peltzman's analysis of auto safety is an offbeat and controversial example of the general principle that people respond to incentives. When analyzing any policy, we must consider not only the direct effects but also the indirect effects that work through incentives. If the policy changes incentives, it will cause people to alter their behaviour.

Even Criminals Respond to Incentives

Principle #4, people respond to incentives, is at the core of the study of economics. As the following article explains, this principle applies to all sorts of activities, even of the criminal kind.

Risk, Reward and the Economics of the Criminal Mind

By Todd Hirsch

Last week's *Economist* magazine carried a headline reading, "The Curious Case of the Fall in Crime." It seems that all around the industrialized world—including Canada—all kinds of criminal activity are on the decline. Contrary to the belief that evil thugs lurk around every corner, we are actually safer than we have been in decades. In today's underground economy, identity theft makes better economic sense than stealing a flat-screen television.

The magazine's editorial offers only guesses as to why crime rates are falling. Aging demographics may play a role, along with better theft-prevention technologies. Stiffer punishment and "get tough on crime" policies might make for good political posturing, but they seem to have little impact: Crime rates are falling in countries where sentencing has become tougher as well as where it has been loosened.

The Economist failed to mention the most obvious reason for the change: economic incentives. Thieves are simply doing what most of us do every day: They are responding to market signals.

This is particularly true of property crimes such as residential break-and-enter, car theft and armed robbery. The possible payoff for stealing from a home is dwindling. What is there worth taking? Electronics are increasingly less valuable—a computer or a television in the 1980s would have been worth thousands of



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dollars on the street; now they would fetch a few hundred bucks. Why buy a stolen iPod dock out of the back of some guy's truck when you can get a new one for less than \$100?

Car theft is down dramatically, too. According to Statistics Canada, car theft in Ontario plunged to 141 per 100,000 people last year, down from 443 in 1998. Better technology, car alarm systems and anti-theft devices have deterred most would-be thieves. And lower-priced cars without car alarms probably are not worth stealing anyway. The bad guys aren't less bad, they're just good economists.

Muggings and purse snatchings are increasingly less common as well. But let's not overthink the reasons why fewer thieves are snatching purses. It has nothing to do with the culprit's age or job situation. Whether there was a father present in the thief's childhood or whether he or she played violent video games are irrelevant. The reason is that there's just not much of value inside purses or wallets anymore. Cash has been largely replaced by debit and credit cards, and as long as the PIN is secure, the thief gets away with nothing more than plastic cards and chewing gum. Cellphones are more costly, but stolen ones are difficult to wipe and resell.

Criminals, like all of us, respond to market signals. If the potential payoff for any activity is too low, we weigh the risks and decide it isn't worth it. For noncriminals, the question isn't "Should I steal this car?" but something along the lines of "Should I put in new bathroom tile before I list my house?" People are quite good at reading and responding to market signals.

Still, we shouldn't think that poor economic incentives are making crime go away. Crime is simply morphing. Traditional crime statistics tend to focus on activities such as robbery, property theft and murder. Fewer long-term trend statistics are available for crimes that are doubtless increasing, such as identity theft and cyber-crime. Not only are they potentially more lucrative, they are global in scope and much more difficult to track.

Thieves are also getting smarter, using technology for evil deeds. Internet scams abound, and bank-card skimming and credit-card fraud is a serious problem. Banks have had to fight back with their own technology and it has been costly.

Economic incentives play a huge role motivating us in almost everything we do. Certain actions are no doubt spurred by altruism and generosity, such as helping our neighbour shovel snow or donating to charity (although we still want the tax receipt). Weighing the financial incentives against the potential risks is the basis of our economy. Criminals may not know they're doing it, but they're just responding to market signals—and doing a good job of it.

Source: "Risk, Reward and the Economics of the Criminal Mind," by Todd Hirsch, August 1, 2013, *The Globe and Mail*. Reproduced by permission of the author.

QUICK Quiz

Describe an important tradeoff you recently faced. • Give an example of some action that has both a monetary and nonmonetary opportunity cost. • Describe an incentive your parents and/or guardians offered to you in an effort to influence your behaviour.

1-2 How People Interact

The first four principles discussed how individuals make decisions. As we go about our lives, many of our decisions affect not only ourselves but other people as well. The next three principles concern how people interact with one another.

1-2a Principle #5: Trade Can Make Everyone Better Off

You may have heard on the news that the Americans are our competitors in the world economy. In some ways this is true, for Canadian and U.S. firms do produce many of the same goods. BlackBerry and Apple compete for the same customers in the market for smart phones. Inniskillin and Gallo compete for the same customers in the market for wine.

Yet it is easy to be misled when thinking about competition among countries. Trade between Canada and the United States is not like a sports contest, where one side wins and the other side loses. In fact, the opposite is true: Trade between two countries can make each country better off.

To see why, consider how trade affects your family. When a member of your family looks for a job, he or she competes against members of other families who are looking for jobs. Families also compete against one another when they go shopping because each family wants to buy the best goods at the lowest prices. In a sense, each family in an economy competes with all other families.

Despite this competition, your family would not be better off isolating itself from all other families. If it did, your family would need to grow its own food, make its own clothes, and build its own home. Clearly, your family gains much from its ability to trade with others. Trade allows each person to specialize in the activities he or she does best, whether it is farming, sewing, or home building. By trading with others, people can buy a greater variety of goods and services at lower cost.

Countries as well as families benefit from the ability to trade with one another. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. The Americans, as well as the French and the Egyptians and the Brazilians, are as much our partners in the world economy as they are our competitors.

1-2b Principle #6: Markets Are Usually a Good Way to Organize Economic Activity

The collapse of communism in the Soviet Union and Eastern Europe in the 1980s was one of the last century's most important changes. Communist countries operated on the premise that government officials were in the best position to allocate the economy's scarce resources. These central planners decided what goods and services were produced, how much was produced, and who produced and consumed these goods and services. The theory behind central planning was that only the government could organize economic activity in a way that promoted economic well-being for the country as a whole.

Most countries that once had centrally planned economies have abandoned this system and are trying to develop market economies. In a **market economy**, the decisions of a central planner are replaced by the decisions of millions of firms and households. Firms decide whom to hire and what to make. Households decide which firms to work for and what to buy with their incomes. These firms and households interact in the marketplace, where prices and self-interest guide their decisions.

market economy

an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services