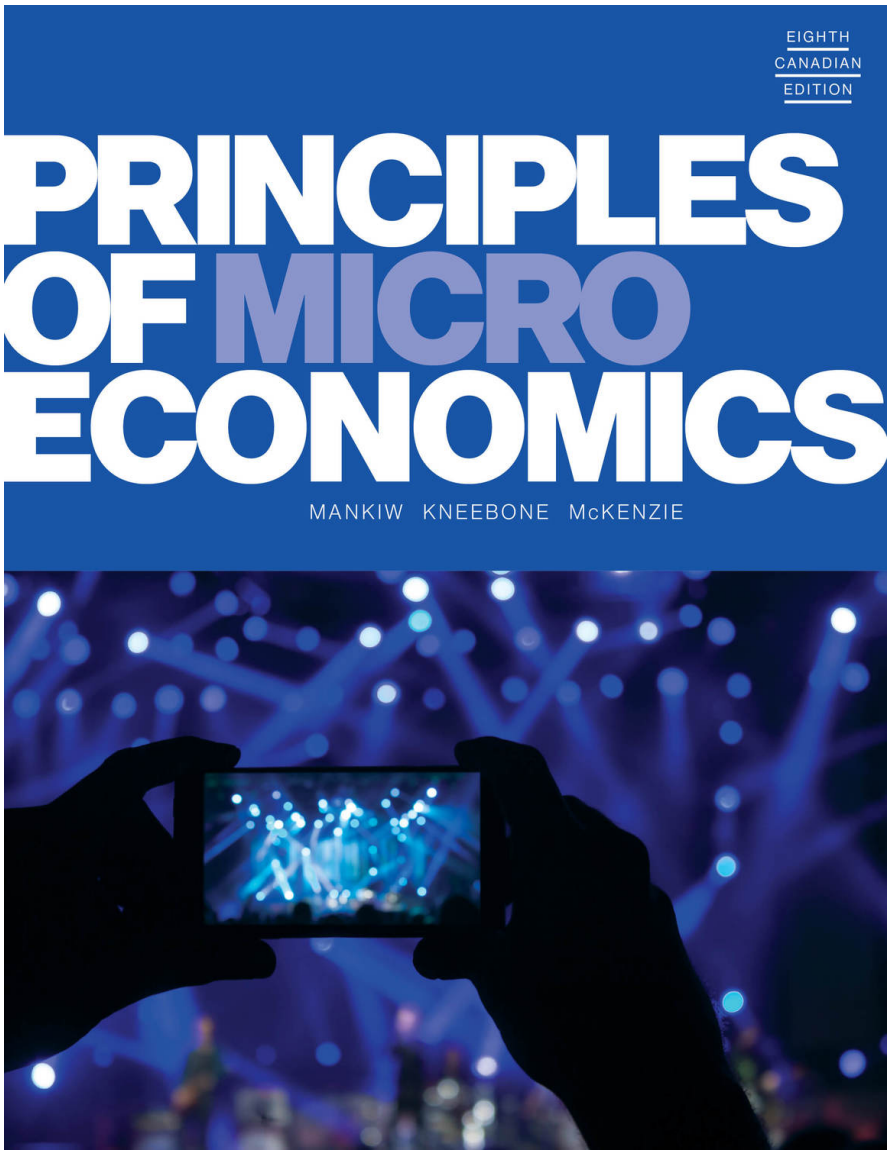
# *Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual*

SKU: 9780176872823-SOLUTIONS

# INSTRUCTOR SOLUTIONS MANUAL

to accompany




Prepared by Ron Kneebone and Ken McKenzie
University of Calgary

NELSON

NELSON

**Principles of Microeconomics**, Eighth Canadian Edition
by N. Gregory Mankiw, Ronald D. Kneebone, and Kenneth J. McKenzie

**Instructor Solutions Manual** by Ron Kneebone and Ken McKenzie
Technical Check: Racquel Lindsay
Copyeditor: Linda Szostak

COPYRIGHT © 2020 by Nelson Education, Ltd. Nelson is a registered trademark used herein under license.

For more information, contact Nelson, 1120 Birchmount Road, Scarborough, Ontario M1K 5G4. Or you can visit our Internet site at nelson.com.

ALL RIGHTS RESERVED. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, web distribution or information storage and retrieval systems—without the written permission of the publisher.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# CONTENTS

**PART 1: INTRODUCTION**

CHAPTER 1 Ten Principles of Economics .....1

CHAPTER 2 Thinking Like an Economist .....9

CHAPTER 3 Interdependence and the Gains from Trade .....21

**PART 2: SUPPLY AND DEMAND I: HOW MARKETS WORK**

CHAPTER 4 The Market Forces of Supply and Demand .....37

CHAPTER 5 Elasticity and Its Application .....65

CHAPTER 6 Supply, Demand, and Government Policies .....79

**PART 3: SUPPLY AND DEMAND II: MARKETS AND WELFARE**

CHAPTER 7 Consumers, Producers, and the Efficiency of Markets .....93

CHAPTER 8 Application: The Costs of Taxation .....109

CHAPTER 9 Application: International Trade .....121

**PART 4: THE ECONOMICS OF THE PUBLIC SECTOR**

CHAPTER 10 Externalities .....137

CHAPTER 11 Public Goods and Common Resources .....151

CHAPTER 12 The Design of the Tax System .....161

**PART 5: FIRM BEHAVIOUR AND THE ORGANIZATION OF INDUSTRY**

CHAPTER 13 The Costs of Production .....167

CHAPTER 14 Firms in Competitive Markets .....183

CHAPTER 15 Monopoly .....199

CHAPTER 16 Monopolistic Competition .....217

CHAPTER 17 Oligopoly .....229

**PART 6: THE ECONOMICS OF LABOUR MARKETS**

CHAPTER 18 The Markets for the Factors of Production .....241

CHAPTER 19 Earnings and Discrimination .....257

CHAPTER 20 Income Inequality and Poverty .....265

**PART 7: TOPICS FOR FURTHER STUDY**

CHAPTER 21 The Theory of Consumer Choice .....273

CHAPTER 22 Frontiers of Microeconomics .....291



Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# Chapter 1
# Ten Principles of Economics

## SOLUTIONS TO TEXTBOOK PROBLEMS

### Quick Quizzes

1. *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.*

   Usually students are able to come up with standard examples of tradeoffs: buy a textbook instead of a ticket to a favourite performance, go to a group study session instead of a birthday party, etc. Instructors may wish to point out less straightforward instances of how the principles work. For instance, when discussing incentives instructors may point out perverse effects of incentives. Other examples include the invention of the seat belt, or crosswalk countdown signals, discussed in the text. Examples of actions that have both monetary and nonmonetary opportunity costs are watching a movie (time + money) and driving a car (money + pollution + traffic congestion). Parents and/or guardians may offer their children gifts conditional on good results in school.

2. *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?*

   A country is better off not isolating itself from other countries for the simple reason that doing so would prevent it from engaging in mutually beneficial trade, which gives consumers access to more diverse and cheaper products.

   Markets are usually a good way of organizing economic activity because they allocate resources to their most efficient use, maximizing the size of the economic pie. This is because market prices convey information about the scarcity of various resources, which provides important signals to consumers and producers when making their decisions.

   A fundamental role of government is to define and enforce property rights for scarce resources, to allow markets to work in an efficient manner. In some cases, however, markets may nonetheless fail to allocate resources in an efficient manner, and governments can intervene to improve market outcomes. This is the case when market failures exist, such as externalities and market power.

   Another role for government can be to address concerns about the equitable distribution of the economic pie. While in the absence of market failures markets will lead to an efficient outcome (maximizing the size of the economic pie), there is no guarantee that the outcome will be equitable (result in a fair distribution of the pie). Governments can therefore play a role in pursuing equity objectives. However, this often requires interventions that may impinge upon efficiency, shrinking the overall size of the economic pie; thus the notion of the efficiency-equity tradeoff.

Copyright © 2020 Nelson Education Ltd.

3. *List and briefly explain the three principles that describe how the economy as a whole works.*

   The three principles that describe how the economy as a whole works are: (1) a country's standard of living depends on its ability to produce goods and services; (2) prices rise when the government prints too much money; and (3) society faces a short-run tradeoff between inflation and unemployment. A country's standard of living depends on its ability to produce goods and services, which in turn depends on its productivity, which is a function of the education of workers and the access workers have to the necessary tools and technology. Prices rise when the government prints too much money because more money in circulation reduces the value of money, causing inflation. Society faces a short-run tradeoff between inflation and unemployment that is only temporary, and policymakers have some ability to exploit this relationship using various policy instruments.

**Questions for Review**

1. *What is a tradeoff? Give two examples of tradeoffs that you face in your life.*

   A tradeoff is what you give up in order to get something else. Examples of tradeoffs include time tradeoffs (such as studying one subject over another, or studying at all compared to engaging in social activities), and spending tradeoffs (such as whether to use your last $15 to purchase a pizza or to buy an online study guide for that tough economics course).

2. *What is the opportunity cost of seeing a movie?*

   The opportunity cost of seeing a movie includes the monetary cost of admission plus the time cost of going to the theatre and attending the show. The time cost depends on what else you might do with that time; if it's staying home and watching TV, the time cost may be small, but if it's working an extra three hours at your job, the time cost is the money you could have earned.

3. *Water is necessary for life. Is the marginal benefit of a glass of water large or small?*

   The marginal benefit of a glass of water depends on your circumstances. If you've just run a marathon, or you've been walking in the desert sun for three hours, the marginal benefit is very high. But if you've been drinking a lot of liquids recently, the marginal benefit is quite low. The point is that even the necessities of life, like water, don't always have large marginal benefits.

4. *Why should policymakers think about incentives?*

   Policymakers need to think about incentives so they can understand how people will respond to the policies they put in place. The text's examples of seat belts and crosswalk countdown signals show that policy actions can have quite unintended consequences. If incentives matter a lot, they may lead to a very different type of policy; for example, some economists have suggested putting knives in steering columns so that people will drive much more carefully! While this suggestion is silly, it highlights the importance of incentives.

5. *Why isn't trade among countries like a game, with some winners and some losers?*

   Trade among countries isn't a game with some losers and some winners because trade can make everyone better off. By allowing specialization, trade between people and trade between countries can improve everyone's welfare.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

6. *What does the "invisible hand" of the marketplace do?*

   The "invisible hand" of the marketplace represents the idea that even though individuals and firms are all acting in their own self-interest, prices and the marketplace guide them to do what is good for society as a whole.

7. *Explain the two main causes of market failure and give an example of each.*

   The two main causes of market failure are externalities and market power. An externality is the impact of one person's actions on the well-being of a bystander, such as from pollution or the creation of knowledge. Market power refers to the ability of a single person (or small group of people) to unduly influence market prices, such as in a town with only one well or only one cable television company.

8. *Why is productivity important?*

   Productivity is important because a country's standard of living depends on its ability to produce goods and services. The greater a country's productivity (the amount of goods and services produced from each hour of a worker's time), the greater will be its standard of living.

9. *What is inflation, and what causes it?*

   Inflation is an increase in the overall level of prices in the economy. Inflation is caused by increases in the quantity of a nation's money.

10. *How are inflation and unemployment related in the short run?*

    Inflation and unemployment are negatively related in the short run. Reducing inflation entails costs to society in the form of higher unemployment in the short run.

**Quick Check Multiple Choice**

1. *Economics is best defined as the study of which of the following?*
   a. *how society manages its scarce resources*
   b. *how to run a business most profitably*
   c. *how to predict inflation, unemployment, and stock prices*
   d. *how the government can stop the harm from unchecked self-interest*

2. *What is your opportunity cost of going to a movie?*
   a. *the price of the ticket*
   b. *the price of the ticket plus the cost of any soda and popcorn you buy at the theatre*
   c. *the total cash expenditure needed to go to the movie plus the value of your time*
   d. *zero, as long as you enjoy the movie and consider it a worthwhile use of time and money*

3. *Which of the following describes a marginal change?*
   a. *one that is NOT important for public policy*
   b. *one that incrementally alters an existing plan*
   c. *one that makes an outcome inefficient*
   d. *one that does NOT influence incentives*

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

4. *What is Adam Smith's "invisible hand"?*
   a. *the subtle and often hidden methods that businesses use to profit at consumers' expense*
   b. *the ability of free markets to reach desirable outcomes despite the self-interest of market participants*
   c. *the ability of government regulation to benefit consumers even if the consumers are unaware of the regulations*
   d. *the way in which producers or consumers in unregulated markets impose costs on innocent bystanders*

5. *When policymakers make policies that change the costs and benefits that people face, what is the result for society?*
   a. *people's behaviours are altered*
   b. *people ignore incentives*
   c. *inflation occurs*
   d. *government revenue is reduced*

6. *If a nation has high and persistent inflation, what is the most likely explanation?*
   a. *the central bank is creating excessive amounts of money*
   b. *unions bargaining for excessively high wages*
   c. *the government is imposing excessive levels of taxation*
   d. *firms are using their monopoly power to enforce excessive price hikes*

1. a
2. c
3. b
4. b
5. a
6. a

**Problems and Applications**

1. *Describe some of the tradeoffs faced by each of the following.*
   *a. a family deciding whether to buy a new car*
   *b. a member of Parliament deciding how much to spend on national parks*
   *c. a company president deciding whether to open a new factory*
   *d. a professor deciding how much to prepare for class*

   a. A family deciding whether to buy a new car faces a tradeoff between the cost of the car and other things they might want to buy. For example, buying the car might mean they must give up going on vacation for the next two years. So the real cost of the car is the family's opportunity cost in terms of what they must give up.

   b. For a member of Parliament deciding whether to increase spending on national parks, the tradeoff is between parks and other spending items or tax cuts. If more money goes into the park system, that may mean less spending on national defence or on the police force. Or, instead of spending more money on the park system, taxes could be reduced.

   c. When a company president decides whether to open a new factory, the decision is based on whether the new factory will increase the firm's profits compared to other alternatives. For example, the company could upgrade existing equipment or expand existing factories. The bottom line is: Which method of expanding production will increase profit the most?

Copyright © 2020 Nelson Education Ltd.

d. In deciding how much to prepare for class, a professor faces a tradeoff between the value of improving the quality of the lecture compared to other things she could do with her time, such as working on additional research.

2. *You are trying to decide whether to take a vacation. Most of the costs of the vacation (airfare, hotel, forgone wages) are measured in dollars, but the benefits of the vacation are psychological. How can you compare the benefits to the costs?*

When the benefits of something are psychological, such as going on a vacation, it isn't easy to compare benefits to costs to determine if it's worth doing. But there are two ways to think about the benefits. One is to compare the vacation with what you would do in its place. If you didn't go on vacation, would you buy something like a new set of golf clubs? Then you can decide if you'd rather have the new clubs or the vacation. A second way is to think about how much work you had to do to earn the money to pay for the vacation; then you can decide if the psychological benefits of the vacation are worth the psychological costs incurred to earn the money to pay for the vacation.

3. *You were planning to spend Saturday working at your part-time job, but a friend asks you to go skiing. What is the true cost of going skiing? Now suppose that you had been planning to spend the day studying at the library. What is the cost of going skiing in this case? Explain.*

If you are thinking of going skiing instead of working at your part-time job, the cost of skiing includes its monetary and time costs, including the opportunity cost of the wages you are giving up by not working. If the choice is between skiing and going to the library to study, then the cost of skiing is its monetary and time costs, including the cost to you of getting a lower grade in your course.

4. *You win $100 in a hockey pool. You have a choice between spending the money now or putting it away for a year in a bank account that pays 5 percent interest. What is the opportunity cost of spending the $100 now?*

If you spend $100 now instead of saving it for a year and earning 5 percent interest, you are giving up the opportunity to spend $105 a year from now. The idea that money has a time value is the basis for the field of finance, the subfield of economics that has to do with prices of financial instruments like stocks and bonds.

5. *The company that you manage has invested $5 million in developing a new product, but the development is not quite finished. At a recent meeting, your salespeople report that the introduction of competing products has reduced the expected sales of your new product to $3 million. If it would cost $1 million to finish development and make the product, should you go ahead and do so? What is the most that you should pay to complete development?*

The fact that you've already sunk $5 million isn't relevant to your decision anymore, since that money is gone. What matters now is the chance to earn profits at the margin. If you spend another $1 million and can generate sales of $3 million, you'll earn $2 million in marginal profit, so you should do so. You're right to think that the project has lost a total of $3 million ($6 million in costs and only $3 million in revenue), and you shouldn't have started it. That's true, but if you don't spend the additional $1 million, you won't have any sales and your losses will be $5 million. So what matters is not the total profit, but the profit you can earn at the margin. In fact, you'd pay up to $3 million to complete development; any more than that and you won't be increasing profit at the margin.

Copyright © 2020 Nelson Education Ltd.

6. *The welfare system provides income for people who are very poor, with low incomes and few assets. If a recipient of welfare payments decides to work and earn some money, the amount he or she receives in welfare payments is reduced.*
   *a. How does this affect the incentive to work?*
   *b. How does this feature of the welfare system represent the tradeoff between equality and efficiency?*

   a. The provision of welfare payments lowers an individual's incentive to work by imposing an implicit tax on labour earnings. For example, if an individual who receives $100 in welfare payments loses 50 percent of those payments for each dollar in extra income earned, this is like a tax on labour earnings, which will discourage work.

   b. By targeting welfare payments at low-income people and reducing payments as their earned income increases, the system is addressing equity concerns. However, this comes at the cost of efficiency due to the decrease in work effort discussed in part a.

7. *Your roommate is a better and faster cook than you are, but you can clean more quickly than your roommate can. If your roommate did all of the cooking and you did all of the cleaning, would your chores take you more or less time than if you divided each task evenly? Give a similar example of how specialization and trade can make two countries both better off.*

   By specializing in each task, you and your roommate can finish the chores more quickly. If you divided each task equally, it would take you more time to cook than it would take your roommate, and it would take him more time to clean than it would take you. By specializing, you reduce the total time spent on chores.

   Similarly, countries can specialize and trade, making both better off. For example, suppose it takes Spanish workers less time to make clothes than French workers, and French workers can make wine more efficiently than Spanish workers. Then Spain and France can both benefit if Spanish workers produce all the clothes and French workers produce all the wine, and they exchange some wine for some clothes.

8. *Nations with corrupt police and court systems typically have lower standards of living than nations with less corruption. Why might that be the case?*

   These activities tend to lessen the efficiency of an economic system, hence reducing the economic productivity of a nation. Lower productivity means lower standards of living.

9. *Explain whether each of the following government activities is motivated by a concern about equity or a concern about efficiency. In the case of efficiency, discuss the type of market failure involved.*
   *a. regulating cable TV prices*
   *b. providing some poor people with free prescription drugs*
   *c. prohibiting smoking in public places*
   *d. preventing mergers between major banks*
   *e. imposing higher personal income tax rates on people with higher incomes*
   *f. instituting laws against driving while intoxicated*

   a. Efficiency: The market failure comes from the market power of a small number of cable TV firms.
   b. Equity

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

c. Efficiency: An externality arises because secondhand smoke harms nonsmokers in public places.

d. Efficiency: The market failure comes from the market power that might occur from potential mergers.

e. Equity

f. Efficiency: An externality exists because of accidents caused by drunk drivers.

10. *Discuss each of the following statements from the standpoints of equity and efficiency.*

*a. "Everyone in society should be guaranteed the best health care possible."*

*b. "When workers are laid off, they should be able to collect unemployment benefits until they find a new job."*

a. If everyone were guaranteed the best health care possible, much more of our nation's output would be devoted to health care than is now the case. Would that be efficient? If you believe that doctors have market power and restrict health care to keep their incomes high, you might think efficiency would increase by providing more health care. But more likely, if the government mandated increased spending on health care, the economy would be less efficient because it would give people more health care than they would choose to pay for. From the point of view of equality, if poor people are less likely to have adequate health care, providing more health care would represent an improvement. Each person would have a more equal slice of the economic pie, though the pie would consist of more health care and fewer other goods.

b. When workers are laid off, equality considerations argue for the unemployment benefits system to provide them with some income until they can find new jobs. After all, no one plans to be laid off, so unemployment benefits are a form of insurance. But there is an efficiency problem—why work if you can get income for doing nothing? The economy is not operating efficiently if people remain unemployed for a long time, and unemployment benefits encourage unemployment. Thus, there is a tradeoff between equality and efficiency. The more generous unemployment benefits are, the less income is lost by an unemployed person, but the more that person is encouraged to remain unemployed. So greater equality reduces efficiency.

11. *In what ways is your standard of living different from that of your parents or grandparents when they were your age? Why have these changes occurred?*

Since average income in Canada has roughly doubled every 35 years, we are likely to have a better standard of living than our parents, and a much better standard of living than our grandparents. This is mainly the result of increased productivity, so that an hour of work produces more goods and services than it used to. Thus, incomes have continuously risen over time, as has the standard of living.

12. *Suppose Canadians decide to save more of their incomes. If banks lend this extra saving to businesses, which use the funds to build new factories, how might this lead to faster growth in productivity? Who do you suppose benefits from the higher productivity? Is society getting a free lunch?*

If Canadians save more and it leads to more spending on factories, there will usually be an increase in production and productivity, since the same number of workers will have more equipment to work with. The benefits from higher productivity will go to both the workers, who will get paid more since they're producing more, and the factory owners, who will get a return on their investments. There is no such thing as a free lunch, however, because when people save more, they are giving up spending. They get higher incomes in the future at the cost of buying fewer goods today.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# Chapter 2
# Thinking Like an Economist

## SOLUTIONS TO TEXTBOOK PROBLEMS

### Quick Quizzes

1. *In what sense is economics like a science? • Draw a production possibilities frontier for a society that produces food and clothing. Show an efficient point, an inefficient point, and an infeasible point. Show the effects of a drought. • Define* microeconomics *and* macroeconomics*.*

   Economics is like a science because economists devise theories, collect data, and analyze the data in an attempt to verify or refute their theories. In other words, economics is based on the scientific method.

   Figure 1 shows the production possibilities frontier for a society that produces food and clothing. Point A is an efficient point (on the frontier), point B is an inefficient point (inside the frontier), and point C is an infeasible point (outside the frontier).

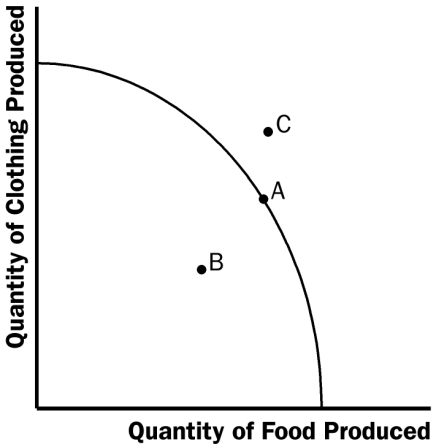



**Figure 1**

   The effects of a drought are shown in Figure 2. The drought reduces the amount of food that can be produced, shifting the production possibilities frontier inward.

Copyright © 2020 Nelson Education Ltd.

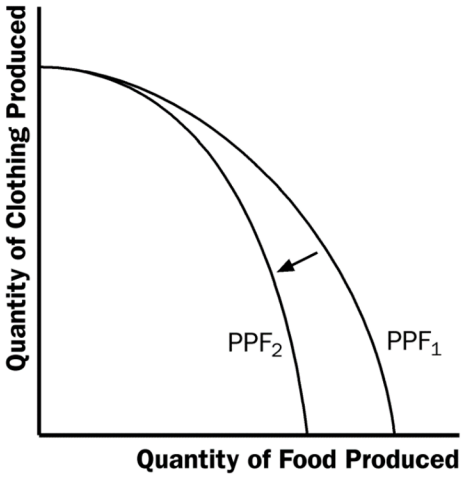



**Figure 2**

Microeconomics is the study of how households and firms make decisions and how they interact in markets. Macroeconomics is the study of economy-wide phenomena, including inflation, unemployment, and economic growth.

2. *Give an example of a positive statement and an example of a normative statement. • Name three parts of government that regularly rely on advice from economists.*

An example of a positive statement is "higher taxes discourage work effort" (many other answers are possible). That is a positive statement because it describes the effects of higher taxes, describing the world as it is. An example of a normative statement is "the government should reduce tax rates." That is a normative statement because it is a claim about how the world should be.

Parts of the government that regularly rely on advice from economists are Finance Canada in designing tax policy, Industry Canada in designing and enforcing Canada's antimonopoly laws, and International Trade Canada in helping to negotiate trade agreements with other countries.

3. *Why might economic advisers to the Prime Minister disagree about a question of policy?*

Economic advisers to the Prime Minister might disagree about a question of policy because of differing scientific judgments or differences in values.

**Questions for Review**

1. *In what ways is economics like a science?*

Economics is like a science because economists use the scientific method. They devise theories, collect data, and then analyze these data in an attempt to verify or refute their theories about how the world works. Economists use theory and observation like other scientists, but they are limited in their ability to run controlled experiments. Instead, they must rely on natural experiments.

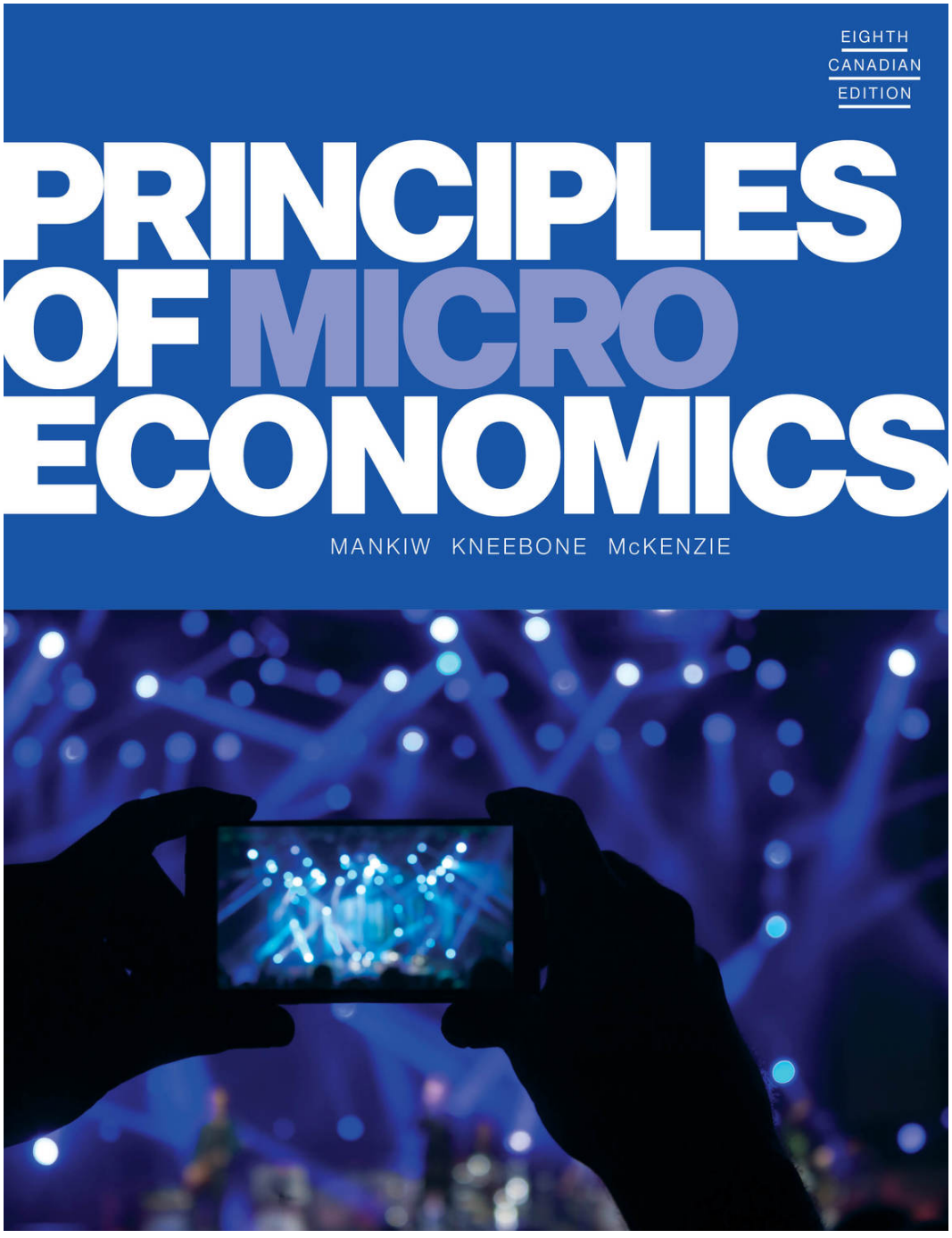
Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

*Enriched*

# INSTRUCTOR'S MANUAL

to accompany




Prepared by Philippe Ghayad and Michel Mayer
Dawson College

NELSON

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

NELSON

**Principles of Microeconomics**, Eighth Canadian Edition
by N. Gregory Mankiw, Ronald D. Kneebone, and Kenneth J. McKenzie

**Enriched Instructor's Manual** by Philippe Ghayad and Michel Mayer
Copyeditor: Linda Szostak

Tanya Noel, Tamara Kelly, and Julie Clark of York University developed the pedagogical model for Nelson Education's Enriched Instructor's Manual.

COPYRIGHT © 2020 by Nelson Education, Ltd. Nelson is a registered trademark used herein under license.

For more information, contact Nelson, 1120 Birchmount Road, Scarborough, Ontario M1K 5G4. Or you can visit our Internet site at nelson.com.

ALL RIGHTS RESERVED. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, web distribution or information storage and retrieval systems—without the written permission of the publisher.



Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# CONTENTS

**PART 1: INTRODUCTION**

CHAPTER 1 Ten Principles of Economics ..... 1

CHAPTER 2 Thinking Like an Economist ..... 11

CHAPTER 3 Interdependence and the Gains from Trade ..... 25

**PART 2: SUPPLY AND DEMAND I: HOW MARKETS WORK**

CHAPTER 4 The Market Forces of Supply and Demand ..... 35

CHAPTER 5 Elasticity and Its Application ..... 57

CHAPTER 6 Supply, Demand, and Government Policies ..... 71

**PART 3: SUPPLY AND DEMAND II: MARKETS AND WELFARE**

CHAPTER 7 Consumers, Producers, and the Efficiency of Markets ..... 81

CHAPTER 8 Application: The Costs of Taxation ..... 93

CHAPTER 9 Application: International Trade ..... 103

**PART 4: THE ECONOMICS OF THE PUBLIC SECTOR**

CHAPTER 10 Externalities ..... 115

CHAPTER 11 Public Goods and Common Resources ..... 127

CHAPTER 12 The Design of the Tax System ..... 135

**PART 5: FIRM BEHAVIOUR AND THE ORGANIZATION OF INDUSTRY**

CHAPTER 13 The Costs of Production ..... 145

CHAPTER 14 Firms in Competitive Markets ..... 159

CHAPTER 15 Monopoly ..... 173

CHAPTER 16 Monopolistic Competition ..... 187

CHAPTER 17 Oligopoly ..... 199

**PART 6: THE ECONOMICS OF LABOUR MARKETS**

CHAPTER 18 The Markets for the Factors of Production ..... 213

CHAPTER 19 Earnings and Discrimination ..... 225

CHAPTER 20 Income Inequality and Poverty ..... 235

**PART 7: TOPICS FOR FURTHER STUDY**

CHAPTER 21 The Theory of Consumer Choice ..... 245

CHAPTER 22 Frontiers of Microeconomics ..... 261



Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# PREFACE to the *Enriched Instructor's Manual to accompany Principles of Microeconomics*, Eighth Canadian Edition

## About NETA

The Nelson Education Teaching Advantage (NETA) program delivers research-based instructor's resources that promote student engagement and higher-order thinking to enable the success of Canadian students and educators.

Instructors today face many challenges. Resources are limited, time is scarce, and a new kind of student has emerged: one who is juggling school with work, has gaps in his or her basic knowledge, and is immersed in technology in a way that has led to a completely new style of learning. In response, Nelson Education has gathered a group of dedicated instructors to advise us on the creation of richer and more flexible ancillaries and online learning platforms that respond to the needs of today's teaching environments. Whether your course is offered in class, online, or both, Nelson is pleased to provide pedagogically driven, research-based resources to support you.

In consultation with our editorial advisory board, Nelson Education has completely rethought the structure, approaches, and formats of our key textbook ancillaries and online learning platforms. We've also increased our investment in editorial support for our ancillary and digital authors. The result is the Nelson Education Teaching Advantage and its key components: *NETA Engagement, NETA Assessment, NETA Presentation,* and *NETA Digital.* Each component includes one or more ancillaries prepared according to our best practices and may also be accompanied by documentation explaining the theory behind the practices.

The **Enriched Instructor's Manual** for *Principles of Microeconomics* was prepared under the ***NETA Engagement*** program. *NETA Engagement* presents materials that help instructors deliver engaging content and activities to their classes. Instead of instructor's manuals that regurgitate chapter outlines and key terms from the text, NETA *Enriched Instructor's Manuals* (EIMs) provide genuine assistance to teachers. The EIMs address important topics, such as: *Why is this chapter important to students?* and *If nothing else, my students should learn….* EIMs not only identify the topics that cause students the most difficulty, but also describe techniques and resources to help students master these concepts. Dr. Roger Fisher's *Instructor's Guide to Classroom Engagement* (IGCE) accompanies every *Enriched Instructor's Manual*.

## The Enriched Instructor's Manual for *Principles of Microeconomics*

Prepared by Philippe Ghayad and Michel Mayer, Dawson College, this is NOT a typical instructor's manual. This Manual may be used as a toolbox for instructors to use to select tactics and strategies that are most appropriate for their teaching style. Each chapter provides instructors with a list of new and updated items in the new edition text, key goals, learning objectives, troublesome concepts, and suggested teaching methods for different approaches, and suggested activities. The structure of each Enriched Instructor's Manual chapter includes:



Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

***What's New in the Eighth Edition?*** This section highlights changes and updates in the new Canadian Edition text.

***Learning Objectives*** In many cases, instructors may not wish to include all topics within a particular chapter, and thus would only be interested in a subset of the provided learning objectives. We have attempted to be comprehensive, and include learning objectives that reflect chapter content.

***Why Is This Chapter Important to Students?*** This section provides a brief synopsis of the chapter with relevance to students in mind.

***If Nothing Else, My Students Should Learn…*** In some cases, instructors will have limited time to devote to a chapter, and may need to prioritize based on the most important concepts.

***What Can I Do in Class?*** Strategies are provided within the chapter outline for effective teaching/learning environments, suggested approaches to teaching, suggested engagement activities, and tips for discussions.

***The Instructor's Guide to Classroom Engagement*** accompanies this *Enriched Instructor's Manual*. This guide provides instructors with an overview of the theory and models of active learning. The Instructor's Guide to Classroom Engagement is downloadable from the text's instructor resource site.



Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# 1 TEN PRINCIPLES OF ECONOMICS

## WHAT'S NEW IN THE EIGHTH EDITION?

Two new *Case Study* features have been added to Chapter 1. The first, "Ready, Set, Go …," looks at how people respond to incentives, using the example of auto safety. The second, "Adam Smith Would Have Loved Uber," looks at how markets organize economic activity, using Uber as an example.

## LEARNING OBJECTIVES

**By the end of this chapter, students should understand:**

- that economics is about the allocation of scarce resources.
- that individuals face tradeoffs.
- the meaning of *opportunity cost.*
- how to use marginal reasoning when making decisions.
- how incentives affect people's behaviour.
- why trade among people or nations can be good for everyone.
- why markets are a good, but not perfect, way to allocate resources.
- what determines some trends in the overall economy.

## WHY IS THIS CHAPTER IMPORTANT TO STUDENTS?

Chapter 1 is the first chapter in a three-chapter section that serves as the introduction to the text. Chapter 1 introduces ten fundamental principles on which the study of economics is based. In a broad sense, the rest of the text is an elaboration on these ten principles. Chapter 2 explains how economists approach problems while Chapter 3 shows how individuals and countries gain from trade.

The purpose of Chapter 1 is to lay out ten economic principles that will serve as building blocks for the rest of the text. The ten principles can be grouped into three categories: how people make decisions, how people interact, and how the economy as a whole works. These ten principles are referred to often throughout the text.

Copyright © 2020 Nelson Education Ltd.


Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

## IF NOTHING ELSE, MY STUDENTS SHOULD LEARN…

1. 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.

2. The fundamental lessons about interactions among people are that trade can be mutually beneficial, that markets are usually a good way of coordinating trades among people, and that the government can potentially improve market outcomes if there is some sort of market failure or if the market outcome is inequitable.

3. 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.

## WHAT CAN I DO IN CLASS?

I. Introduction



Begin by pointing out that economics is a subject that students must confront in their everyday lives. Point out that they already spend a great deal of their time thinking about economic issues: prices, buying decisions, use of their time, etc.

A. The word "economy" comes from the Greek word meaning "one who manages a household."

B. This makes some sense since in the economy we are faced with many decisions (just as a household is).

C. Fundamental economic problem: resources are scarce.



You will want to start the semester by explaining to students that part of learning economics is to understand new vocabulary. Economists generally use very precise (and sometimes different) definitions for words that are commonly used outside of the economics discipline. Therefore, it will be helpful to students if you follow the definitions provided in the text as much as possible.

D. Definition of **scarcity: the limited nature of society's resources.**

E. Definition of **economics: the study of how society manages its scarce resources.**



Because most first-year students have limited experiences with viewing the world from a cause-and-effect perspective, do not underestimate how challenging these principles will be for the student.

Copyright © 2020 Nelson Education Ltd.



As you discuss the ten principles, make sure that students realize it is okay if they do not grasp each of the concepts completely or find each of the arguments fully convincing. These ideas will be explored more completely throughout the text.

II. How People Make Decisions

A. Principle #1: People Face Tradeoffs

1. "There is no such thing as a free lunch." Making decisions requires trading off one goal against another.

2. Examples include how a student spends her time, how a family decides to spend its income, how the Canadian government spends tax dollars, how regulations may protect the environment at a cost to firm owners.

3. A special example of a tradeoff is the tradeoff between efficiency and equity.

   a. Definition of **efficiency: the property of society getting the most it can from its scarce resources.**

   b. Definition of **equity: the property of distributing economic prosperity fairly among the members of society.**

   c. For example, tax dollars paid by wealthy Canadians and then distributed to those less fortunate may improve equity but lower the return to hard work and therefore reduce the level of output produced by our resources.

   d. This implies that the cost of this increased equity is a reduction in the efficient use of our resources.

4. Recognizing that tradeoffs exist does not indicate what decisions should be made.

   a. People are likely to make good decisions only if they understand the options that they have available.

B. Principle #2: The Cost of Something Is What You Give Up to Get It

1. Making decisions requires individuals to consider the benefits and costs of some action. However, the cost of an action is not always as obvious as it might appear.

2. What are the costs of going to college or university?

   a. We cannot count room and board (at least all of the cost) because the person would have to pay for food and shelter even if he or she were not in school.

   b. We would want to count the value of the student's time since he could be working for pay instead of attending classes and studying.

3. Definition of **opportunity cost: whatever must be given up to obtain some item**.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

4. Example: Looking at the opportunity cost of taking a day off to watch *Game of Thrones* in terms of lost wages
   a. Assuming an average hourly wage of $28 and a 6-hour workday, the opportunity cost of taking the day off to watch *Game of Thrones* is $168 in lost wages.

   b. Instead of looking at it in terms of wages, you could use any good lost as a point of reference. For instance, if a cup of coffee costs $1.75, then the opportunity cost of watching *Game of Thrones* could be seen as 96 cups of coffee (the amount of cups of coffee that could have been bought with the $168).

C. Principle #3: Rational People Think at the Margin



One of the hardest ideas for students to grasp is that "free" things are not truly free. Thus, you will need to provide students with numerous examples of such "free" things with hidden costs, especially the value of time.

1. Many decisions in life involve incremental decisions: Should I remain in school this semester? Should I take another course this semester? Should I study an additional hour for tomorrow's exam? Rational people often make decisions by comparing marginal benefits and marginal costs.

2. Definition of **rational people: those who systematically and purposefully do the best they can to achieve their objectives.**

3. Definition of **marginal changes: small incremental adjustments to a plan of action.**

4. Example: Suppose that flying a 200-seat plane across the country costs the airline $100 000, which means that the average cost of each seat is $500. Suppose that the plane is minutes from departure and a passenger is willing to pay $300 for a seat. Should the airline sell the seat for $300? In this case, the marginal cost of an additional passenger is very small (the cost of the bag of peanuts and can of soda the extra passenger will consume). Therefore, as long as the passenger pays more than the marginal cost, selling him a ticket is profitable.

5. Marginal decision making can help explain puzzling economic phenomena.

   a. Why is water so cheap while diamonds are so expensive?

   b. The reason is that a person's willingness to pay for any good is based on the marginal benefit that an extra unit of the good would yield. The marginal benefit, in turn, depends on how many units a person already has.

6. A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost.

D. Principle #4: People Respond to Incentives

1. Definition of **incentive: something that induces a person to act.**

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

2. Because rational people make decisions by weighing costs and benefits, they respond to incentives. Incentives are crucial in analyzing how markets work.

    a. When the price of a good rises, consumers will buy less of it because its cost has risen.

    b. When the price of a good rises, producers will allocate more resources to the production of the good because the benefit from producing the good has risen.

3. Sometimes policymakers fail to understand how policies may alter incentives and behaviour.

4. Example: Seat belt laws increase use of seat belts and lower the incentives of individuals to drive safely. This leads to an increase in the number of car accidents. This also leads to an increased risk for pedestrians.

5. In the News: "Even Criminals Respond to Incentives"

    a. Crime rates have been falling all around the industrialized world, but why?

    b. Thieves are simply responding to market signals where the payoffs from theft are much lower than they use to be. For example, fewer people carry cash in their wallets today.

    c. However, cybercrimes and identity theft are on the rise.



If you include any incentive-based criteria on your syllabus, discuss it now. If you reward class attendance (or penalize students who do not attend class), explain to students how this change in the marginal benefit of attending class can be expected to alter their behaviour.

III. How People Interact

A. Principle #5: Trade Can Make Everyone Better Off

1. Trade is not like a sports contest, where one side gains and the other side loses.

2. Consider trade that affects your family. Certainly the family is involved in trade with other families on a daily basis. Each family in an economy competes with all other families. Most families do not build their own homes, make their own clothes, or grow their own food.

3. Just like families benefit from trading with one another, so do countries.

4. This occurs because it allows for specialization in areas that countries (or families) can do best.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

**Activity 1—Getting Dressed in the Global Economy**

| | |
|---|---|
| **Type:** | In-class assignment |
| **Topics:** | Specialization, interdependence, self-interest, consumer choice, international trade |
| **Materials needed:** | None |
| **Time:** | 20 minutes |
| **Class limitations:** | Works in any class size |

**Purpose**

The advantages of specialization and division of labour are very clear in this example. The worldwide links of the modern economy are also illustrated. We depend on thousands of people we don't know, won't see, and don't think of in order to get dressed each morning. Self-interest follows naturally from interdependence. Wages, profits, and rents give people the incentive to perform these varied tasks. We depend on them to clothe us and they depend on our purchases for their incomes.

**Instructions**

Ask the class to answer the following questions. Give them time to write an answer to each question, then discuss their answers before moving on to the next question. The first question can be answered with a brief phrase. The second question is the core of the assignment and takes several minutes. Ask them to list as many categories of workers as possible. The third question introduces demand concepts; most of the determinants of demand can be introduced during this discussion. For the fourth question, ask the class to look at the country-of-origin tags sewn in their garments.

1. Where did your clothes come from?
2. Who worked to produce your clothes?
3. What things do you consider when buying a garment?
4. Where were your clothes produced (what countries)?

**Common Answers and Points for Discussion**

1. Where did your clothes come from?

There are many possible ways to answer, but many students will say "the mall" or another retail outlet. Some may say "a factory," "a sweatshop," or "a foreign country."

Mention the importance of markets here (this can be emphasized by asking "Is anyone wearing something made by themselves, a friend, or a relative?") and discuss distribution versus production.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

2. Who worked to produce your clothes?

There is no end to the possible answers; garment and textile workers are obvious but most students will also list workers dealing with raw materials, transportation, management, design, or machinery. Some may think more broadly to investors, road crews, bankers, engineers, or accountants.

3. What things do you consider when buying a garment?

Most answers focus on preferences (fit, style, quality, colour). Price is cited less frequently. Ask about the importance of price until someone volunteers that income is important. Prices of substitute goods should also be discussed. Expectations of price changes may also be mentioned. Few students mention complementary goods and most students reject the idea of choosing a sweater to match a particular outfit.

4. Where were your clothes produced (what countries)?

A large number of countries will be represented, even in small classes. Students are usually surprised to find how many garments are domestically produced. Asia is always well represented. Latin American and European goods appear in smaller numbers. African products are conspicuously absent.

This pattern shows the limits of simple explanations such as "cheap labour." Briefly discuss the importance of comparative advantage and specialization.

B. Principle #6: Markets Are Usually a Good Way to Organize Economic Activity

1. Most countries that once had centrally planned economies have abandoned this system and are trying to develop market economies.

2. Definition of **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.**

3. Prices and self-interest guide the decision-making process in the marketplace. Market prices reflect both the value of a product to consumers and the cost of the resources used to produce it. Therefore, decisions to buy or produce goods and services are made based on the cost to society of providing them.



Explain to students that when households and firms do what is best for themselves, they often end up doing what is best for society, as if guided by market forces—or an invisible hand. Spend some time and emphasize the magic of the market. Use numerous examples to show students that the market most often allocates resources to their highest valued use.

4. When a government interferes in a market and restricts prices from adjusting naturally, such as with the use of taxes, decisions that households and firms make are not based on the proper information. Thus, these decisions may be inefficient.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

5. Centrally planned economies failed because they did not allow the market to work. Prices were dictated by central planners as opposed to being determined in the marketplace.

6. Case Study: Adam Smith Would Have Loved Uber

   a. In most major cities, the taxi industry is highly regulated, resembling a centrally planned economy more than a market economy.

   b. Recently, the introduction of Uber has changed the market, as Uber works primarily as a market economy with little intervention from the government and where prices can respond to changes in demand.

   c. The increased competition and market environment brought in by Uber have led to an increase in consumer well-being.

C. Principle #7: Governments Can Sometimes Improve Market Outcomes

1. Markets work only if property rights are enforced.

   a. Definition of **property rights: the ability of an individual to own and exercise control over scarce resources.**

2. Two broad reasons push governments to intervene: to promote efficiency and to promote equity. Government policy can be most useful when there is market failure.

   a. Definition of **market failure: a situation in which a market left on its own fails to allocate resources efficiently.**

3. Examples of market failure.

   a. Definition of **externality: the impact of one person's actions on the well-being of a bystander.** (A classic example being pollution.)

   b. Definition of **market power: the ability of a single economic actor (or small group of actors) to have a substantial influence on market prices.**

   c. Because a market economy rewards people for their ability to produce things that other people are willing to pay for, there will be an unequal distribution of economic prosperity.

4. Note that the principle states that the government can improve market outcomes. This is not saying that the government always does improve market outcomes.

IV. How the Economy as a Whole Works

A. Principle #8: A Country's Standard of Living Depends on Its Ability to Produce Goods and Services

1. Differences in living standards from one country to another are staggering.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

2. Changes in living standards over time are also large.

3. The explanation for differences in living standards lies in differences in productivity.

4. Definition of **productivity: the quantity of goods and services produced from each hour of a worker's time.**

5. High productivity implies a high standard of living and low productivity leads to a lower standard of living.

6. The growth rate of a nation's productivity determines the growth rate of its average income.

7. Thus, policymakers must understand the impact of any policy on our ability to produce goods and services and must therefore strive to ensure workers are well educated, have the proper tools and the best available technology.

B. Principle #9: Prices Rise When the Government Prints Too Much Money

1. Definition of **inflation: an increase in the overall level of prices in the economy.**

2. Because high inflation imposes various costs on society, keeping inflation at a low level is a goal of economic policymakers around the world.

3. When the government creates a large amount of money, the value of money falls.

4. Examples: Germany after World War I (in the early 1920s), and Canada in the 1970s.

C. Principle #10: Society Faces a Short-Run Tradeoff between Inflation and Unemployment

1. The short-run effects of monetary injection:

   a. Increasing the amount of money in the economy stimulates the overall level of spending and thus the demand for goods and services.

   b. Higher demand may over time cause firms to raise their prices, but it also encourages them to increase the quantity of goods and services they produce and to hire more workers to produce those goods and services.

   c. More hiring means lower unemployment.

2. Some economists still question these ideas, but most accept that society faces a short-run tradeoff between inflation and unemployment.

3. Over a short period of time, economic policies push inflation and unemployment in opposite directions.

4. The policymakers face this tradeoff regardless of whether inflation and unemployment both start out at high or low levels.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

5. The short-run tradeoff between inflation and unemployment is important for understanding the business cycle.

6. Definition of **business cycle: fluctuations in economic activity, such as employment and production.**

7. Policymakers can exploit this short-run tradeoff by using various policy instruments, but the extent and desirability of these interventions is of continuing debate.

8. This debate heated up in 2008 and 2009 when the Canadian economy, as well as many other economies around the world, experienced a deep economic downturn.

**Activity 2—So Many Things to Do, So Little Time**

**Type:** In-class assignment
**Topics:** Tradeoffs, opportunity cost, thinking at the margin, incentives
**Materials needed:** None
**Time:** 10 minutes
**Class limitations:** Works in any class size

Give students a list of activities with corresponding time requirements: sleep, 8 hours; sleep, 6 hours; eat breakfast, 30 minutes; ride a bike, 1 hour; go hiking, 2 hours; study, 3 hours; study, 2 hours; go to class, 4 hours; go to class, 6 hours; watch TV, 2 hours; watch TV, 6 hours; take a nap, 1 hour; work, 8 hours; work, 4 hours; etc.

Make sure that there are many choices and that there are many pleasurable experiences—too much for a 24-hour period.

Ask students which Principle of Economics this illustrates.

If they do not say 1, 2, 3, and 4, help them see that this exercise has tradeoffs in the choices they make, that each choice has an opportunity cost, that deciding whether or not to sleep 4 more hours may depend on whether you have already slept for 6, and that choices may be influenced by the incentives the student faces. For example, a student who is about to be placed on academic probation has an incentive to study harder.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

# 2 THINKING LIKE AN ECONOMIST

## WHAT'S NEW IN THE EIGHTH EDITION?

In Chapter 2, an explanation of the *Ask the Experts* boxes included in this edition appears beside the first box, "Ticket Resale," which concerns the resale of entertainment tickets. One question has been added in the Question for Review section. A reference back to a case study in Chapter 1 explains the possible effects of omitted variables.

## LEARNING OBJECTIVES

**By the end of this chapter, students should understand:**

- how economists apply the methods of science.
- how assumptions and models can shed light on the world.
- two simple models—the circular flow and the production possibilities frontier.
- the difference between microeconomics and macroeconomics.
- the difference between positive and normative statements.
- the role of economists in making policy.
- why economists sometimes disagree with one another.
- how to graph variables and interpret data (in Appendix).

## WHY IS THIS CHAPTER IMPORTANT TO STUDENTS?

Chapter 2 is the second chapter in a three-chapter section that serves as the introduction of the text. Chapter 1 introduced ten principles of economics that will be revisited throughout the text. Chapter 2 develops how economists approach problems, while Chapter 3 will explain how individuals and countries gain from trade.

The purpose of Chapter 2 is to familiarize students with how economists approach economic problems. With practice, students will learn how to approach similar problems in this dispassionate systematic way. They will see how economists employ the scientific method, the role of assumptions in model building, and the application of two specific economic models. Students will also learn the important distinction between two roles economists can play: as scientists when we try to explain the

Copyright © 2020 Nelson Education Ltd.


Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual

economic world, and as policymakers when we try to improve it. In the Appendix, students will learn how to graph variables and functions, and properly interpret data.

## IF NOTHING ELSE, MY STUDENTS SHOULD LEARN…

1. Economists try to address their subject with a scientist's objectivity. Like all scientists, they collect and analyze data, they make appropriate assumptions and build simplified models in order to understand the world around them. Two simple economic models are the circular-flow diagram and the production possibilities frontier.

2. The field of economics is divided into two subfields: microeconomics and macroeconomics. Microeconomists study decision making by households and firms and the interaction among households and firms in the marketplace. Macroeconomists study the forces and trends that affect the economy as a whole.

3. A positive statement is an assertion about how the world *is*. A normative statement is an assertion about how the world *ought to be*. When economists make normative statements, they are acting more as policy advisers than scientists.

4. Economists who advise policymakers offer conflicting advice either because of differences in scientific judgments or because of differences in values. At other times, economists are united in the advice they offer, but policymakers may choose to ignore it.

## WHAT CAN I DO IN CLASS?

I. The Economist as Scientist

A. The Scientific Method: Observation, Theory, and More Observation

1. Observations help us to develop theory.

2. Data can be collected and analyzed to evaluate theories.

3. Unlike other sciences, conducting experiments in economics is often impractical.

4. Using data to evaluate theories is more difficult in economics than in physical science because economists are unable to generate their own data and must make do with whatever data are available.

5. Thus, economists pay close attention to the natural experiments offered by history.

B. The Role of Assumptions

1. Assumptions can simplify the complex world and make it easier to understand.

2. Example: to understand international trade, it may be helpful to start out assuming that there are only two countries in the world producing only two goods. Once we understand how trade would work in this simplified world, we are in a better position to understand trade in the more complex world in which we live.

Copyright © 2020 Nelson Education Ltd.

Principles of Microeconomics (Canadian) 8th edition Mankiw Solutions Manual