

# MACROECONOMICS



# The moment you know

It's that inspired moment when something makes perfect sense. MyEconLab for Ragan, Macroeconomics, Fourteenth Edition

**MyEconLab** is a dynamic online tool that helps you reach that moment, time and again.

- Chapter tests generate your personal study plan and an assignment tool lets your instructor guide your learning toward those moments of true understanding.
- Practise problems created directly from the textbook's Study Exercises are available in your personal Study Plan with links to online learning resources.
- "Help-Me-Solve-This" breaks down a problem and guides you through the steps to solve it.
- Links to the eText guide you to revisit a concept or explanation when needed.
- · Animated figures with audio explanations reinforce your reading.
- Additional topics provide opportunities for you to explore economics concepts that build on key chapter topics.
- Economics News provides regular news feed updates on key economics articles and events happening around the world.
- Economics Experiments provide unique opportunities for you to immerse yourself in key economics decisions and outcomes.
- The graphing tool enables you to build and manipulate graphs to understand how concepts, numbers, and graphs connect.
- Unlimited Practice: Hundreds of practice questions ensure that you get as much practice as you need, and as you work on each exercise, instant feedback helps you understand and apply the concepts.



ALWAYS LEARNING

# PEARSON

# MACROECONOMICS

### CHRISTOPHER T.S. RAGAN

McGill University



Vice-President, Editorial Director: Gary Bennett Editor-in-Chief: Nicole Lukach Acquisitions Editor: Claudine O'Donnell Marketing Manager: Leigh-Anne Graham Developmental Editor: Suzanne Schaan Project Manager: Andrea Falkenberg Production Editor: Melinda Durham Project Coordination and Editorial Services: Electronic Publishing Services Inc., NYC Copy Editor: Linda Jenkins Proofreader: Megan Smith-Creed Compositor: Jouve Photo Researcher: Marta Johnson Permissions Researcher: Marnie Lamb Art Director: Julia Hall Interior Designer: Opushouse Inc./Sonya Thursby Cover Designer: Miriam Blier Cover Image: Steve McDonald

Credits and acknowledgments of material borrowed from other sources and reproduced, with permission, in this textbook appear on the appropriate page within the text and on p. C-1.

This edition is authorized for sale only in Canada.

If you purchased this book outside the United States or Canada, you should be aware that it has been imported without the approval of the publisher or author.

Copyright © 2014, 2011, 2008, 2005, 2001, 1997 Pearson Canada Inc. All rights reserved. Manufactured in Canada. Previous editions were published by HarperCollins Publishers (formerly Harper & Row Publishers) in 1994, 1991, 1988, 1982, 1979, 1969, and 1966. Portions of the work were first published in the United Kingdom as *An Introduction to Positive Economics*, © 1963 by Richard G. Lipsey. This publication is protected by copyright and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. To obtain permission(s) to use material from this work, please submit a written request to Pearson Canada Inc., Permissions Department, 26 Prince Andrew Place, Don Mills, Ontario, M3C 2T8, or fax your request to 416-447-3126, or submit a request to Permissions Requests at www.pearsoncanada.ca.

10 9 8 7 6 5 4 3 2 1 [WC]

#### Library and Archives Canada Cataloguing in Publication

Ragan, Christopher Macroeconomics / Christopher T.S. Ragan. — 14th Canadian ed.

Includes index. ISBN 978-0-321-79488-8

1. Macroeconomics-Textbooks. 2. Macroeconomics-Canada-Textbooks. I. Title.

HB172.5.R35 2013 339 C2012-906729-6



# **Brief Contents**

PART 1	What Is Economics?	
Chapter 1	Economic Issues and Concepts	1
Chapter 2	Economic Theories, Data, and	22
	Graphs	32
PART 2	An Introduction to Demand	
	and Supply	55
Chapter 3	Demand, Supply, and Price	55
PART 7	An Introduction to Macroeconomics	473
Chapter 19	What Macroeconomics Is All	
-	About	473
Chapter 20	The Measurement of National	
	Income	497
PART 8	The Economy in the Short Run	518
Chapter 21	The Simplest Short-Run Macro Model	518
Chapter 22	Adding Government and Trade	510
Chapter 22	to the Simple Macro Model	545
Chapter 23	Output and Prices in the	
	Short Run	566
PART 9	The Economy in the Long Run	587
Chapter 24	From the Short Run to the Long	
-	Run: The Adjustment of Factor	
	Prices	587
Chapter 25	The Difference Between	
	Short-Run and Long-Run	616
Chapter 26	Macroeconomics Long-Run Economic Growth	616
Chapter 20	Long Run Leononne Orowin	052

PART 10	Manay Panking and Manatary Policy	663
PARI IU	Money, Banking, and Monetary Policy	003
Chapter 27	Money and Banking	663
Chapter 28	Money, Interest Rates,	
	and Economic Activity	690
Chapter 29	Monetary Policy in Canada	719
PART 11	Macroeconomic Problems and Policies	749
Chapter 30	Inflation and Disinflation	749
Chapter 31	Unemployment Fluctuations	
1	and the NAIRU	775
Chapter 32	Government Debt and Deficits	801
	Oceando in the Clobel Feenemy	823
PART 12	Canada in the Global Economy	023
	The Gains from International	023
Chapter 33	•	823
Chapter 33	The Gains from International Trade	
Chapter 33 Chapter 34	The Gains from International Trade Trade Policy	823
Chapter 33	The Gains from International Trade	823
Chapter 33 Chapter 34	The Gains from International Trade Trade Policy Exchange Rates and the Balance of Payments	823 847
Chapter 33 Chapter 34 Chapter 35	The Gains from International Trade Trade Policy Exchange Rates and the Balance of Payments CHAPTER	823 847 872
Chapter 33 Chapter 34 Chapter 35	The Gains from International Trade Trade Policy Exchange Rates and the Balance of Payments CHAPTER Challenges Facing the Developing	823 847 872 <b>519</b>
Chapter 33 Chapter 34 Chapter 35	The Gains from International Trade Trade Policy Exchange Rates and the Balance of Payments CHAPTER	823 847 872
Chapter 33 Chapter 34 Chapter 35	The Gains from International Trade Trade Policy Exchange Rates and the Balance of Payments CHAPTER Challenges Facing the Developing	823 847 872 <b>519</b>

Mathematical Notes	M-1
Photo Credits	C-1
Timeline of Great Economists	T-1
Index	I-1
Common Abbreviations Used in the Text	CA-1

# Contents

List of Boxes	xi
Additional Topics on MyEconLab	xiii
To the Instructor	xiv
To the Student	xx
Features of This Edition	xxi
Supplements Acknowledgements About the Author	xxiii xxv
About the Author	XXVI

### PART 1

What Is	Econo	omics?		
Chapter	1	Economic	Issues	1

Chapter 1	Economic Issues and Concepts	1
1.1	What Is Economics?	4
	Resources	4
	Scarcity and Choice	4
	Four Key Economic Problems	8
	Economics and Government Policy	9
1.2	The Complexity of Modern	
	Economies	10
	The Nature of Market Economies	11
	The Decision Makers and Their	
	Choices	13
	Production and Trade	15
1.3	Is There an Alternative to the	
	Market Economy?	17
	Types of Economic Systems	18
	The Great Debate	19
	Government in the Modern Mixed	
	Economy	22
Summary		23
Key Concept		23
Study Exerci	ses	24
Appendix to	Chapter 1	
A Refresher	-	26
Displaying	g Points on a Graph	26
Linear Cu	rves	27
Non-Line	ar Curves	29
A Final W	/ord	31
Chapter 2	Economic Theories, Data,	
	and Graphs	32
2.1	Positive and Normative Statements	33
	Disagreements Among Economists	34
2.2	Building and Testing Economic	
	Theories	36
	What Are Theories?	36
	Testing Theories	37
	0	

2.3	Economic Data	40
	Index Numbers	40
	Graphing Economic Data	43
2.4	Graphing Economic Theories	45
	Functions	45
	Graphing Functions	46
	A Final Word	50
Summary		50
Key Conce	epts	51
Study Exe	rcises	51
Study Exe	1(1868	51

#### PART 2

Chapter 3	Demand, Supply, and Price	5!
3.1	Demand	50
	Quantity Demanded	50
	Quantity Demanded and Price	58
	Demand Schedules and Demand	
	Curves	5
3.2	Supply	6
	Quantity Supplied	6
	Quantity Supplied and Price	6
	Supply Schedules and Supply Curves	6.
3.3	The Determination of Price	6
	The Concept of a Market	6
	Market Equilibrium	7
	Changes in Market Equilibrium	7
	Relative Prices and Inflation	7.
Summary		7
Key Concep	ots	7
Study Exerc	cises	7

#### PART 7

An Introduct	ion to Macroeconomics	473
Chapter 19	What Macroeconomics Is All About	473
19.1	Key Macroeconomic Variables	475
	Output and Income	475
	Employment, Unemployment,	
	and the Labour Force	480
	Productivity	482
	Inflation and the Price Level	483
	Interest Rates	487
	The International Economy	489
19.2	Growth Versus Fluctuations	491
	Long-Term Economic Growth	492
	Short-Term Fluctuations	492

	What Lies Ahead?	493
Summary		493
Key Concept	ts	494
Study Exerci	ses	494
Chapter 20	The Measurement of National	
	Income	497
20.1	National Output and Value Added	498
20.2	National Income Accounting:	
	The Basics	500
	GDP from the Expenditure Side	502
	GDP from the Income Side	505
20.3	National Income Accounting:	
	Some Further Issues	507
	GDP and GNP	508
	Real and Nominal GDP	509
	Omissions from GDP	511
	GDP and Living Standards	514
Summary		515
Key Concept	ts	516
Study Exerci	ses	516

#### PART 8

The Economy	in the Short Run	518
Chapter 21	The Simplest Short-Run	
	Macro Model	<b>518</b>
21.1	Desired Aggregate Expenditure	519
	Desired Consumption Expenditure	520
	Desired Investment Expenditure	527
	The Aggregate Expenditure Function	531
21.2	Equilibrium National Income	532
21.3	Changes in Equilibrium National	
	Income	535
	Shifts of the AE Function	535
	The Multiplier	537
	Economic Fluctuations as	
	Self-Fulfilling Prophecies	540
Summary		541
Key Concept		542
Study Exercis	ses	542
Chapter 22	Adding Government and Trade	
	to the Simple Macro Model	545
22.1	Introducing Government	546
	Government Purchases	546
	Net Tax Revenues	546
	The Budget Balance	547
	Provincial and Municipal	
	Governments	547
	Summary	547
22.2	Introducing Foreign Trade	548
	Net Exports	548

	Shifts in the Net Export Function	549
	Summary	551
22.3	Equilibrium National Income	551
	Desired Consumption and	
	National Income	551
	The AE Function	552
	Equilibrium National Income	554
22.4	Changes in Equilibrium National	
	Income	554
	The Multiplier with Taxes and	
	Imports	555
	Net Exports	557
	Fiscal Policy	557
22.5	Demand-Determined Output	558
Summary	-	560
Key Concept	S	561
Study Exerci	ses	561
Appendix to	Chapter 22	
An Algebraic	: Exposition	
of the Sim	ple Macro Model	564
The Algeb	ra Illustrated	565
Chapter 23	Output and Prices in the Short Run	566
12 1	The Demand Side of the Economy	567
43.1	T 01 1 1	
23.1	Exogenous Changes in the	
23.1	Exogenous Changes in the Price Level	567
23.1		567 568
23.1	Price Level Changes in Equilibrium GDP	
	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve	568
	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b>	568 569
	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve	568 569 572
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the <i>AS</i> Curve	568 569 572 572
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the <i>AS</i> Curve <b>Macroeconomic Equilibrium</b>	568 569 572 572 572
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic	568 569 572 572 574 575
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic Equilibrium	568 569 572 572 574 575 576
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic Equilibrium Aggregate Demand Shocks	568 569 572 572 574 575 576 576
23.2	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic Equilibrium Aggregate Demand Shocks Aggregate Supply Shocks	568 569 572 572 574 575 576 576 576
23.2 23.3	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic Equilibrium Aggregate Demand Shocks	568 569 572 572 574 575 576 576
23.1 23.2 23.3 Summary Key Concept	Price Level Changes in Equilibrium GDP The Aggregate Demand Curve <b>The Supply Side of the Economy</b> The Aggregate Supply Curve Shifts in the AS Curve <b>Macroeconomic Equilibrium</b> Changes in the Macroeconomic Equilibrium Aggregate Demand Shocks Aggregate Supply Shocks A Word of Warning	568 569 572 572 574 575 576 576 576 579 581

### PART 9

The Economy	in the Long Run	587
Chapter 24	From the Short Run to the Long Run:	
	The Adjustment of Factor Prices	587
	The Short Run	588
	The Adjustment of Factor Prices	588
	The Long Run	588
	Summary	589
24.1	The Adjustment Process	589
	Potential Output and the	
	Output Gap	590

~

	Factor Prices and the Output Gap	590
	Potential Output as an "Anchor"	593
24.2	Aggregate Demand and	
	Supply Shocks	593
	Expansionary AD Shocks	594
	Contractionary AD Shocks	596
	Aggregate Supply Shocks	598
	Long-Run Equilibrium	599
24.3	Fiscal Stabilization Policy	601
27.3	The Basic Theory of Fiscal	001
	Stabilization	602
	Automatic Fiscal Stabilizers	605
	Practical Limitations of	603
		(00
	Discretionary Fiscal Policy	608
0	Fiscal Policy and Growth	609
Summary		612
Key Concept		613
Study Exerci	ses	613
Chapter 25	The Difference Between Short-Run	
	and Long-Run Macroeconomics	616
25.1	Two Examples from Recent	
	History	617
	Inflation and Interest Rates in	
	Canada	617
	Saving and Growth in Japan	618
	A Need to Think Differently	619
25.2	Accounting for Changes in GDP	619
	GDP Accounting: The Basic Principle	620
	GDP Accounting: An Application	625
	Summing Up	627
25.3	Policy Implications	627
	Looking Ahead	628
Summary		629
Key Concept	-s	629
Study Exerci		629
•		
Chapter 26	Long-Run Economic Growth	<b>632</b>
26.1	The Nature of Economic Growth	633
	Benefits of Economic Growth	634
	Costs of Economic Growth	636
	Sources of Economic Growth	638
26.2	Established Theories of Economic	<
	Growth	638
	A Long-Run Analysis	639
	A Theory of Investment, Saving,	<i>(</i> <b>1 0</b>
	and Growth	640
262	Neoclassical Growth Theory	643
26.3	Newer Growth Theories	650
	Endogenous Technological Change	650
	Increasing Marginal Returns	653
26.4	Are There Limits to Growth?	655
	Resource Exhaustion	655
	Environmental Degradation	656

Conclusion	657
Summary	659
Key Concepts	660
Study Exercises	660

#### PART 10

Money, Bank	king, and Monetary Policy	663
Chapter 27	Money and Banking	663
27.1	The Nature of Money	664
	What Is Money?	664
	The Origins of Money	665
	Modern Money: Deposit Money	670
27.2	The Canadian Banking System	671
	The Bank of Canada	671
	Commercial Banks in Canada	674
	Commercial Banks' Reserves	676
27.3	Money Creation by the Banking System	678
	Some Simplifying Assumptions	679
	The Creation of Deposit Money	679
	Excess Reserves and Cash Drains	681
27.4	The Money Supply	683
2/.1	Kinds of Deposits	683
	Definitions of the Money Supply	684
	Near Money and Money Substitutes	684
	The Role of the Bank of Canada	685
Summary	The Role of the Dank of Canada	<b>686</b>
Key Concep	ts	686
Study Exerc		<b>6</b> 87
Chapter 28	Money, Interest Rates, and	
	Economic Activity	690
28.1	Understanding Bonds	691
	Present Value and the Interest Rate	691
	Present Value and Market Price	693
	Interest Rates, Bond Prices, and	
	Bond Yields	694
	Bond Riskiness	695
28.2	The Theory of Money Demand	695
	Three Reasons for Holding Money	697
	The Determinants of Money Demand	697
	Money Demand: Summing Up	699
28.3	Monetary Equilibrium and	
	National Income	700
	Monetary Equilibrium	700
	The Monetary Transmission	
	Mechanism	701
	An Open-Economy Modification	705
	The Slope of the AD Curve	706
28.4	The Strength of Monetary Forces	707
	The Neutrality of Money	707
	Money and Inflation	710

	The Short-Run Effects of	
	Monetary Shocks	711
Summary		714
Key Concepts		
Study Exercis		715 716
·		
Chapter 29	Monetary Policy in Canada	719
29.1	How the Bank of Canada	
	Implements Monetary Policy	720
	Money Supply Versus the	
	Interest Rate	720
	The Bank of Canada and the	
	Overnight Interest Rate	722
	The Money Supply Is Endogenous	725
	Expansionary and Contractionary	
	Monetary Policies	725
29.2	Inflation Targeting	727
	Why Target Inflation?	727
	Inflation Targeting and the	
	Output Gap	729
	Inflation Targeting as a	
	Stabilizing Policy	730
	Complications in Inflation Targeting	731
29.3	Long and Variable Lags	733
	What Are the Lags in Monetary	100
	Policy?	733
	Destabilizing Policy?	735
	Political Difficulties	736
29.4	Thirty Years of Canadian	/ 50
27.7	-	727
	Monetary Policy	737
	Economic Recovery: 1983–1987	738
	Rising Inflation: 1987–1990	739
	Disinflation: 1990–1992	739
	Inflation Targeting I: 1991–2000	740
	Inflation Targeting II: 2001–2007	742
	Financial Crisis, Recession and	
-	Recovery: 2007–Present	743
Summary		745
Key Concept		746
Study Exercis	ses	746
PART 11		
Macroeconor	nic Problems and Policies	749
Chaptor 20	Inflation and Disinflation	749
<b>Chapter 30</b> 30.1		
50.1	Adding Inflation to the Model	751
	Why Wages Change	751
	From Wages to Prices	754
20.2	Constant Inflation	755
30.2	Shocks and Policy Responses	756
	Demand Shocks	757
	Supply Shocks	759
	Accelerating Inflation	761
	Inflation as a Monetary Phenomenon	763

30.3	Reducing Inflation	765
	The Process of Disinflation	765
	The Cost of Disinflation	769
	Conclusion	770
Summary		770
Key Concept	s	771
Study Exercis		771
Chapter 31	Unemployment Fluctuations	
Chapter 31	and the NAIRU	775
31.1	Employment and Unemployment	776
31.1	Changes in Employment	776
	Changes in Unemployment	777
	Flows in the Labour Market	778
	Measurement Problems	778
	Consequences of Unemployment	779
31.2	Unemployment Fluctuations	782
51.2		782
	Market-Clearing Theories	784
31.3	Non-Market-Clearing Theories What Determines the NAIRU?	787
51.5	Frictional Unemployment	787
	Structural Unemployment	788
	The Frictional–Structural Distinction	790
		790
31.4	Why Does the NAIRU Change? Reducing Unemployment	791 793
31.4	Cyclical Unemployment	7 <b>93</b> 794
		794
	Frictional Unemployment	794
	Structural Unemployment Conclusion	796
Summany.	Conclusion	796
Summary Key Concept	0	798
Study Exercis		798
•		
Chapter 32	Government Debt and Deficits	801
32.1	Facts and Definitions	802
	The Government's Budget	
	Constraint	802
	Deficits and Debt in Canada	804
32.2	Two Analytical Issues	806
	The Stance of Fiscal Policy	806
	Debt Dynamics	809
32.3	The Effects of Government Debt	
	and Deficits	812
	Do Deficits Crowd Out Private	
	Activity?	812
	Do Deficits Harm Future Generations?	814
	Does Government Debt Hamper	
	Economic Policy?	815
32.4	Formal Fiscal Rules	817
	Annually Balanced Budgets	817
	Cyclically Balanced Budgets	818
	Maintaining a Prudent	
	Debt-to-GDP Ratio	818
Summary		819

Key Concepts	820
Study Exercises	820

PART 12 Canada in the Global Economy

Canada in the Global Economy		823
<b>Chapter 33</b> 33.1	<b>The Gains from International Trade</b> The Gains from Trade Interpersonal, Interregional, and	<b>823</b> 824
	International Trade	825
	Illustrating the Gains from Trade	826
	The Gains from Trade with Variable Costs	829
33.2	Sources of Comparative Advantage The Determination of Trade Patterns	832 835
33.2	The Law of One Price	835
	The Pattern of Foreign Trade	836
	Is Comparative Advantage Obsolete?	837
	The Terms of Trade	839
Summary		843
Key Concept	S	843
Study Exerci	ses	844
Chapter 34	Trade Policy	847
34.1	Free Trade or Protection?	848
	The Case for Free Trade	848
	The Case for Protection	849
	Invalid Arguments for Protection	852
34.2	Methods of Protection	855
	Tariffs	855
	Quotas and Voluntary Export	
	Restrictions (VERs)	856
	Tariffs Versus Quotas: An Application	857
	Trade-Remedy Laws and Non-tariff Barriers	858
34.3	Current Trade Policy	858 860
34.3	The GATT and the WTO	860
	Regional Trade Agreements	861
	Trade Creation and Trade Diversion	863
	The North American Free Trade	005
	Agreement	864
Summary		868
Key Concept	S	869
Study Exercis	ses	869
Chapter 35	Exchange Rates and the Balance	
	of Payments	872
35.1	The Balance of Payments	873
	The Current Account	873
	The Capital Account	873
	The Balance of Payments Must	0.5
	Balance	874
	No Such Thing as a Balance of	074
	Payments Deficit!	876
	Summary	878

35.2	The Foreign-Exchange Market	878
	The Supply of Foreign Exchange	880
	The Demand for Foreign Exchange	882
35.3	The Determination of Exchange	
	Rates	882
	Flexible Exchange Rates	883
	Fixed Exchange Rates	884
	Changes in Flexible Exchange Rates	885
	Structural Changes	889
	The Volatility of Exchange Rates	890
35.4	Three Policy Issues	890
	Current Account Deficits and	
	Surpluses	890
	Is There a "Correct" Value for the	
	Canadian Dollar?	896
	Should Canada Have a Fixed	
	Exchange Rate?	899
Summary		905
Key Concept	S	906
Study Exerci	ses	906

#### **MYECONLAB CHAPTER**

Chapter 36W Challenges Facing the Developing

519

	Countries	1
36W.1	The Uneven Pattern of Development	t 2
36W.2	Impediments to Economic	
	Development	4
	Natural Resources	4
	Inefficiency	5
	Human Capital and Health	5
	Agriculture	6
	Population Growth	6
	Cultural Barriers	7
	Domestic Saving	9
	Infrastructure	9
	Institutions	10
	Foreign Debt	10
36W.3	Development Policies	11
	The Older View	11
	The Rise of a New View	12
	The "Washington Consensus"	14
	Debate Beyond the Washington	
	Consensus	16
	Conclusion	18
Summary		19
Key Concep	ots	19
Mathematic	cal Notes	M-1
Photo Cred	its	C-1
Timeline of	Great Economists	T-1
Index		I-1
Common A	bbreviations Used in the Text	CA-1

# List of Boxes

### Applying Economic Concepts

1-1	The Opportunity Cost of Your University	
	Degree	6
2-1	Where Economists Work	35
3-1	Why Apples But Not iPhones?	69
19-1	The Terminology of Business Cycles	478
19-2	How the CPI Is Constructed	484
20-1	Value Added Through Stages of	
	Production	499
20-2	Calculating Nominal and Real GDP	512
21-1	The Simple Multiplier: A Numerical	
	Example	538
22-1	How Large Is Canada's Simple	
	Multiplier?	556
25-1	What Does Productivity Growth Really	
	Look Like?	624
26-1	A Case Against Economic Growth	636
26-2	Climate Change and Economic Growth	658
28-1	Understanding Bond Prices and Bond	
	Yields	696
28-2	Monetary Reform and the Neutrality	
	of Money	708
29-1	What Determines the Amount of	
	Currency in Circulation?	726

30-1	How Do People Form Their Expectations?	753
30-2	Is Deflation a Problem?	757
31-1	Stocks and Flows in the Canadian	
	Labour Market	780
31-2	Voluntary Versus Involuntary	
	Unemployment	789
32-1	The Continuing Greek Tragedy of Debt	
	Dynamics	810
33-1	Two Examples of Absolute and	
001	Comparative Advantage	831
33-2	-	001
00 2	Supply Chains	840
34-1	Does the WTO Do More Harm	010
011	Than Good?	862
34-2		002
512	International Trade	864
34-3	Canadian Wine: A Free-Trade Success	001
515	Story	867
35-1	A Student's Balance of Payments with	007
55-1	the Rest of the World	877
25.2		
35-2	Managing Fixed Exchange Rates	886
35-3	News and the Exchange Rate	891

### Lessons from History

1-1	The Failure of Central Planning	20
3-1	Ice Storms, Hurricanes, and Economics	74
23-1	The Asian Crisis and the Canadian	
	Economy	582
24-1	Fiscal Policy in the Great Depression	606
26-1	Should Workers Be Afraid of	
	Technological Change?	649

6
4
4
3

# Extensions in Theory

3-1	The Distinction Between Stocks and Flows	57
3-2	The Algebra of Market Equilibrium	76
20-1	Arbitrary Decisions in National Income	
	Accounting	508
21-1	The Theory of the Consumption	
	Function	523
21-2	The Algebra of the Simple Multiplier	540
23-1	The Keynesian AS Curve	580
24-1	The Phillips Curve and the Adjustment	
	Process	594

600
762
766
787
830

# Additional Topics on MyEconLab (www.myeconlab.com)

Insurance

CHAPTER 1	Challenges Facing the Developing	CHAPTER 28	A Beginner's Guide to the Stock Market
	Countries		Interest Rates and the Slope of the <i>AD</i>
CHAPTER 2	How Economists Choose Their Theories		Curve
	What the S&P/TSX Really Measures	CHAPTER 29	Monetary Policy and the Exchange Rate in Canada
CHAPTER 3	Economic Data and the Identification Problem		Can Inflation Be Too Low?
	A Primer on the Market for Crude Oil	CHAPTER 30	The Costs of High Inflation
CHAPTER 20	Growth in Canada and Other G7 Countries	CHAPTER 31	Understanding the Canada–U.S. Unemployment Gap
	What Makes People Happy?		Does Government Support of Specific
CHAPTER 21	The Consumption Function in Canada		Industries Really Create Jobs?
	Investment, Saving, and Equilibrium GDP	CHAPTER 32 What Caused the Build- Public Debt?	
CHAPTER 22	The Saving–Investment Approach to Equilibrium in an Open Economy with		Budget Deficits and National Saving
		CHAPTER 33	Who Are Canada's Trading Partners?
	Government		Does Third-World Growth Harm
	What Is the Balanced Budget Multiplier?		First-World Prosperity?
CHAPTER 23	Oil Prices and the Canadian Economy	CHAPTER 34	The Continuing Saga of Softwood Lumber
CHAPTER 24	Several Measures of Economic Fluctuations in Canada		Farm Subsidies and the World Trade
CHAPTER 25	Understanding and Addressing Canada's		Organization
	Productivity Challenges	CHAPTER 35	Expectations and Exchange-Rate Overshooting
CHAPTER 26	What Makes People Happy?		What Is an Optimal Currency Area?
	Investment and Saving in Globalized Financial Markets	CHAPTER 36W	÷ ,
			Challenges Facing the Developing Countries
	The Economic and Fiscal Challenges of Population Aging		Countries
	Challenges Facing the Developing Countries		
CHAPTER 27	A Quick Introduction to Financial Assets		
	The U.S. Housing Collapse and the Financial Crisis of 2007–2008		
	The Costs and Benefits of Deposit		

# To the Instructor

Economics is a living discipline, changing and evolving in response to developments in the world economy and in response to the research of many thousands of economists throughout the world. Through fourteen editions, *Macroeconomics* has evolved with the discipline. Our purpose in this edition, as in the previous thirteen, is to provide students with an introduction to the major issues facing the world's economies, to the methods that economists use to study those issues, and to the policy problems that those issues create. Our treatment is everywhere guided by three important principles:

- 1. Economics is *scientific*, in the sense that it progresses through the systematic confrontation of theory by evidence. Neither theory nor data alone can tell us much about the world, but combined they tell us a great deal.
- 2. Economics is *useful*, and it should be seen by students to be so. An understanding of economic theory combined with knowledge about the economy produces many important insights about economic policy. Although we stress these insights, we are also careful to point out cases in which too little is known to support strong statements about public policy. Appreciating what is not known is as important as learning what is known.
- 3. We strive always to be *honest* with our readers. Although we know that economics is not always easy, we do not approve of glossing over difficult bits of analysis without letting readers see what is happening and what has been assumed. We take whatever space is needed to explain why economists draw their conclusions, rather than just asserting the conclusions. We also take pains to avoid simplifying matters so much that students would have to unlearn what they have been taught if they continue their study beyond the introductory course. In short, we have tried to follow Albert Einstein's advice:

*Everything should be made as simple as possible, but not simpler.* 

### **Current Economic Issues**

In writing the fourteenth edition of *Macroeconomics*, we have tried to reflect the major economic issues that we face in the early twenty-first century.

#### Living Standards and Economic Growth

One of the most fundamental economic issues is the determination of overall living standards. Adam Smith wondered why some countries become wealthy while others remain poor. Though we have learned much about this topic in the past 240 years since Adam Smith's landmark work, economists recognize that there is still much we do not know.

Technological change plays a central role in our discussions of long-run economic growth in Chapters 25 and 26. We explore not only the traditional channels of saving, investment, and population growth, but also the more recent economic theories that emphasize the importance of increasing returns and endogenous growth.

We are convinced that no other introductory economics textbook places as much emphasis on technological change and economic growth as we do in this book. Given the importance of continuing growth in living standards and understanding where that growth comes from, we believe this emphasis is appropriate. We hope you agree.

#### **Financial Crisis, Recession, and Recovery**

The collapse of U.S. housing prices in 2007 led to a global financial crisis the likes of which had not been witnessed in a century, and perhaps longer. A deep recession, experienced in many countries, followed quickly on its heels. These dramatic events reawakened many people to two essential facts about economics. First, modern economies *can and do* go into recession. This essential fact had perhaps been forgotten by many who had become complacent after more than two decades of economic prosperity. Second, financial markets are crucial to the operation of modern economies. Like an electricity system, the details of financial markets are a mystery to most people, and the system itself is often ignored when it is functioning properly. But when financial markets cease to work smoothly and interest rates rise while credit flows decline, we are all reminded of their importance. In this sense, the financial crisis of 2007– 2008 was like a global power failure for the world economy.

The financial crisis had many macro consequences. It affected the Canadian banking system, discussed in Chapter 27, and led to some aggressive actions by the Bank of Canada, as discussed in Chapter 29. Moreover, as the global financial crisis led to a deep recession worldwide, Canadian fiscal policy was forced to respond, as we review in Chapters 24 and 32. Finally, as has happened several times in history, the recession raised the threat of protectionist policies, as we examine in Chapter 34.

#### Globalization

Enormous changes have occurred throughout the world over the last few decades. Flows of trade and investment between countries have risen so dramatically that it is now common to speak of the "globalization" of the world economy. Today it is no longer possible to study any economy without taking into account developments in the rest of the world.

Throughout its history, Canada has been a trading nation, and our policies relating to international trade have often been at the centre of political debates. International trade shows up in many parts of this textbook, but it is the exclusive focus of two chapters. Chapter 33 discusses the theory of the gains from trade; Chapter 34 explores trade policy, with an emphasis on NAFTA and the WTO.

With globalization and the international trade of goods and assets come fluctuations in exchange rates. In recent years there have been substantial changes in the Canada–U.S. exchange rate—a 15-percent depreciation followed the Asian economic crisis in 1997–1998, and an even greater appreciation occurred in the 2002–2008 period. Such volatility in exchange rates complicates the conduct of economic policy. In Chapters 28 and 29 we explore how the exchange rate fits into the design and operation of Canada's monetary policy. In Chapter 35 we examine the debate between fixed and flexible exchange rates.

The forces of globalization are with us to stay. In this fourteenth edition of *Macroeconomics*, we have done our best to ensure that students are made aware of the world outside Canada and how events elsewhere in the world affect the Canadian economy.

#### **The Role of Government**

Between 1980 and 2008, the political winds shifted in Canada, the United States, and many other countries. Political parties that previously advocated a greater role for government in the economy argued the benefits of limited government. But the political winds shifted again with the arrival of the financial crisis and global recession in 2008, which led governments the world over to take some unprecedented actions. Many soon argued that we were observing the "end of laissez-faire" and witnessing the return of "big government." But was that really true?

Has the *fundamental* role of government changed significantly over the past 35 years? In order to understand the role of government in the economy, students must understand the benefits of free markets as well as the situations that cause markets to fail. They must also understand that governments often intervene in the economy for reasons related more to equity than to efficiency.

In this fourteenth edition of *Macroeconomics*, we continue to incorporate the discussion of government policy as often as possible. Here are but a few of the many examples that we explore:

- fiscal policy (in Chapters 22 and 24)
- policies related to the economy's long-run growth rate (in Chapter 26)
- monetary policy (in Chapters 28, 29, and 30)
- policies that affect the economy's long-run unemployment rate (in Chapter 31)
- the importance of debt and deficits (in Chapter 32)
- trade policies (in Chapter 34)
- policies related to the exchange rate (in Chapter 35)

#### The Book

Economic growth, financial crisis and recession, globalization, and the role of government are pressing issues of the day. Much of our study of economic principles and the Canadian economy has been shaped by these issues. In addition to specific coverage of growth and internationally oriented topics, growth and globalization appear naturally throughout the book in the treatment of many topics once thought to be entirely "domestic." Most chapters of *Macroeconomics* contain some discussion of economic policy. We have two main goals in mind when we present these discussions:

- 1. We aim to give students practice in using economic theory, because applying theory is both a wonderfully effective teaching method and a reliable test of students' grasp of theory.
- 2. We want to introduce students to the major policy issues of the day and to let them discover that few policy debates are as "black and white" as they often appear in the press.

Both goals reflect our view that students should see economics as useful in helping us to understand and deal with the world around us.

#### **Structure and Coverage**

Our treatment of macroeconomics is divided into six parts. We make a clear distinction between the economy in the short run and the economy in the long run, and we get quickly to the material on longrun economic growth. Students are confronted with issues of long-run economic growth *before* they are introduced to issues of money and banking. Given the importance of economic growth in driving overall living standards, we believe that this is an appropriate ordering of the material, but for those who prefer to discuss money before thinking about economic growth, the order can be easily switched without any loss of continuity.

The first macro chapter, Chapter 19, introduces readers to the central macro variables, what they mean, and why they are important. The discussion of national income accounting in Chapter 20 provides a thorough treatment of the distinction between real and nominal GDP, the distinction between GDP and GNP, and a discussion of what measures of national income *do not measure* and whether these omissions really matter.

Part 8 develops the core short-run model of the macro economy, beginning with the fixed-price (Keynesian Cross) model in Chapters 21 and 22 and then moving on to the *AD/AS* model in Chapter 23. Chapter 21 uses a closed economy model with no government to explain the process of national-income determination and the nature of the multiplier. Chapter 22 extends the setting to include international trade and government spending and taxation. Chapter 23 rounds out our discussion of the short run with the *AD/AS* framework, discussing the importance of both aggregate demand and aggregate supply shocks. We place the Keynesian Cross before the *AD/AS* model to show that there is no mystery about where the *AD* curve comes from and why it is downward sloping; the *AD* curve is derived directly from the Keynesian Cross model. In contrast, books that begin their analysis with the *AD/AS* model are inevitably less clear about where the model comes from. We lament the growing tendency to omit the Keynesian Cross from introductory macroeconomics textbooks; we believe the model has much to offer students in terms of economic insights.

Part 9 begins in Chapter 24 by showing how the short-run model evolves toward the long run through the adjustment of factor prices-what we often call the Phillips curve. We introduce potential output as an "anchor" to which real GDP returns following AD or AS shocks. This chapter also addresses issues in fiscal policy, including the important distinction between automatic stabilizers and discretionary fiscal stabilization policy. Chapter 25 is a short chapter that contrasts short-run with long-run macroeconomics, emphasizing the different typical causes of output changes over the two time spans. Using Canadian data, we show that long-run changes in GDP have their root causes in changes in factor supplies and productivity, whereas short-run changes in GDP are more closely associated with changes in the factor utilization rate. With this short-run/long-run distinction firmly in place, we are well positioned for the detailed discussion of long-run economic growth that appears in Chapter 26. Our treatment of long-run growth, which we regard as one of the most important issues facing Canada and the world today, goes well beyond the treatment in most introductory texts.

Part 10 focuses on the role of money and financial systems. Chapter 27 discusses the nature of money, various components of the money supply, the commercial banking system, and the Bank of Canada. In Chapter 28 we offer a detailed discussion of the link between the money market and other economic variables such as interest rates, the exchange rate, national income, and the price level. In Chapter 29 we discuss the Bank of Canada's monetary policy, including a detailed discussion of inflation targeting. The chapter ends with a review of Canadian monetary policy over the past 30 years.

Part 11 deals with some of today's most pressing macroeconomic policy issues. It contains separate chapters on inflation, unemployment, and government budget deficits. Chapter 30 on inflation examines the central role of expectations in determining inflation and the importance of credibility on the part of the central bank. Chapter 31 on unemployment examines the determinants of frictional and structural unemployment and discusses likely reasons for increases in the NAIRU over the past few decades. Chapter 32 on budget deficits stresses the effect of deficits on longterm economic growth.

Virtually every macroeconomic chapter contains at least some discussion of international issues. However, the final part of Macroeconomics focuses primarily on international economics. Chapter 33 gives the basic treatment of international trade, developing both the traditional theory of static comparative advantage and newer theories based on imperfect competition and dynamic comparative advantage. Chapter 34 discusses both the positive and normative aspects of trade policy, as well as the WTO and NAFTA. Chapter 35 introduces the balance of payments and examines exchange-rate determination. Here we also discuss three important policy issues: the desirability of current-account deficits or surpluses, whether there is a "right" value for the Canadian exchange rate, and the costs and benefits of Canada's adopting a fixed exchange rate.

We hope you find this menu both attractive and challenging; we hope students find the material stimulating and enlightening. Many of the messages of economics are complex—if economic understanding were only a matter of common sense and simple observation, there would be no need for professional economists and no need for textbooks like this one. To understand economics, one must work hard. Working at this book should help readers gain a better understanding of the world around them and of the policy problems faced by all levels of government. Furthermore, in today's globalized world, the return to education is large. We like to think that we have contributed in some small part to the understanding that increased investment in human capital by the next generation is necessary to restore incomes to the rapid growth paths that so benefited our parents and our peers. Perhaps we may even contribute to some income-enhancing accumulation of human capital by some of our readers.

# Substantive Changes to This Edition

We have revised and updated the entire text with guidance from an extensive series of formal reviews and other feedback from both users and nonusers of the previous editions of this book. As always, we have striven very hard to improve the teachability and readability of the book. We have focused the discussions so that each major point is emphasized as clearly as possible, without distracting the reader with nonessential points. Additional Topics, available on MyEconLab (www.myeconlab.com), address theoretical, empirical, and policy discussions that are interesting but optional. (A complete listing of the Additional Topics is provided following the Contents after the List of Boxes.) As in recent editions, we have kept all core material in the main part of the text. Three types of boxes (Applying Economic Concepts, Lessons from History, and Extensions in Theory) are used to show examples or extensions that can be skipped without fear of missing an essential concept. But we think it would be a shame to skip too many of them, as there are many interesting examples and policy discussions in these boxes.

What follows is a brief listing of the main changes that we have made to the textbook.

#### **Microeconomics Introduction**

#### Part 1: What Is Economics?

Chapter 1 has been significantly rewritten and rearranged. We now begin with a brief discussion of six key issues in the Canadian and world economies, and then turn to examine resources and scarcity, coordination in markets, and alternative economic systems. We have added a discussion of the role of economic policy. In Chapter 2, we have improved our discussion of the nature of theories, causation, and predictions, and we have added a new box discussing where economists get jobs and what kinds of work they do.

#### Part 2: An Introduction to Demand and Supply

In Chapter 3 on the basics of demand and supply, we have added a new box explaining why the model works well for commodities (like apples) but not so well for differentiated products (like iPhones).

#### Macroeconomics

#### Part 7: An Introduction to Macroeconomics

We motivate Chapter 19 with a new discussion of the onset and effects of the global financial crisis, as well as the associated debates over the role of government intervention. We have improved our discussion of output gaps and the meaning of full employment. In Chapter 20, we have expanded our discussion of whether and why the omissions from GDP matter.

#### Part 8: The Economy in the Short Run

In Chapter 21, we have clarified the key assumptions used in the short-run macro model. In Chapter 22, we have sharpened the discussion about fiscal policy in the final section. In Chapter 23, we have streamlined and improved our discussion of the slope of the *AS* curve, and we have simplified our discussion of how technological changes shift the curve. We have also clarified the existing box on the Keynesian *AS* curve.

#### Part 9: The Economy in the Long Run

In Chapter 24, we have clarified what we mean by the short run, the adjustment process, and the long run. We clarify the assumption that AD and AS shocks do not change the value of Y\*, but state that this assumption is debated (and addressed in later chapters). We have improved our discussion of the paradox of thrift and the motivation for fiscal stabilization policy. When examining the connection between fiscal policy and growth, we now address the possibility that fiscal policy may have a direct effect on Y\* and thereby reduce the extent of crowding out. In Chapter 25, we have streamlined the opening discussions about inflation and Japanese growth. We have also added a new box explaining what productivity growth "really looks like" in some easy-to-imagine occupational settings. Chapter 26 on long-run economic growth now has a substantially improved introduction. We have deleted the old boxes on "growth is good" and "growth is bad" but have added a new box outlining the modern and respectable arguments against continued growth in the developed economies. We have shortened the discussion of the opportunity cost of growth, and we have improved our discussion of the limits to growth.

#### Part 10: Money, Banking, and Monetary Policy

In Chapter 27 we have rewritten and modernized the discussion of deposit money and have streamlined the discussion of commercial banks. In Chapter 28, we have added more on riskiness to our existing discussion of bonds, including reference to some European countries today. We have completely rewritten our section on the neutrality and nonneutrality of money and have added new discussions on hysteresis effects—two reasons why Y\* may be affected by changes in the money supply. We have also added a new box on money neutrality as it applies to monetary reform and

a new discussion of the connection between inflation and money growth across countries. In Chapter 29, we have clarified our discussion of how the Bank achieves its target for the overnight rate. We have entirely rewritten our discussion about the motivation for the adoption of inflation targeting, and also about the role of the output gap, although the central messages are unchanged.

#### **Part 11: Macroeconomic Problems and Policies**

In Chapter 30, we have streamlined the discussion of accelerating inflation and have substantially shortened the discussion of the three phases of a disinflation. In Chapter 31 on unemployment, we have added a new discussion of discouraged workers and underemployment. We have also entirely rewritten our discussion of competing theories of the labour market-now posed as market-clearing versus non-market-clearing theories. We have deleted the old box on RBC models but have added a new box on additional reasons for wage stickiness. Chapter 32 examines debt and deficits. We have deleted the old box on the algebra of debt dynamics (which now occurs in a math note) and have added a new box that applies the debtdynamics equation to the situation of Greece in 2011. We have reworked the section on crowding out and make the point that if the fiscal expansion increases the value of Y\* then the extent of crowding out will fall. We have deleted the old box on foreign-held debt and also deleted the repetitive section on the effect of budget surpluses. We have improved the discussion of fiscal rules, especially regarding the emphasis on a relatively stable debt-to-GDP ratio.

#### Part 12: Canada in the Global Economy

Chapter 33 on the gains from international trade has been updated and revised, but there is no substantial change to its structure or messages. In Chapter 34, we have reworked and clarified our discussion of the case for protection. We have shortened the discussion of countervailing duties but expanded the discussion and examples of national treatment in NAFTA. We have also streamlined our discussion of the ongoing WTO Doha round. Our mention of the new Trans Pacific Partnership now leads us to a new box on the ongoing drive to diversify Canada's trade. In Chapter 35, we have clarified our explanation for why the balance of payments must balance, and we have simplified our discussion of why changes in export prices lead to exchange-rate fluctuations.

\* \* \*

If you are moved to write to us (and we hope that you will be!), please do. You can send any comments or questions regarding the text (or any of the supplementary material, such as the *Instructor's Manual*, the *Study Guide*, the *TestGen*, or the web-based *Additional Topics*) to:

Christopher Ragan Department of Economics McGill University 855 Sherbrooke St. West Montreal, Quebec H3A 2T7 e-mail: christopher.ragan@mcgill.ca

# To the Student

Welcome to what is most likely your first book about economics! You are about to encounter what is for most people a new way of thinking, which often causes people to see things differently than they did before. But learning a new way of thinking is not always easy, and you should expect some hard work ahead. We do our best to be as clear and logical as possible and to illustrate our arguments whenever possible with current and interesting examples.

You must develop your own technique for studying, but the following suggestions may prove helpful. Begin by carefully considering the Learning Objectives at the beginning of a chapter. Read the chapter itself relatively quickly in order to get the general idea of the argument. At this first reading, you may want to skip the boxes and any footnotes. Then, after reading the Summary and the Key Concepts (at the end of each chapter), reread the chapter more slowly, making sure that you understand each step of the argument.

With respect to the figures and tables, be sure you understand how the conclusions that are stated in boldface at the beginning of each caption have been reached. You should be prepared to spend time on difficult sections; occasionally, you may spend an hour on only a few pages. Paper and pencil are indispensable equipment in your reading. It is best to follow a difficult argument by building your own diagram while the argument unfolds rather than by relying on the finished diagram as it appears in the book.

The end-of-chapter Study Exercises require you to practise using some of the concepts that you learned in the chapter. These will be excellent preparation for your exams. To provide you with immediate feedback, we have posted Solutions to Selected Study Exercises on MyEconLab (www.myeconlab.Com). We strongly advise that you should seek to understand economics, not to memorize it.

The red numbers in square brackets in the text refer to a series of mathematical notes that are found starting on page M-1 at the end of the book. For those of you who like mathematics or prefer mathematical argument to verbal or geometric exposition, these may prove useful. Others may disregard them.

In this edition of the book, we have incorporated many elements to help you review material and prepare for examinations. A brief description of all the features in this book is given in the separate section that follows.

We encourage you to make use of MyEconLab that accompanies this book (www.myeconlab.com) at the outset of your studies. MyEconLab contains a wealth of valuable resources to help you. MyEcon-Lab provides Solutions to Selected Study Exercises. It also includes many additional practice questions, some of which are modelled on Study Exercises in the book. MyEconLab also contains many Additional Topics-these represent material written especially for this textbook and include many interesting theoretical, empirical, and policy discussions. You can also find animations of some of the key figures in the text, marked with the symbol 💽 below the figure number, as well as an electronic version of the textbook. For more details about MyEconLab, please see the description on p. ii.

We strongly suggest you make use of the excellent *Study Guide* written expressly for this text. The *Study Guide* is closely integrated with the book; it offers practice questions and exercises that will test and reinforce your understanding of the concepts and analytical techniques stressed in each chapter of the text and will help you prepare for your examinations. Explanations are provided for the answers to many of the Multiple-Choice Questions to facilitate your independent study. Being able to solve problems and to communicate and interpret your results are important goals in an introductory course in economics. The *Study Guide* can play a crucial role in your acquisition of these skills.

Over the years, the book has benefited greatly from comments and suggestions we have received from students. Please feel free to send your comments to christopher.ragan@mcgill.ca. Good luck, and we hope you enjoy your course in economics!

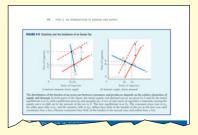
# Features of This Edition

We have made a careful effort with this edition to incorporate features that will facilitate the teaching and learning of economics.

- A set of Learning Objectives at the beginning of each chapter, correlated to the Chapter Outline, clarifies the skills and knowledge to be learned in each chapter. These same learning objectives are used in the chapter summaries, as well as in the *Study Guide*.
- Major ideas are highlighted with a yellow background in the text.
- Key terms are boldfaced where they are defined in the body of the text and they are restated with their definitions in the margins. In the index at the back of the book, each key term and the page reference to its definition are boldfaced.
- Weblinks to useful Internet addresses are given in the margins. Each weblink presents a URL address, along with a brief description of the material available there. Some links are to government home pages where you can obtain much additional data. Other links are to organizations such as OPEC, the UN, and the WTO.
- The colour scheme for figures consistently uses the same colour for each type of curve. For example, all demand curves are blue and all supply curves are red.
- A caption for each figure and table summarizes the underlying economic reasoning. Each caption begins with a boldfaced statement of the relevant economic conclusion.
- Applying Economic Concepts boxes demonstrate economics in action, providing examples of how theoretical material relates to issues of current interest.
- Extensions in Theory boxes provide a deeper treatment of a theoretical topic that is discussed in the text.
- Lessons from History boxes contain discussions of a particular policy debate or empirical finding that takes place in a historical context.
- **Photographs with short captions** are interspersed throughout the chapters to illustrate some of the arguments.

Money, Interest Rates, and Economic Activity		
CHAPTER QUILINE	LEARNING GOUECTIVES (LD) In the chapter you will insert	
DK. 1 UNDERLYWNDING DDNDS	<ol> <li>why the price of a bond is intensity existed to the market internal sale.</li> </ol>	
25.3 THE THEODY OF MONEY DEMAND	I have to describe have the demand for money depends on the interest sale, the price level, and wall (201)	
IN I WONETHAT EQUILIBRIUM AND NATIONAL INCOME	Row monetary equilibrium detamines the interest sate in the object run.     Now to describe to transmission mechanism of monetary policy.	
	1 the officerous between the phot-cut and long-cut effects.	









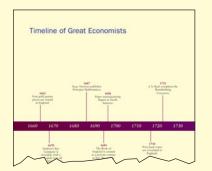
#### Mathematical Notes

I, Because one connect divide by zeros, the ratio $\Delta Y/3X$ connect be evaluated when $\Delta X = 0$ . However, as $\Delta X$ approaches zeros, the natio $\Delta Y/3X$ increases without limit.	meaning, is refers to the dependent variable in the domand function from more 2: $Q^0=D(T,\tilde{Y},N,\tilde{Y},p,p)$
$\lim_{\Delta X \to 0} \frac{\Delta Y}{\Delta X} = -$	It takes on a specific value whenever a spe- offic value is assigned to each of the independent variables. The value of Q <sup>20</sup> changes whenever the
Therefore, we say that the slope of a vertical line (schem $\Delta X = 0$ for any $\Delta Y$ ) is equal to infinity. (p. 00)	value of any independent variable is changed, Q <sup>20</sup> could change, for manufic, as a result of a change
2. Many variables offert the quantity domanded. Using functional notation, the argument of the next several pages of the text can be anticipand. Let $Q^D$ represent the quantity of a commodity domanded and	in any one prior, in average income, in the distri- bution of income, in tastes, or in propulation. It could also change as a result of the next finite of changes in all of the independent variables occur- ting at once. Some technolos reserve the tarm change
$T, \overline{Y}, N, \widehat{Y}, p, p$	in guarantity domandial for a monomene along a
represent, respectively, tastes, average household	demand curve, that is, a change in Q <sup>10</sup> as a result only of a change in p. They then use other words
income, population, income distribution, the commodity's own price, and the price of the ph-	for a change in Q21 caused by a change in the
other commodity.	other variables in the domard function. This maps is potentially confusing because it gives the
The domand function is	single variable O <sup>th</sup> more than one sume.
$Q^{(b)} = D(T, \tilde{Y}, N, \tilde{Y}, p, p_i),  i = 1, 2,, n$	Our usage, which corresponds to that in
The demand schedule or carve is given by	more advanced treatments, evods this confusion. We call O <sup>D</sup> quantity domanded and roles to any
$Q^0 = d(p) \Big _{x \in X \times \mathbb{R}^d}$	change in Q <sup>2</sup> as a change in quantity downeded. In this unapp is in correct to see that a movement
where the notation mixes that the variables to	along a domand curve is a change in quantity domanded, but it is incorrect to say that a change
the right of the vertical line are held constant.	demanded, but it is increment to say that a charge in quantity demanded can occur only because
This function is correctly described as the	of a movement along a demand carve (because
domand function with respect to prior, all other variables being held constant. This function, often	Q <sup>D</sup> can change for other maxim, for example, a cotoric parihus change in average household
written concludy as Q <sup>20</sup> = d(p), shifts in response	income. (p. 00)
to changes in other variables. Consider average income if, as is assailly hypothesized, 1Q <sup>0</sup> /18 <sup>+</sup> >,	4. Similar to the way no treated quantity domanded
then increases in average income shift Q <sup>20</sup> = d(p)	in note 2, let Q2 represent the quantity of a com-
rightward and docreases in average incoster shift Q <sup>D</sup> = d(p) leftward. Changes in other variables	modity supplied and
likewise shift this function in the detection implied	C, X, p, a;
by the relationship of that variable to the quan- my demanded, ip. (01)	represent, respectively, producers' goals, technol- ogy, the product's price, and the price of the #h
	input.
<ol> <li>Quantity domainded is a simple and straightfor- ward but frequently misunderstord concept in</li> </ol>	The supply function is
everyday me, but it has a clear mathematical	$Q^4 = S(C, X, p, m),  i = 1, 2, \dots, m$

- Chapter Summaries are organized using the same numbered heading as found in the body of the chapter. The relevant Learning Objective (LO) numbers are given in red next to each heading in the summary.
- Key Concepts are listed near the end of each chapter.

• A set of **Study Exercises** is provided for each chapter. These often quantitative exercises require the student to analyze problems by means of computations, graphs, or explanations.

• A set of **Mathematical Notes** is presented in a separate section near the end of the book. Because mathematical notation and derivations are not necessary to understand the principles of economics but are more helpful in advanced work, this seems to be a sensible arrangement. References in the text to these mathematical notes are given by means of red numbers in square brackets.



- A Timeline of Great Economists, extending from the mid-seventeenth century to the late twentieth century, is presented near the end of the book. Along this timeline we have placed brief descriptions of the life and works of some great economists, most of whom the reader will encounter in the textbook. The timeline also includes some major world events to give readers an appreciation for when these economists did their work.
- For convenience, a list of the Common Abbreviations Used in the Text is given on the final page of the text.

## Supplements

A comprehensive set of supplements has been carefully prepared to assist students and instructors in using this new edition.

### MyEconLab

The moment you know.

Educators know it. Students know it. It's that inspired moment when something that was difficult to understand suddenly makes perfect sense. Our MyLab products have been designed and refined with a single purpose in mind—to help educators create that moment of understanding with their students.

MyEconLab delivers proven results in helping individual students succeed. It provides engaging experiences that personalize, stimulate, and measure learning for each student. And, it comes from a trusted partner with educational expertise and an eye on the future.

MyEconLab can be used by itself or linked to any learning management system. Visit MyEconLab to learn more about how it combines proven learning applications with powerful assessment.

MyEconLab—the moment you know.

**MyEconLab** provides students with personalized Study Plans and the opportunity for unlimited practice. It also provides instructors with ready-to-use assignments that can be graded electronically. For more information on MyEconLab, please visit www. myeconlab.com.

Pearson eText gives students access to the text whenever and wherever they have access to the Internet. eText pages look exactly like the printed text, offering powerful new functionality for students and instructors. Users can create notes, highlight text in different colours, create bookmarks, zoom, click hyperlinked words and phrases to view definitions, and view in single-page or two-page view. Pearson eText allows for quick navigation to key parts of the eText using a table of contents and provides full-text search. The eText may also offer links to associated media files, enabling users to access videos, animations, or other activities as they read the text.

### **Study Guide**

A robust *Study Guide*, written by Paul T. Dickinson and Gustavo Indart, is available for macroeconomics (978-0-321-82839-2). It is designed for use either in the classroom or by students on their own. The *Study Guide* offers additional study support and reinforcement for each text chapter. It is closely integrated with the textbookoffering relevant practice exercises for each chapter. To facilitate independent study, explanations are provided for about 70 percent of the answers to the Additional Multiple-Choice Questions. For each chapter, the *Study Guide* provides the following helpful material:

- Learning Objectives matching those in the textbook
- Chapter Overview
- Hints and Tips
- Chapter Review consisting of Multiple-Choice Questions, organized into sections matching the numbered sections in the textbook
- Short-Answer Questions
- Exercises
- Extension Exercises
- Additional Multiple-Choice Questions
- Solutions to all of the Questions and Exercises above
- Explanations for the answers to at least 70 percent of the Additional Multiple-Choice Questions

### **CourseSmart for Students**

CourseSmart goes beyond traditional expectations providing instant, online access to the textbooks and course materials you need at an average savings of 60 percent. With instant access from any computer and the ability to search your text, you'll find the content you need quickly, no matter where you are. And with online tools like highlighting and note-taking, you can save time and study efficiently. See all the benefits at www.coursesmart.com/students.

### Instructor's Resource CD-ROM

The *Instructor's Resource* CD-ROM (978-0-321-88969-0) for this new edition contains the following items:

- An Instructor's Manual (in both Word and PDF format) written by Christopher Ragan. It includes full solutions to all the Study Exercises.
- A Computerized Testbank (Pearson TestGen) prepared by Ingrid Kristjanson and Christopher Ragan. The testbank consists of 4000 multiple-choice questions, with an emphasis on applied questions (as opposed to recall questions) and quantitative questions (as opposed to qualitative questions). Approximately 60 percent of the questions test applied skills, about 20 percent of the questions are quantitative, and about 20 percent of the questions have a graph or table. All the questions have been carefully checked for accuracy. For each question, the authors have provided the correct answer, identified the relevant section number in the textbook chapter, specified the concept being tested, assigned a level of difficulty (easy, moderate, or challenging), identified the skill tested (recall or applied), noted whether the question is qualitative or quantitative, and noted whether the question involves a graph or table. TestGen enables instructors to search for questions according to any of these attributes and to sort questions into any order desired. With TestGen, instructors can easily edit existing questions, add questions, generate tests, and print the tests in a variety of formats. TestGen also allows instructors to administer tests on a local area network, have the tests graded electronically, and have the results prepared in electronic or printed reports.
- PowerPoint<sup>®</sup> Slides, covering the key concepts of each chapter, that can be adapted for lecture presentations.
- Clicker Questions, consisting of more than 600 questions in PowerPoint format, that can be used with any Personal Response System.
- An Image Library, consisting of all the figures and tables from the textbook in gif format. These files can easily be imported into PowerPoint slides for class presentation.
- Additional Topics, written by Christopher Ragan, offering optional topics on a wide variety of economic subjects. A list of these topics is included in the text; students can access them on MyEconLab (www.myeconlab.com).

These instructor supplements are also available for download from a password protected section of Pearson Education Canada's online catalogue (www. pearsoncanada.ca/highered). Navigate to your book's catalogue page to view a list of those supplements that are available. See your local Pearson representative for details and access.

### **CourseSmart for Instructors**

CourseSmart goes beyond traditional expectations providing instant, online access to the textbooks and course materials you need at a lower cost for students. And even as students save money, you can save time and hassle with a digital eTextbook that allows you to search for the most relevant content at the very moment you need it. Whether it's evaluating textbooks or creating lecture notes to help students with difficult concepts, CourseSmart can make life a little easier. See how when you visit www.coursesmart. com/instructors.

### **Technology Specialists**

Pearson's Technology Specialists work with faculty and campus course designers to ensure that Pearson technology products, assessment tools, and online course materials are tailored to meet your specific needs. This highly qualified team is dedicated to helping students take full advantage of a wide range of educational resources by assisting in the integration of a variety of instructional materials and media formats. Your local Pearson Canada sales representative can provide you with more details about this service program.

### **Pearson Custom Library**

For enrollments of at least 25 students, you can create your own textbook by choosing the chapters that best suit your own course needs. To begin building your custom text, visit www.pearsoncustomlibrary.com. You may also work with a dedicated Pearson Custom editor to create your ideal text—publishing your own original content or mixing and matching Pearson content. Contact your local Pearson representative to get started.

# Acknowledgements

It would be impossible to acknowledge here by name all the teachers, colleagues, and students who contributed to the development and improvement of this book over its previous thirteen editions. Hundreds of users have written to us with specific suggestions, and much of the credit for the improvement of the book over the years belongs to them. We can no longer list them individually but we thank them all sincerely.

For the development of this fourteenth edition, we are grateful to the many people who offered informal suggestions. We would also like to thank the following instructors who provided us with formal reviews of the textbook. Their observations and recommendations were extremely helpful.

- Benjamin Atkinson (Mount Royal University)
- Iris Au (University of Toronto Scarborough)
- Lee Bailey (University of Toronto Mississauga)
- Natalya Brown (Nipissing University)
- Marilyn Cottrell (Brock University)
- Ajit Dayanandan (University of Northern British Columbia)
- Paul Dickinson (McGill University)
- Michael Doyle (Memorial University of Newfoundland)
- Byron Eastman (Laurentian University)
- Oliver Franke (Concordia University of Alberta)
- Bruno Fullone (George Brown College)
- David Gray (University of Ottawa)
- Narine Grigoryan (Camosun College)
- Gustavo Indart (University of Toronto)
- Byron Lew (Trent University)
- Junjie Liu (Simon Fraser University)
- M. A. McGregor (Mount Royal University)
- Manish Pandey (University of Winnipeg)
- Amy Peng (Ryerson University)
- Kevin Richter (Douglas College)
- Gary Riser (Memorial University of Newfoundland)
- Rob Scharff (Kwantlen Polytechnic University)
- Jim Sentance (University of PEI)
- Fulton Tom (Langara College)
- and others, who choose to remain anonymous

We would like to express our thanks to the many people at Pearson Canada involved in the development and production of this textbook. We would especially like to thank three individuals with whom we worked closely. Claudine O'Donnell (Acquisitions Editor), Suzanne Schaan (Supervising Developmental Editor) and Leigh-Anne Graham (Senior Marketing Manager) all showed their professionalism, dedication, and enthusiasm in guiding this book through the publication and marketing processes. We would also like to thank the many sales representatives who work to bring this book to professors across the country. These individuals have been a pleasure to work with each step along the way, and we are deeply grateful for their presence and their participation and delighted to consider them friends as well as professional colleagues.

Our thanks also to the many people at Pearson with whom we work less closely but who nonetheless toil behind the scenes to produce this book, including Andrea Falkenberg, Melinda Durham, Julia Hall, Marta Johnson, Sonya Thursby, and Miriam Blier.

Thanks also to Linda Jenkins for copyediting, Kevin Richter for the technical review, and to Megan Smith-Creed for proofreading, all of whom provided an invaluable service with their attention to detail.

In short, we realize that there is a great deal more involved in producing a book than just the writing. Without the efforts of all of these dedicated professionals, this textbook simply would not exist. Our sincere thanks to all of you.

For this fourteenth edition, we enjoyed the help of several students and we would like to thank them all. David Meredith assembled much of the data for the necessary updates in the text; Justine Gagnepain and Katherine Ragan reviewed the solutions to all of the Study Exercises and also helped us to compile a list of websites, and and Hannah Herman closely reviewed all of the questions in the Testbank. We thank all of them for their diligence and hard work.

Finally, Ingrid Kristjanson is deeply involved in the revision of this textbook and has been for several years. Without her participation, the quality and efficiency of this project would suffer greatly. In addition, for the past three editions she has played a leading role in the improvement, rewriting, and expansion of the electronic Testbank. With her active involvement, the lengthy revision of the textbook and its supplements continues to be an enriching and pleasant experience.

Christopher Ragan

## About the Author



Chris Ragan received his B.A. in economics from the University of Victoria, his M.A. from Queen's University, and his Ph.D. from the Massachusetts Institute of Technology in Cambridge, Massachusetts in 1990. He then joined the Department of Economics at McGill University in Montreal,

where he has taught graduate courses in macroeconomics and international finance and undergraduate courses in macroeconomic theory and policy, current economic issues, and financial crises. Over the years he has taught principles of economics (micro and macro) to thousands of students at McGill and maintains a reputation on campus as being "super-excited" about economics. In 2007, Chris Ragan was awarded the Noel Fieldhouse Teaching Award from McGill for teaching excellence. Professor Ragan's research focuses mainly on the design and implementation of macroeconomic policy in Canada. He has been privileged to serve the federal government in Ottawa as Special Advisor to the Governor of the Bank of Canada and as the Clifford Clark Visiting Economist at the Department of Finance. He currently serves on the Monetary Policy Council of the C.D. Howe Institute, where he also holds the David Dodge Chair in Monetary Policy.

Chris Ragan used the third edition of this textbook as an undergraduate student in 1981 and joined Richard Lipsey as a co-author in 1997 for the book's ninth edition. For several editions, Lipsey and Ragan worked diligently to maintain the book's reputation as the clearest and most comprehensive introductory economics textbook in Canada. Although Professor Ragan is now the sole listed author, this fourteenth edition of *Economics* still owes much to the dedication of previous authors, including Richard Lipsey, Douglas Purvis, and Gordon Sparks.

# About the Cover

The cover image of this edition is an aerial drawing of the bustling port of Collingwood, Ontario, by artist Steve McDonald. Steve is an established Canadian artist and founding member of the acclaimed collective Drawnonward. The collective has been the subject of award-winning documentaries shown on CBC, Bravo, and TVO, profiled for the artists' unique bond with Canada's landscape. For more information, visit www.steviemcd.com.

# **Economic Issues and Concepts**

CHAPTER OUTLINE	<b>LEARNING OBJECTIVES (LO)</b> After studying this chapter you will be able to
1.1 WHAT IS ECONOMICS?	<ol> <li>explain the importance of scarcity, choice, and opportunity cost, and how all three concepts are illustrated by the production possibilities boundary.</li> </ol>
1.2 THE COMPLEXITY OF MODERN ECONOMIES	<ol> <li>view the market economy as self-organizing in the sense that order emerges from a large number of decentralized decisions.</li> <li>explain how specialization gives rise to the need for trade, and that trade is greatly facilitated by money.</li> <li>identify the economy's decision makers and see how their actions create a circular flow of income and expenditure.</li> </ol>
1.3 IS THERE AN ALTERNATIVE TO THE MARKET ECONOMY?	<b>5</b> see that all actual economies are mixed economies, having elements of free markets, tradition, and government intervention.

**MANY** of the challenges we face in Canada and around the world are primarily economic. Some are mostly environmental, social, or political, but with many issues there is also a significant economic dimension. Wars and civil unrest throughout history have often had economic roots, with antagonists competing for control over vital resources; global climate change is a phenomenon that engages the attention of the scientific and environmental communities, but the economic implications of both the problem and its solutions will be tremendous; population aging in Canada and other developed countries will have consequences for the structure of our societies, but it will also have significant economic effects; and the existence of poverty, whether in Canada or in the much poorer nations of the world, most certainly has economic causes and consequences. We begin by discussing several issues that are currently of pressing concern, both inside and outside of Canada. **Productivity Growth** Productivity growth lies at the heart of the long-term increase in Canadians' average living standards. Productivity is a measure of how much output (or income) is produced by one hour of work effort, and it has been rising gradually over the past century. In recent years, however, productivity growth has been slowing in Canada, and economists in universities and governments have been examining the cause of the slowdown and also examining what policies, if any, might reverse this trend. If your living standards are to improve over your lifetime as much as your grandparents' did over theirs, Canada's rate of productivity growth will need to increase significantly.

**Population Aging** The average age of the Canadian population is steadily rising, due both to a long-term decline in fertility and to an increase in average life-expectancy. This population aging has several effects. First, since people eventually retire as they approach their "golden years," there will be a decline in the growth rate of Canada's labour force. As a result, some firms and industries will find it more difficult to find workers, and wages are likely to rise as a result. Second, since our publicly funded health-care system tends to spend much more on seniors than it does on Canadians under the age of 55, there will be a significant increase in public health-care spending as a share of the total size of the economy. This will put new and difficult demands on governments' fiscal positions, and force them either to increase tax rates or reduce spending in order to balance their budgets. This same demographic problem is being encountered in most developed countries.

**Climate Change** Climate change is a global phenomenon that will have important implications for most nations on Earth. The long-term increase in the emission of greenhouse gases—caused largely from the burning of fossil fuels such as oil, coal, and natural gas—has led to an accumulation of these gases in the atmosphere and is contributing to a long-term increase in Earth's average temperature. The rise in temperature is leading to the melting of polar ice caps, a slow increase in sea level, a creeping expansion of the world's great deserts, and reductions in agricultural productivity. Particularly troubling is that much of the burden of climate change appears to be falling on developing countries that are least able to bear the burden. Global climate change presents a challenge for the design of better economic policy, aimed at reducing greenhouse-gas emissions without unduly slowing the growth of material living standards. It also presents a challenge for global diplomacy, aimed at getting all countries—rich and poor—involved in a collective effort of reducing their emissions.

**Global Financial Stability** The collapse of the U.S. housing market in 2007–2008 led to the failure of several major financial institutions and caused a global financial crisis. The largest and most synchronized worldwide recession in over 70 years followed in its wake. Many elements came together to cause these events, including new mortgage practices, innovative financial instruments, expansionary monetary policy, regulation in the financial sector, and many others. The crisis led most of the world's major governments to intervene considerably in their economies—by providing assistance to their financial institutions, by directly expanding expenditures on goods and services, and by providing liquidity to their financial markets. By 2010 most of these economies had emerged from recession and were on their way to healthy economic recoveries. However, it was then clear that governments needed to play a role in redesigning their financial systems to reduce the likelihood that similar events would occur in the future. The quest for "financial stability" has become a policy imperative in many countries.

**Rising Government Debt** The aggressive government response to the global financial crisis led to massive new public spending in an effort to dampen the effects of the recession. These increases in government spending, however, took place when the recession was causing a decline in government tax revenues. As a result, governments' budget deficits increased for several years, and government debt in most countries increased significantly between 2008 and 2012. Even by 2010 it had become clear that government debt in some European countries (especially Greece, Portugal, Ireland, Italy, and Spain) was so high that bondholders were no longer prepared to purchase new government bonds or renew their existing holdings of bonds. The resulting upward spike in interest rates made it almost impossible for these countries to carry out their regular business without special financial assistance from other governments or from the International Monetary Fund. The political tensions created among European governments threatened to spell the end of Europe's common currency, the euro. The European "sovereign debt crisis" is still largely unresolved.

**Globalization** Canada is a small nation that relies significantly on trade with the rest of the world for its prosperity. We sell our lumber and oil and beef to the world, as we do our engineering and legal and financial services. As consumers we buy a wide variety of products from the rest of the world, including coffee, leather shoes, and fine wine; our firms also buy many inputs from abroad, including machine tools, software, and some specialized raw materials. In short, international trade and the ongoing process of globalization are crucial to Canada's economic prosperity. Yet globalization also presents some challenges. A decision to reduce tariffs on imported goods generates overall benefits for Canada, but it also generates temporary costs for those Canadians who are displaced from their previously protected occupations. And greater competition for Canadian firms from those in developing countries leads to overall increases in domestic living standards, as Canadians now have access to cheaper goods. However, it may also lead to a decline in some middle-level jobs in Canada that get replaced slowly with jobs in expanding sectors.

These six issues are only a small sample of the many economic issues that confront Canada and other countries. To understand any of them it is necessary to have a basic understanding of economics—how markets work, how prices are determined, in what sense markets sometimes fail to work well, and how government policy can be used to improve outcomes. These are the main topics of this book. There is a lot to learn, and not many weeks in your college or university course. So, let's get started at the very beginning.

### **1.1** What Is Economics?

These issues would not matter much if we lived in an economy of such plenty that there was always enough to fully satisfy everyone's wants. If we could always get all the goods we wanted, it wouldn't be so important to be more productive in our work. Rapid growth in health-care spending would not be such a problem if governments had no limits on what they could spend, or if there were not problems associated with high levels of government debt. And there would be no need to trade with other countries if Canada could easily and cheaply produce coffee, clothing, electronic components, and all those other things that we currently import from foreign lands. But such an economy with unlimited products is impossible. Why?

The short answer is because we live in a world of *scarcity*. Compared with the desires of individuals for products such as better food, clothing, housing, education, holidays, health care, and entertainment, the existing supplies of resources are clearly inadequate. They are sufficient to produce only a small fraction of the goods and services that we desire. This scarcity gives rise to the basic economic problem of choice. If we cannot have everything we want, we must choose what we will and will not have.

One definition of *economics* comes from the great economist Alfred Marshall (1842–1924), who we will encounter at several points in this book: "Economics is a study of mankind in the ordinary business of life." A more informative definition is

Economics is the study of the use of scarce resources to satisfy unlimited human wants.

Scarcity is inevitable and is central to economic problems. What are society's resources? Why is scarcity inevitable? What are the consequences of scarcity?

#### Resources

A society's resources are often divided into the three broad categories of land, labour, and capital. *Land* includes all natural endowments, such as arable land, forests, lakes, crude oil, and minerals. *Labour* includes all mental and physical human resources, including entrepreneurial capacity and management skills. *Capital* includes all manufactured aids to production, such as tools, machinery, and buildings. Economists call such resources factors of production because they are used to produce the things that people desire. We divide what is produced into goods and services. Goods are tangible (e.g., cars and shoes), and services are intangible (e.g., haircuts and education).

People use goods and services to satisfy many of their wants. The act of making them is called **production**, and the act of using them to satisfy wants is called **consumption**. Goods are valued for the services they provide. For example, a car helps to satisfy its owner's desires for transportation, mobility, and possibly status.

#### **Scarcity and Choice**

For almost all of the world's 7 billion people, scarcity is real and ever-present. As we said earlier, relative to our desires, existing resources are inadequate; there are enough to produce only a fraction of the goods and services that we want.

factors of production Resources used to produce goods and services; frequently divided into the basic categories of land, labour, and capital.

**goods** Tangible commodities, such as cars or shoes.

services Intangible commodities, such as haircuts or medical care.

**production** The act of making goods or services.

**consumption** The act of using goods or services to satisfy wants.

But aren't the advanced industrialized nations rich enough that scarcity is nearly banished? After all, they are "affluent" societies. Whatever affluence may mean, however, it does not mean the end of the problem of scarcity. Canadian families that earn \$75 000 per year, the average after-tax income for a Canadian family in 2013 but a princely amount by *world* standards, have no trouble spending it on things that seem useful to them, and they would certainly have no trouble convincing you that their resources are scarce relative to their desires.

Because resources are scarce, all societies face the problem of deciding what to produce and how much each person will consume. Societies differ in who makes the choices and how they are made, but the need to choose is common to all. Just as scarcity implies the need for choice, so choice implies the existence of cost. A decision to have more of one thing requires a decision to have less of something else. The less of "something else" can be thought of as the cost of having more of that "one thing."

### Scarcity implies that choices must be made, and making choices implies the existence of costs.

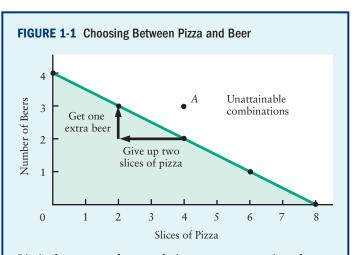
**Opportunity Cost** To see how choice implies cost, we look first at a trivial example and then at one that affects all of us; both examples involve precisely the same fundamental principles.

Consider the choice David faces when he goes out for pizza and beer with his friends. Suppose that he has only \$16 for the night and that each beer costs \$4 and each slice of pizza costs \$2. Since David is both hungry and thirsty, he would like to have

4 slices of pizza and 3 beers, but this would cost \$20 and is therefore unattainable given David's scarce resources of \$16. There are several combinations, however, that are attainable: 8 slices of pizza and 0 beers; 6 slices of pizza and 1 beer; 4 slices of pizza and 2 beers; 2 slices of pizza and 3 beers; and 0 slices of pizza and 4 beers.

David's choices are illustrated in Figure 1-1, which graphs the combinations of beers and slices of pizza that David considers buying. The numbers of slices of pizza are shown on the horizontal axis; the numbers of beers are shown on the vertical axis. The downward-sloping line connects the five possible combinations of beer and pizza that use up all of David's resources—\$16. This is David's *budget line*. Notice that point A shows a combination—4 slices of pizza and 3 beers—that lies outside the line because its total cost is more than \$16. Point A is *unattainable* to David. If David could buy fractions of a beer and of a slice of pizza, *all* points that lie on or inside the line would be *attainable* combinations.

In this setting David can ask himself, "What is the cost of one beer?" One answer is that the cost is \$4. An equivalent answer, assuming that he wanted to spend all of this \$16 on these two items, is that the cost of one beer is the two slices



Limited resources force a choice among competing alternatives. Given a total of \$16 to spend on \$2 slices of pizza and \$4 beers, some choices are unattainable, such as point A. The five points on the green line show *all* combinations that are attainable by spending the \$16. If it were possible to buy parts of a beer and parts of a slice of *pizza*, then all combinations on the line and in the green area would be attainable. If the entire \$16 is to be spent, the choice between more pizza and more beer involves an opportunity cost. The *slope* of the green line reflects opportunity costs. The opportunity cost of one extra slice of pizza is half of a beer; the opportunity cost of one extra beer is two slices of pizza.

### APPLYING ECONOMIC CONCEPTS 1-1

#### The Opportunity Cost of Your University Degree

The opportunity cost of choosing one thing is what must be given up as the best alternative. Computing the opportunity cost of a college or university education is a good example to illustrate which factors are included in the computation of opportunity cost. You may also be surprised to learn how expensive your university degree really is!\*

Suppose that a bachelor's degree requires four years of study and that each year you spend \$6000 for tuition fees—approximately the average at Canadian universities in 2013—and a further \$1500 per year for books and materials. Does this mean that the cost of a university education is only \$30000? Unfortunately not; the true cost of a university degree to a student is much higher.

The key point is that the opportunity cost of a university education does not include just the out-of-pocket expenses on tuition and books. You must also take into consideration *what you are forced to give up* by choosing to attend university. Of course, if you were not studying you could have done any one of a number of things, but the relevant one is *the one you would have* 

*chosen instead*—your best alternative to attending university.

Suppose that your best alternative to attending university was to get a job. In this case, the opportunity cost of your university degree must include the earnings that you would have received had you taken that job. Suppose that your (after-tax) annual earnings would have been \$25000 per year, for a total of \$100000 if you had stayed at that job for four years. To the direct expenses of \$30000, we must therefore add \$100000 for the earnings that you gave up by not taking a job. This brings the true cost of your university degree—the opportunity cost—up to \$130000!

Notice that the cost of food, lodging, clothing, and other living expenses did not enter the calculation of the opportunity cost in this example. The living expenses must be incurred in either case—whether you attend university or get a job.

If the opportunity cost of a degree is so high, why do students choose to go to university? Maybe students

of pizza he must give up to get it. In fact, we say in this case that two slices of pizza is the *opportunity cost* of one beer, since they are the opportunity David must give up to get one extra beer.

#### Every time a choice is made, opportunity costs are incurred.

opportunity cost The cost of using resources for a certain purpose, measured by the benefit given up by not using them in their best alternative use. As simple as it may seem, the idea of opportunity cost is one of the central insights of economics. Here is a precise definition: The **opportunity cost** of using resources for a certain purpose is *the benefit given up by not using them in the best alternative way*. That is, it is the cost measured in terms of other goods and services that could have been obtained instead. If, for example, resources that could have produced 20 km of road are best used instead to produce one hospital, the opportunity cost of a hospital is 20 km of road; looked at the other way round, the opportunity cost of 20 km of road is one hospital.

See *Applying Economic Concepts 1-1* for an example of opportunity cost that should seem quite familiar to you: the opportunity cost of getting a university degree.

**Production Possibilities Boundary** Although David's choice between pizza and beer may seem to be a trivial consumption decision, the nature of the decision is the same whatever the choice being made. Consider, for example, the choice that any country must face between producing military goods (such as ships, tanks, and guns) and civilian goods (such as food, clothing, and housing).

If resources are fully and efficiently employed, it is not possible to have more of both. However, as the government cuts defence expenditures, resources needed to produce civilian goods will be freed up. The opportunity cost of increased civilian goods is therefore



The opportunity cost to an individual completing a university degree in Canada is large. It includes the direct cost of tuition and books as well as the earnings forgone while attending university.

simply enjoy learning and thus are prepared to incur the high cost to be in the university environment. Or maybe they believe that a university degree will significantly increase their future earning potential. In Chapter 14 we will see that this is true. In this case, they are giving up four years of earnings at one salary so that they can invest in building their skills in the hope of enjoying many more years in the future at a considerably higher salary.

Whatever the reason for attending college or university, the recognition that a post-secondary degree is very expensive should convince students to make the best use of their time while they are there. Read on!

\*This box considers only the cost *to the student* of a university degree. For reasons that will be discussed in detail in Part Six of this book, provincial governments heavily subsidize postsecondary education in Canada. Because of this subsidy, the cost *to society* of a university degree is generally much higher than the cost to an individual student.

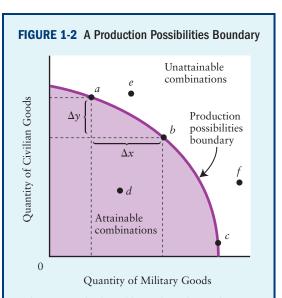
the forgone military output. Or, if we were considering an increase in military output, the opportunity cost of increased military output would be the forgone civilian goods.

The choice is illustrated in Figure 1-2. Because resources are scarce, some combinations—those that would require more than the total available supply of resources for their production—cannot be attained. The negatively sloped curve on the graph divides the combinations that can be attained from those that cannot. Points above and to the right of this curve cannot be attained because there are not enough resources, points below and to the left of the curve can be attained without using all of the available resources, and points on the curve can just be attained if all the available resources are used efficiently. The curve is called the **production possibilities boundary**. (Sometimes "boundary" is replaced with "curve" or "frontier.") It has a negative slope because when all resources are being used efficiently, producing more of one good requires producing less of others.

A production possibilities boundary illustrates three concepts: scarcity, choice, and opportunity cost. Scarcity is indicated by the unattainable combinations outside the boundary; choice, by the need to choose among the alternative attainable points along the boundary; and opportunity cost, by the negative slope of the boundary.

The shape of the production possibilities boundary in Figure 1-2 implies that an increasing amount of civilian production must be given up to achieve equal successive increases in military production. This shape, referred to as *concave* to the origin, indicates that the opportunity cost of either good increases as we increase the amount of it that is produced. A straight-line boundary, as in Figure 1-1, indicates that the opportunity cost of one good stays constant, no matter how much of it is produced.

#### production possibilities boundary A curve showing which alternative combinations of commodities can just be attained if all available resources are used efficiently; it is the boundary between attainable and unattainable output combinations.



The negatively sloped boundary shows the combinations that are attainable when all resources are used efficiently. The production possibilities boundary separates the attainable combinations of goods, such as *a*, *b*, *c*, and *d*, from unattainable combinations, such as *e* and *f*. Points *a*, *b*, and *c* represent full and efficient use of society's resources. Point *d* represents either inefficient use of resources or failure to use all the available resources. If production changes from point *a* to point *b*, an opportunity cost is involved. The opportunity cost of producing  $\Delta x$  more military goods is the necessary reduction in the production of civilian goods equal to  $\Delta y$ .

The concave shape in Figure 1-2 is the way economists usually draw a country's production possibilities boundary. The shape occurs because each factor of production is not equally useful in producing all goods. To see why differences among factors of production are so important, suppose we begin at point c in Figure 1-2, where most resources are devoted to the production of military goods, and then consider gradually shifting more and more resources toward the production of civilian goods. We might begin by shifting nutrient-rich land that is particularly well suited to growing wheat. This land may not be very useful for making military equipment, but it is very useful for making certain civilian goods (like bread). This shift of resources will therefore lead to a small reduction in military output but a substantial increase in civilian output. Thus, the opportunity cost of producing a few more units of civilian goods, which is equal to the forgone military output, is small. But as we shift more and more resources toward the production of civilian goods, and therefore move along the production possibilities boundary toward point *a*, we must shift more and more resources that are actually quite well suited to the production of military output, like aerospace engineers or the minerals needed to make gunpowder. As we produce more and more civilian goods (by devoting more and more resources to producing them), the amount of military output that must be forgone to produce one extra unit of civilian goods rises. That is, the opportunity cost of producing one good rises as more of that good is produced.

#### **Four Key Economic Problems**

Modern economies involve millions of complex production and consumption activities. Despite this complexity, however,

the basic decisions that must be made are not very different from those that were made in ancient and primitive economies in which people worked with few tools and bartered with their neighbours. Nor is the essence of the decisions in modern, complex economies different from those in current-day developing economies, where many people struggle for their daily survival. In all cases, scarcity, opportunity cost, and the need for choice play crucial roles. Whatever the economic system, whether modern or ancient or complex or primitive, there are four key economic problems.

resource allocation The allocation of an economy's scarce resources among alternative uses. **1. What Is Produced and How?** This question concerns the *allocation* of scarce resources among alternative uses. This **resource allocation** determines the quantities of various goods that are produced. Choosing to produce a particular combination of goods means choosing a particular allocation of resources among the industries or regions producing the goods. What determines which goods are produced and which ones are not?

Furthermore, because resources are scarce, it is desirable that they be used efficiently. Hence, it matters which of the available methods of production is used to produce each of the goods. What determines which methods of production get used and which ones do not? Any economy must have some mechanism by which these decisions about resource allocation are made. Is there some combination of the production of goods that is "better" than others? If so, should governments try to alter the pattern of production in this direction? Could they achieve this if they tried?

**2. What Is Consumed and by Whom?** Economists seek to understand what determines the distribution of a nation's total output among its people. Who gets a lot, who gets a little, and why? Should governments care about this *distribution* of consumption and, if so, what tools do they have to alter it?

If production takes place on the production possibilities boundary, then how about consumption? Will the economy consume exactly the same goods that it produces? Or will the country's ability to trade with other countries permit the economy to consume a different combination of goods?

**3. Why Are Resources Sometimes Idle?** Sometimes large numbers of workers who would like to have jobs are unable to find employers to hire them. At the same time, the managers and owners of offices and factories could operate at a higher level of activity—that is, they could produce more goods and services. For some reason, however, these resources—land, labour, and factories—lie idle. Thus, in terms of Figure 1-2, the economy sometimes operates inside its production possibilities boundary.

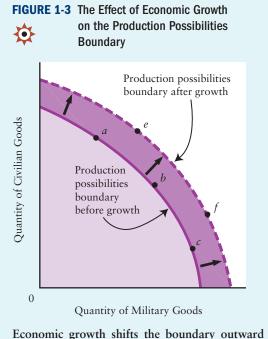
Why are resources sometimes idle? Should governments worry about such idle resources, or is there some reason to believe that such occasional idleness is necessary for a wellfunctioning economy? Is there anything governments can do to reduce such idleness?

**4. Is Productive Capacity Growing?** The capacity to produce goods and services grows rapidly in some countries, grows slowly in others, and actually declines in others. Growth in productive capacity can be represented by an outward shift of the production possibilities boundary, as shown in Figure 1-3. If an economy's capacity to produce goods and services is growing, some combinations that are unattainable today will become attainable in the future. What are the determinants of such growth? Are there some undesirable side effects of growth? Can governments do anything to influence economic growth?

### **Economics and Government Policy**

Questions relating to what is produced and how, and what is consumed and by whom, fall within the realm of microeconomics. **Microeconomics** is the study of the causes and consequences of the allocation of resources as it is affected by the workings of the price system and government policies that seek to influence it. Questions relating to the idleness of resources and the growth of the economy's productive capacity fall within the realm of macroeconomics. **Macroeconomics** is the study of the determination of economic aggregates, such as total output, total employment, interest rates, the price level, and the rate of economic growth.

The design and effectiveness of government policy is relevant to discussing all four economic problems. When asking what combination of goods and services is produced in



Economic growth shifts the boundary outward and makes it possible to produce more of all products. Before growth in productive capacity, points a, b, and c were on the production possibilities boundary and points e and f were unattainable. After growth, points e and f and many other previously unattainable combinations are attainable.

> microeconomics The study of the causes and consequences of the allocation of resources as it is affected by the workings of the price system.

macroeconomics The study of the determination of economic aggregates such as total output, the price level, employment, and growth.