JONATHAN GRUBER

PUBLIC FINANCE AND PUBLIC POLICY

FIFTH EDITION

Public Finance and Public Policy: A Tour Through the Book

PART I Introduction and Background

1 Why Study Public Finance?

The goal of studying public finance is to understand the proper role of the government in the economy. The changing role of government and exciting current policy debates motivate the study of this field.

2 Theoretical Tools of Public Finance

We review the microeconomic tools necessary to understand the effects of government intervention in the economy.

3 Empirical Tools of Public Finance

We review the main issues in empirical public finance, the use of data and statistical methods to measure the impact of government policy on individuals and markets.

4 Budget Analysis and Deficit Financing

We delve into the complexity of budgetary issues that arise as governments consider their revenue and expenditure policies.

PART II Externalities and Public Goods

A major role of government is to address market failures caused by goods that have external costs and benefits or public benefits. In this part we discuss when the private market can and cannot solve these problems and the prospects for government success in addressing the problems.

5 Externalities: Problems and Solutions

When do externalities cause private markets to fail, and what tools does government have to combat this failure?

6 Externalities in Action: Environmental and Health Externalities

We use theoretical tools to examine examples of environmental and health externalities (such as acid rain, global warming, cigarette smoking, and obesity).

7 Public Goods
8 Cost-Benefit Analysis
9 Political Economy

Goods with public benefits may be underprovided by the private market, under conditions discussed in Chapter 7, but the public sector faces two key problems in providing those goods: measuring their costs and benefits (Chapter 8) and effectively translating voters' preferences for public projects into public policy (Chapter 9).

10 State and Local Government Expenditures

We discuss the local provision of public goods and the question of whether competition across localities can solve the problem of underprovision of public goods.

11 Education

We review the public finance issues involved in providing education, one of the most important public goods in the United States.

PART III Social Insurance and Redistribution

The increased nature and scope of government spending on social insurance programs is one of the most fundamental changes in U.S. public policy over the past fifty years.

12 Social Insurance: The New Function of Government

We examine the general theory of social insurance, highlighting the benefits (consumption smoothing) and costs (moral hazard) of insurance.

13 Social Security

14 Unemployment Insurance, Disability Insurance, and Workers' Compensation

We apply the principles of social insurance from Chapter 12 to the study of the nation's largest social insurance programs. We discuss the institutional features of these programs, their benefits and costs, and prospects for program reform.

15 Health Insurance I: Health Economics and Private Health Insurance

16 Health Insurance II: Medicare, Medicaid, and Health Care Reform

The largest and most rapidly growing government expenditure is on health care. We discuss the nature of health economics and the functioning of private health insurance markets, the role of the nation's two largest public health insurance programs, and the structure and impacts of the Affordable Care Act.

17 Income Distribution and Welfare Programs

We review the facts on income distribution in the United States, the theoretical and empirical effects of welfare policy, and the impacts of fundamental welfare reform.

PART IV Taxation in Theory and Practice

In this part we move from the study of government expenditures to the study of how the government raises revenue through taxation.

18 Taxation: How It Works and What It Means

We provide the institutional and theoretical bases for understanding tax policy and its effects, focusing in particular on the appropriate base for individual income taxation.

19 The Equity Implications of Taxation: Tax Incidence

20 Tax Inefficiencies and Their Implications for Optimal Taxation

Markets do not take taxes lying down. In these chapters, we discuss how market reactions affect both the equity implications of tax (tax incidence) and the efficiency costs of taxation. We use this theory to model the optimal design of taxes on goods and on income, and discuss evidence on the distribution of tax burdens.

21 Taxes on Labor Supply

22 Taxes on Savings

23 Taxes on Risk Taking and Wealth

In these chapters we explore the effect of income taxation on individual behavior and the resulting implications for tax policy. How do taxes affect labor supply, and what has been the effect of the Earned Income Tax Credit? How do taxes affect savings, and what has been the effect of tax-subsidized retirement savings? How do taxes affect the distribution of asset holdings, and what has been the effect of the capital gains, estate, and property taxes?

24 Taxation of Business Income

We discuss the structure of the corporate income tax and its implications for a firm's investment and financing decisions.

25 Fundamental Tax Reform and Consumption Taxation

Fundamental tax reform in the United States focuses on moving to a low-rate, broad-based tax system. We discuss the benefits of this reform, the political and economic barriers it faces, and possible reforms such as a consumption or flat tax.

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FIFTH EDITION

Jonathan Gruber

Massachusetts Institute of Technology

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About the Author


SEVANS

Dr. Jonathan Gruber is a Professor of Economics at the Massachusetts Institute of Technology (MIT), where he has taught since 1992. He is also the Director of the Health Care Program at the National Bureau of Economic Research, where he is a Research Associate, and President Elect of the American Society of Health Economists. He is also a member of the Institute of Medicine, the American Academy of Arts and Sciences, and the National Academy of Social Insurance.

Dr. Gruber received his B.S. in Economics from MIT and his Ph.D. in Economics from Harvard University. Dr. Gruber's research focuses on the areas of public finance and health economics. He has published more than 150 research articles, has edited six research volumes, and is the author of *Health Care Reform*, a graphic novel. In 2006, he received the American Society of Health Economists Inaugural Medal for the best health economist in the nation aged 40 and under.

During the 1997–1998 academic year, Dr. Gruber was on leave as Deputy Assistant Secretary for Economic Policy at the Treasury Department. From 2003 to 2006, he was a key architect of the ambitious health reform effort in Massachusetts and in 2006 became an inaugural member of the Health Connector Board, the main implementing body for that effort. In 2009–2010, he served as a technical consultant to the Obama Administration and worked with both the Administration and Congress to help craft the Patient Protection and Affordable Care Act. In 2011, he was named "One of the Top 25 Most Innovative and Practical Thinkers of Our Time" by the online magazine *Slate*. In both 2006 and 2012, he was rated one of the top 100 most powerful people in health care in the United States by *Modern Healthcare* magazine.

BRIEF CONTENTS

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CONTENTS

PART III

Social Insurance and Redistribution

PREFACE

When I began writing this book 12 years ago, I hoped that my text would bring the excitement and enthusiasm that I have for the study of public finance to the students taking this important course. I believe that a public finance text should help students understand the public finance issues that are discussed in the media every day. By presenting rigorous theory, cutting-edge empirical evidence, and abundant policy-relevant applications, I hoped that students would find the main lessons of public finance accessible and appealing—perhaps even enjoyable.

With the success of the first four editions of this text, I am gratified and happy to say that my approach has found wide acceptance among instructors and their students across the country. By augmenting the traditional approach of public finance texts with a true integration of theory, application, and evidence, *Public Finance and Public Policy* has enabled instructors to better engage their students. Whenever a major theoretical concept is discussed, the discussion is augmented by examples of the policy relevance of the topic and, where available, evidence about the key relationships highlighted by the theory.

Public Finance and Public Policy improves on previous texts in public finance in three ways.

Updated Selection of Topics

Any public finance textbook must pay a great deal of attention to issues of externalities and public goods, taxation, and direct government spending, and this book is no exception. Yet I also cover in detail the transfer and social insurance programs that dominate government activity. The text is organized around four key areas:

- **Introduction and Background** The first section of the book is devoted to motivating the study of public finance, beginning in Chapter 1 with a timely discussion of the debate over health care reform and the Affordable Care Act, as well as other major public policy debates of the day.

  The book then reviews background skills in Chapter 2 (microeconomic theory), Chapter 3 (empirical methodology), and Chapter 4 (government budgeting). I recognize that students come to their public finance courses with highly varying levels of skill in economics. This course requires familiarity with introductory microeconomics, but no more than that. All other required skills are reviewed in these background chapters. Chapter 3, on empirical methods, provides students with all the background they need to interpret the Empirical Evidence boxes throughout the text. The early discussion in Chapter 4 of the budget's role in policy debates allows the presentation of other

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topics (such as Social Security and tax policy) throughout the book to incorporate the importance of budgetary concerns.

- **Externalities and Public Goods** The discussion of externalities begins in Chapter 5 with a discussion of private and public solutions to the problem of externalities. I then continue in Chapter 6 by focusing on the two major public policy issues involving externalities: environmental externalities, such as acid rain and global warming, and health externalities, such as smoking and obesity.

  The section on public goods begins in Chapter 7 with a discussion of private and public solutions to the public goods problem and then highlights two of the major issues in public provision: cost-benefit analysis (Chapter 8) and political economy (Chapter 9).

  Chapter 10 examines the role of state and local governments as providers of public goods, highlighting the potential efficiencies and costs of decentralization. Chapter 11 expands on these ideas by discussing education, one of the most important public goods in the United States.

- **Social Insurance and Redistribution** I have been gratified that instructors have responded positively to this book's expanded discussion of social insurance and redistribution, the largest and fastest-growing function of government. This section begins with a novel chapter on the theory of social insurance: Chapter 12 highlights the reasons we have social insurance, its role in crowding out private self-insurance, and the problems of moral hazard.

  I then include a separate chapter on the nation's largest social insurance program, Social Security (Chapter 13), and another on the three other nonhealth social insurance programs: unemployment insurance, disability insurance, and workers' compensation (Chapter 14).

  Given the enormous and growing role of government in the provision of health care, I devote two chapters to this topic, first discussing the nature of health insurance and health economics in Chapter 15 and then focusing on the government's role in Chapter 16, in particular highlighting the development, structure, and impacts of the Affordable Care Act.

  Finally, Chapter 17 discusses the role of government as a redistributive agent through welfare programs.

- **Taxation in Theory and Practice** The feedback on my presentation of taxation has been very positive. The coverage begins in Chapter 18 with the key institutional features and theoretical concepts (such as vertical equity and the Haig-Simons tax base) that are central to understanding tax policy. The next two chapters cover the theoretical underpinnings of tax incidence (Chapter 19) and tax efficiency analysis (Chapter 20).

  The next three chapters focus on the behavioral responses of individuals to income taxation and discuss key tax policies that affect those behaviors: labor supply and the EITC (Chapter 21); savings and tax-subsidized retirement savings (Chapter 22); and the distribution of asset holdings and capital gains, estate, and property taxes (Chapter 23).

Chapter 24 presents an overview of the corporate income tax and reviews the key equity and efficiency issues that are the focus of corporate tax debates. Finally, Chapter 25 concludes by discussing the motivations for, barriers to, and approaches to fundamental reform of taxation policies in the United States, including the possibility of replacing income with consumption taxation.

Integration of Policy Applications

The theoretical analysis that is at the core of public finance is most compelling if students can see the real-world applications that are informed by that theory. This book provides a multitude of policy applications and examples to help students appreciate the insights of public finance. Whenever a new topic is discussed, it is placed in the policy environment in the surrounding text. In addition, there are 58 separate policy applications spread throughout the book to emphasize the importance of the material. These applications cover topics such as the difficulties that policy makers face in valuing human life in cost-benefit analysis, the problem of rising health care costs and attempts to address them in the Affordable Care Act, appropriate and inappropriate business deductions under the income tax, and recent efforts by multinational corporations to evade taxation of profits. Finally, several chapters in the text are devoted exclusively to policy applications such as global warming and education.

Integration of Empirical Evidence

Theoretical development is central to the presentation of core public finance concepts. But the presentation of theory is greatly enhanced by a careful presentation of the empirical evidence that supports, or does not support, these theoretical models. In this book, empirical evidence is presented in two ways, to provide flexibility for instructors with different tastes for this material. Throughout the text, whenever a major theoretical point is made, I discuss the relevant empirical findings on this same question, as well as the certainty that we have about particular empirical findings. In addition, for those who want to teach a more empirically oriented course, Chapter 3 carefully explains how to interpret empirical results to students of public finance who may not have been exposed to sophisticated empirical methods.

I have also included 32 Empirical Evidence boxes, which discuss in more detail the studies that underlie the empirical results presented in the text and illustrate for students the process of research and the methods by which empirical economists answer central policy questions. I am gratified that the inclusion of these boxes has been so widely applauded by users of the book.

Improved Presentation and Pedagogy

As inherently interesting as this material is, student interest in any text critically depends on the exposition and presentation. I have endeavored throughout the text to use a student-friendly, conversational style that emphasizes the intuition, graphics, and mathematics of theory. Instructors using the book have reported that their students have found *Public Finance and Public Policy* to be an accessible, illuminating, and engaging read. Several features make this book appealing to potential users:

- **Questions to Keep in Mind** New to this edition, these questions, found at the start of each chapter, alert students to the chapter's "big ideas," thus helping them organize the many ideas presented in the chapter.
- **Integrated Applications** As noted earlier, the 58 Applications in this text allow students to step back from the main text and appreciate the policy relevance of the material. These applications are integrated directly with the text, rather than set aside, so that students understand the importance of applying the material they are learning.
- **Empirical Evidence Boxes** For instructors who wish to explore in more depth the nature of the empirical findings mentioned in the text, Empirical Evidence boxes are set aside from the main text to explain carefully the research process that generates the major empirical findings in public finance.
- **Integration of Relevant Statistics** Throughout the text, and in a number of graphs and tables, I present the statistics about the role of the government that emphasize the importance of this course. It is much easier to explain to students why they should care about social insurance, for example, when they clearly see graphics that illustrate the rise in that activity as a share of the U.S. government.
- **Quick Hints** Throughout the text are a variety of highlighted Quick Hints to emphasize the intuition of key theoretical points that students often find difficult: How does one decide where to draw deadweight loss triangles (see page 54)? Why is the subsidy to employer-provided health insurance a subsidy to employees and not to employers (see page 445)? How can the income effect of higher wages cause lower levels of labor supply (see page 660)?
- **Mathematical Appendices** The text explains the material primarily through intuition and graphics, with relatively little reliance on mathematics. Nevertheless, many instructors want to use mathematics to make key points about tax incidence, public goods provision, adverse selection in insurance markets, optimal taxation, and other topics. Five appendices develop the mathematics of these topics. Two additional appendices focus on the details of empirical analysis.
- **Marginal Definitions** Key terms are boldfaced throughout the text, and marginal definitions allow students to focus on the key concepts.

- **Full-Color Graphics** Full-color graphics allow students to better understand the graphical analysis that is so often confusing to them.
- **Highlights** At the end of each chapter is a summary of the key themes and concepts from the material in that chapter.
- **Questions and Problems** At the end of each chapter are an average of 15 questions and problems. Questions on empirical analysis that draw on material in Chapter 3 are denoted separately with an e, and there is a careful delineation between basic and more advanced problems. The questions throughout the text have been reviewed, revised, updated, and augmented with additional problems for the fifth edition.

What's New in the Fifth Edition

The dynamic public policy environment of the past few years required a thorough updating of most aspects of the book. All statistics, data-related tables and figures, and applications have been updated completely to reflect the most recent available data. This has involved the updating of hundreds of facts and figures. In addition, a number of major changes were made throughout the book, including new applications, updating of existing chapter introductions, applications and empirical examples, and a number of new and thoroughly updated text discussions. Of particular note is the large number of new or updated Empirical Evidence boxes, reflecting the exciting recent developments in empirical work in public finance and incorporating more graphical evidence to illustrate directly how the methodologies are applied.

Highlights of the changes include the following:

- All chapters now begin with "questions to keep in mind," which highlight the key issues raised in the chapter.
- To complement the text's thorough revision, the end-of-chapter problems have been significantly revised and updated.
- Chapter 1: An updated introduction focuses on the ongoing debate over the Patient Protection and Affordable Care Act (ACA), and the application on the externalities of measles has been updated to reflect the role of recent outbreaks.
- Chapter 4: This chapter contains an updated discussion of political efforts to balance the budget, an updated discussion of dynamic scoring (to reflect the increased emphasis on this topic at the Congressional Budget Office), and a new Application that uses a sports contract to illustrate the calculation of present discounted value. The chapter has also been streamlined by removing the specific discussion of generational accounting and focusing more broadly on the intertemporal budget constraint.
- Chapter 6: An updated chapter introduction focuses on major developments in government regulation of greenhouse gases in recent years.

The discussion of global warming includes a number of policy updates (including U.S.–China negotiations) and a new discussion of alternative approaches to mediating global warming. The section on illicit drugs includes a discussion of recent evidence on marijuana legalization. And the Application on obesity incorporates new evidence on which policy tools work and which do not in this important public health arena.

- Chapter 7: This chapter features a new discussion about Wikipedia in the Application entitled "The Free Rider Problem in Practice." The materials on privatization of public services have been moved from Chapter 9 to this chapter and expanded to incorporate exciting new examples of failure (halfway houses) and success (health insurance contracting).
- Chapter 8: This chapter features a new introduction focused on the cost-benefit analysis behind recent decision of California to expand its high-speed rail system. It also includes a new Empirical Evidence box that discusses the use of a state police layoff to value the cost of saving a life.
- Chapter 9: The chapter includes updates on lobbying and farm policy in the United States as well as a major update to the Empirical Evidence box on testing the median voter model. The discussion of privatization has been moved to Chapter 7 and has been replaced by another example and expanded discussion of government failure.
- Chapter 10: The introduction has been updated to follow recent policy debates over the No Child Left Behind law.
- Chapter 11: The updated introduction incorporates the recent controversy over the educational Common Core, and the evidence on public school choice and private vouchers has also been substantially updated. The section on higher education has been augmented with a discussion of the exploding burden of student loan interest (a topic near and dear to the heart of many students).
- Chapter 12: The Application on flood insurance has been extensively updated, and the discussion of consumption smoothing has been streamlined. The moral hazard discussion includes the recent example of the star of National Geographic's TV show *Wicked Tuna*.
- Chapter 13: The section on Social Security reform has been reorganized to highlight the distinct issue of privatization and to update that discussion.
- Chapter 14: The introduction has been updated to follow unemployment insurance policy in recent years, and the discussion of UI durations around the world reflects recent international policy developments. The discussion of consumption smoothing includes exciting new evidence on disability insurance, and the Empirical Evidence box on disability insurance has been completely rewritten to highlight important recent work, including a new graphical presentation.

- Chapter 15: There is a new Application on finding the inefficiency in U.S. health care that emphasizes international comparisons of health care spending and proposes theories for the difference. This Application includes new graphs that compare international health care outcomes and prices. All institutional details and facts have been updated to reflect the early impacts of the ACA. And the Empirical Evidence box on estimating the elasticity of medical care has been expanded to incorporate new findings and present them graphically.
- Chapter 16: The introduction has been rewritten to highlight the ongoing debate over the ACA, and the institutional features of the Medicaid and Medicare programs are updated to reflect the effects of health reform. The section on Medicaid includes a more sophisticated discussion of consumption-smoothing benefits and coverage of recent evidence on health impacts. A new Empirical Evidence box discusses and presents graphical evidence on how long-term care hospitals manipulate length of stay to maximize reimbursement. And there is a brand new discussion of early evidence on the impacts of the ACA.
- Chapter 17: A new introduction uses the recent protests in Baltimore as motivation to look at inequality in that city and the nation as a whole. The chapter features updated data on and discussion of the measurement of income and wealth inequality. And there is a new Empirical Evidence box focused on the policy-relevant topic of child care, pre-school, and child outcomes.
- Chapter 18: The chapter introduction updates the debates over tax policy, and the chapter includes an updated discussion of consumer sovereignty in charitable donations.
- Chapter 19: There is a complete revision and expansion of the Empirical Evidence box on the incidence of taxation to highlight recent interesting work on the relevance of the statutory incidence of taxation.
- Chapter 20: A new Empirical Evidence box on the British "Window Tax" vividly illustrates the distortionary effects of public policies in eighteenth-century England.
- Chapter 21: The Empirical Evidence box on estimating the elasticity of labor supply has been extended to incorporate and graphically demonstrate exciting new developments in kinked budget constraint estimation.
- Chapter 22: The Empirical Evidence box entitled "Estimating the Impact of Tax Incentives on Savings" has been completely revised to reflect and graphically illustrate exciting advances in this area.
- Chapter 24: There is a new Empirical Evidence box highlighting recent research on how corporate taxes affect firm financial structure, while the Empirical Evidence box on the 2003 dividend tax cut has been extended to incorporate new evidence on investment responses. There is a (cleverly titled and very policy relevant) new Application on the efforts of multinational corporations to avoid U.S. corporate taxes.

- Chapter 25: The new chapter title reflects the important role that consumption taxation plays in the discussion. The tax evasion discussion includes updated evidence from Greece, while a new figure illustrates the growing complexity of the U.S. tax code over time. The final policy Application has been completely updated to focus on a recent comprehensive tax reform proposal by former Congressman Dave Camp.

Supplements and Media Package

For instructors, the catalog site (http://macmillanhighered.com/Catalog/product/publicfinanceandpublicpolicy-fifthedition-gruber) provides the following downloadable resources:

- **Test Bank** The Test Bank, revised this edition by Susan Dadres (University of North Texas), provides a range of questions appropriate for assessing your students' comprehension, interpretation, analysis, and synthesis skills. The Test Bank offers multiple-choice and short-answer questions designed for comprehensive coverage of the text concepts. Questions are categorized according to difficulty level (easy, medium, and challenging) and skill descriptor (fact-based, definitional, concept-based, critical thinking, analytical thinking) and are tagged to their appropriate textbook section.
- **Lecture Slides** A series of lecture slides, revised by Heather Luea (Kansas State University), provides comprehensive coverage of the material in each chapter. The slides are designed to assist with lecture preparation and presentations by incorporating key graphs from the textbook with detailed outlines of key concepts. The slides can be customized to suit instructors' individual needs and serve as a fantastic resource when building a lecture presentation.
- **Images from the Textbook** Instructors have access to every figure and table in the new edition in high-resolution JPEG format and in the form of PowerPoint slides.
- **Solutions Manual** Instructors have access to the files for the detailed solutions to the text's end-of-chapter problems.

Acknowledgments

This book is the product of the efforts of an enormous number of people. While I'll try my best to acknowledge them all, I apologize in advance to those I have forgotten.

My initial debts are to the teachers and colleagues who taught me public finance: Peter Diamond, Marty Feldstein, Jim Poterba, and especially Larry Summers, on whose 1990 public finance course this text is (very loosely) based. I was very fortunate to have been able to learn at the feet of the giants of my field, and I hope that I can do them justice in passing on their insights to the next generation of public finance economists. I am also grateful to Larry Summers for making it possible for me to work at the Treasury Department in 1997–1998, which gave me an appreciation of the power of public finance analysis and the importance of educating our future generations of policy makers in the right way so that they can think about all aspects of public finance in a thorough manner.

I also owe a debt of gratitude to the generations of undergraduate students at MIT who suffered through the development of the material in this book. I am embarrassed at how much more complete my understanding of this material is because of the hard questions they asked over the years, and I only wish I could have done them the service of teaching the material as well as I am now able to do. Several of my students also helped in working on the book itself, and I am grateful in particular to Liz Ananat, Alan Bengtzen, David Seif, and Chris Smith for their assistance.

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CHAPTER 1

Why Study Public Finance?

Questions to keep in mind

- What is public finance, and what are the key questions that the field addresses?
- What are the key facts about the size and growth of government and the distribution of taxes and spending?
- What are some of the most important policy debates in the United States?

On March 23, 2010, President Barack Obama signed into law the Patient Protection and Affordable Care Act, commonly known as the ACA. This law proposed to transform the system of health care coverage and financing in the United States.

Under the ACA, the government was projected to spend nearly $1 trillion on public health insurance and subsidies to private health insurance coverage between 2010 and 2019. This spending would be offset by spending reductions on existing public insurance programs and new taxes on the medical sector and the wealthy.

As a result of the ACA, insurance companies can no longer discriminate against sick patients, and individuals who can afford health insurance must purchase it or pay a penalty. In addition, dozens of new initiatives are being undertaken in an attempt to control runaway health care spending in the United States. The Congressional Budget Office (CBO) projected that, when the ACA was fully implemented in 2017, 26 million more Americans would have health insurance and that the government's deficit would fall by more than $100 billion from passage in 2010 through 2019. On the other hand, the Centers for Medicare and Medicaid Services projected that the law would, at the same time, raise health care spending in the United States by 1–2% by 2019.[1]

[1] Gruber (2010) and CBO (2014).

The ACA is likely the most important piece of social policy legislation enacted in the United States in the past 40 years. Yet, despite its passage, the ACA continues to be debated ferociously in Congress, in the states, and in campaigns at all levels of government. Supporters argue that the bill corrects failed insurance markets, reduces the economic burden on the uninsured, and moves to control health care costs in the long run. Representative Nancy Pelosi, a Democrat who was Speaker of the House of Representatives during the initial debates over the ACA in 2009–2010, said the law was

> . . . personal for millions of families who've gone into bankruptcy under the weight of rising health care costs. . . . And it's personal for 45,000 Americans and their families who have lost a loved one each year because they didn't and couldn't get health insurance. . . . Today, we have the opportunity to complete the great unfinished business of our society and pass health insurance reform for all Americans that is a right and not a privilege.[2]

President Obama made his argument that

> This law will cut costs and make coverage more affordable for families and small businesses. It's reform that brings—that begins to bring down our government's long-term structural deficit. It's reform that finally extends the opportunity to purchase coverage to the millions who currently don't have it—and includes tough new consumer protections to guarantee greater stability, security, and control for the millions who do have health insurance.[3]

Opponents of the legislation viewed the ACA as an unwarranted expansion of government power into the health care sector—and an enormous expansion of government spending at a time of record deficits. Representative John Boehner, a Republican who succeeded Nancy Pelosi as Speaker of the House, issued a press release entitled "ObamaCare 'Will Increase Spending, Increase Taxes, & Destroy Jobs in America,'" and said that,

> Between reports from the Kaiser Family Foundation and the *Seattle Times* indicating that health care costs will skyrocket under ObamaCare, the Democrats' claims that their government takeover of health care will make health insurance more affordable doesn't pass the straight-faced test.[4]

After the vote to pass the ACA in 2010, Republican Representative Ron Paul said,

> It was truly a sad weekend on the House floor as we witnessed further dismantling of the Constitution, disregard of the will of the people, explosive expansion of the reach of government, unprecedented corporate favoritism, and the impending end of quality healthcare as we know it.[5]

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[2] Pelosi quotes available at http://www.democraticleader.gov/blog/?p=2209 and http://pelosi.house.gov/news/press-releases/2010/04/releases-April10-hos.shtml (2010).
[3] Obama remarks at the Annual Conference of the American Medical Association, June 15, 2009; available at http://www.whitehouse.gov/the-press-office/remarks-president-annual-conference-american-medical-association.
[4] Boehner comments available at http://www.politifact.com/ohio/statements/2011/mar/31/john-boehner/house-speaker-john-boehner-labels-money-health-car/ (2011) and http://healthcarereform.procon.org/view.answers.php?questionID=001526 (2015).
[5] Paul comments available at http://2012election.procon.org/view.answers.election.php?questionID=1706 (2012).

The debate over the ACA has not slowed with the implementation of the major provisions of the law in 2014. Significant problems in the roll-out of the federal website that was the public face of the ACA and numerous complaints of disruption among existing insurance relationships led to a further erosion in public support for the law. This low public support has been reflected in more than 50 votes in the House of Representatives to repeal the law. At the same time, in the first year of the law's implementation, it has been estimated that it reduced the number of uninsured people by more than one-third, with more than 16 million Americans gaining coverage.[6] Premiums for health insurance purchased through the new health insurance exchanges were 15% below levels projected by the CBO in 2014 and grew at historically low rates in 2015. Thus, as of 2015, the budgetary costs of the ACA were 20% below original projections.[7]

The controversies over the proper role of the government in dealing with health care coverage and costs raise the fundamental questions addressed by the branch of economics known as *public finance*. The goal of public finance is to *understand the proper role of the government in the economy*. On the expenditures side of public finance, we ask: What kind of services should the government provide, if any? Why should the government be spending hundreds of billions of dollars to provide health insurance to the uninsured (to cite just one example)? More generally, why is the government the primary provider of goods and services such as highways, education, and transfers to the unemployed, while the provision of goods and services such as clothing, entertainment, and property insurance is generally left to the private sector? On the revenue side of public finance, we ask: How much should the government tax its citizens, and how should that amount be related to the economic circumstances of those individuals? What kinds of activities should be taxed or be given tax relief in difficult times? What effect do taxes have on the functioning of the economy?

1.1 The Four Questions of Public Finance

In the simplest terms, **public finance** is the study of the role of the government in the economy. This is a very broad definition. This study involves answering the **four questions of public finance:**

- *When* should the government intervene in the economy?
- *How* might the government intervene?
- *What* is the effect of those interventions on economic outcomes?
- *Why* do governments choose to intervene in the way that they do?

In this section, we explore these four questions within the context of a specific example: the market for *health insurance,* in which individuals pay a monthly premium to insurance companies, in return for which insurance companies pay the individuals' medical bills if they are ill. This is only one of many markets in which the government is involved, but it is a particularly useful example

public finance The study of the role of the government in the economy.

four questions of public finance When should the government intervene in the economy? How might the government intervene? What is the effect of those interventions on economic outcomes? Why do governments choose to intervene in the way that they do?

[6] Enrollment details found at http://obamacarefacts.com/sign-ups/obamacare-enrollment-numbers (2015).
[7] Kliff and Klein (2015).

because health care spending is the single largest and fastest-growing part of the U.S. government's budget.

When Should the Government Intervene in the Economy?

To understand the reason for government intervention, think of the economy as a series of trades between producers (firms) and consumers. A trade is *efficient* if it makes at least one party better off without making the other party worse off. The total efficiency of the economy is maximized when as many efficient trades as possible are made.

The fundamental lesson of basic microeconomics is that, in most cases, the *competitive market equilibrium is the most efficient outcome for society*—that is, it is the outcome that maximizes the gains from efficient trades. As discussed in much more detail in Chapter 2, the free adjustment of prices guarantees that, in competitive market equilibrium, supply equals demand. When supply equals demand, all trades that are valued by both producers and consumers are being made. Any good that consumers value above its cost of production will be produced and consumed; goods that consumers value at less than their cost of production will not be produced or consumed.

If the competitive market equilibrium is the most efficient outcome for society, why do governments intervene in the operation of some of these markets? There are two reasons governments may want to intervene in market economies: market failures and redistribution.

market failure A problem that causes the market economy to deliver an outcome that does not maximize efficiency.

Market Failures

The first motivation for government involvement in the economy is the existence of **market failures,** problems that cause a market economy to deliver an outcome that does not maximize efficiency. Throughout this book, we discuss a host of market failures that impede the operation of the market forces you learned about in basic microeconomics. Here we briefly explore a failure in the health insurance market that may cause its equilibrium outcome to be inefficient.

At first glance, the market for health insurance seems to be a standard textbook competitive market. Health insurance is supplied by a large number of insurance companies and demanded by a large number of households. In the market equilibrium where supply equals demand, social efficiency should be maximized: anyone who values health insurance above its cost of production is able to buy insurance.

In 2010, before the Affordable Care Act, there were 49 million persons without health insurance in the United States, or 18.5% of the non-elderly population (as we'll discuss in Chapter 15, the elderly are provided universal health coverage in the United States under the Medicare program).[8] The existence of such a large number of uninsured does not, however, imply that the market doesn't work. After all, there are many more Americans who don't have a large-screen TV, or a new car, or a home of their own. That a small minority of the population is uninsured does not by itself prove that there is a

[8] Employee Benefit Research Institute (2011).

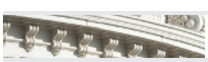
problem in the market; it just implies that those without insurance don't value it enough to buy it at existing prices.

Is this equilibrium outcome, which leaves 49 million people without health insurance, the most efficient outcome for society? It may not be, as the following example shows. Suppose that I am uninsured and, as a result, do not get my yearly vaccination for influenza. By not getting my flu shot, I increase my risk of getting the flu and increase the risk of passing it on to all of the students who come into contact with me and have not had flu shots. If these students become ill, their medical costs will rise, and their performance in class will worsen. Thus, the total or *social* value of health insurance is not just the improvement it causes in my health but also the improvement it causes in my students' health, which lowers their medical costs and improves class performance. Thus, I should have insurance if the total social value, both to myself and to others with whom I have contact, exceeds the cost of that insurance.

When I make my insurance decision, however, I don't consider that total social value, only the value to myself. Suppose that I value the insurance at less than its cost because I don't mind getting the flu but that society values the insurance at more than its cost because it is very costly for my students to go to the doctor and to perform poorly in class if they get sick. In this situation, I won't buy insurance, even though society (which includes me and my students) would be better off if I did. In this case, the competitive outcome has not maximized total social efficiency.

This is an example of a *negative externality*, whereby my decision imposes on others costs that I don't bear. As a result of this negative externality, I am underinsuring myself from society's perspective because I don't take into account the full costs that my medical decisions impose on others. We discuss externalities in much more detail in Chapters 5 and 6, but this example illustrates the type of market failure that can cause the competitive equilibrium to deliver a socially inefficient outcome. Later chapters in the book discuss other types of market failure as well.

If the competitive equilibrium does not lead to the efficiency-maximizing outcome, there is the *potential* for efficiency improvement through government intervention. Because the government can take into account not only my costs and benefits but also the costs and benefits to others, the government can compare the social costs to the social benefits more accurately and induce me to buy insurance if the total benefits exceed the total costs. As we emphasize in answering the fourth question, however, the fact that the private market outcome is not efficiency-maximizing does not imply that government intervention will necessarily improve efficiency.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APPLICATION

Modern Measles Epidemics

One of the illnesses for which all children are supposed to be immunized is measles. Measles is transmitted from person to person by respiratory droplets and is characterized by a high fever and severe rash that lasts five to six days.

In the early 1960s, there were thought to be 3–4 million cases annually in the United States, resulting in 500 reported deaths each year. Other costs associated with measles infection included medical expenditures and work time lost for parents in caring for sick children.

Then, in 1963, a measles vaccine was introduced. Measles vaccination greatly reduces, but does not eliminate, the chance of contracting measles, and the vaccine can wear off over time if you don't get periodic "booster" shots to reactivate the immunity. As a result of the vaccine, measles cases had become relatively rare in the United States by the 1980s, with fewer than 3,000 cases reported per year and very few deaths.

Over the period from 1989 to 1991, however, there was a huge resurgence in measles in the United States, with more than 50,000 cases and 123 deaths from a disease thought to be largely eradicated. This outbreak resulted from very low immunization rates among disadvantaged inner-city youths. One-third of all of the new cases were in Los Angeles, Chicago, and Houston, and one-half of those children who contracted measles had not been immunized, even though many had regular contact with a physician. These unimmunized children were imposing a negative externality on other children who had received their immunizations but for whom immunization may have worn off. There was a negative externality because the unimmunized children raised the risk that these other children would become sick, without bearing any of the costs of raising this risk.

The federal government responded to this health crisis in the early 1990s, first through publicly encouraging parents to get their children immunized and then through an initiative that paid for the vaccines for low-income families. The result was impressive. Immunization rates, which had never been above 70% before the epidemic, rose to 90% by 1995.[9] And from 2001 to 2011, there were, on average, only 62 cases per year.

But the problem of measles epidemics was back in the news in 2014 as the number of cases reached a level not seen since the early 1990s: 644 cases in 27 states.[10] Most newsworthy was a measles outbreak in Disneyland in Anaheim, California, in the winter of 2014–2015. From December 28, 2014, to March 13, 2015, 145 people from seven states had measles linked to the outbreak at Disneyland.[11]

The reason for this resurgence is the refusal of a large number of parents to immunize their children, despite the expansion of public education and the availability of low-cost immunization. This refusal is often linked to a widely cited (but now completely discredited) relationship between childhood vaccinations and autism, based on a 1998 study in the British journal *The Lancet* that claimed to have found such a relationship. Subsequently, however, study after study has repudiated this finding, and the article was formally retracted in 2010, with *The Lancet* editors announcing that it was "utterly clear, without any ambiguity at all, that the statements in the paper were utterly false."[12]

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[9] Discussion of 1989–1992 epidemic comes from Wood and Brunell (1995).
[10] Belluz (2014).
[11] Ellis (2015).
[12] Lallanilla (2014).

Nevertheless, a strong "anti-vaccine" movement had taken root, resulting in sizable pockets of nonimmunized children in some areas. For instance, on Vashon Island, Washington, 17% of kindergartners—greater than nine times the national average[13]—failed to receive their shots in 2013 due to a "personal/philosophical" exemption.[14] A 2012 study of vaccine exemption policies across the country found that of the 20 states that allow personal-belief exemptions, 9 states make exemptions easy to obtain by simply requiring a form to be signed. Opt-out rates in states that allow personal-belief exemptions are 2.5 times as high as rates in states that only permit religious exemptions.[15] Research has found that outbreaks are far more likely to happen in these areas with lower vaccination rates.[16]

This new rise in measles has raised questions of whether government policy needs to go further than the interventions of the early 1990s. For example, California recently enacted legislation that would make it more difficult for parents to opt out of vaccinations for their children and requires children to be vaccinated against specific contagious diseases before enrolling in California schools.[17] The balance for the government between ensuring public health and respecting individual preferences is one of the more significant policy issues that we discuss throughout this book. ■

Redistribution The second reason for government intervention is **redistribution,** the shifting of resources from some groups in society to others. Think of the economy as a pie, the size of which is determined by the social efficiency of the economy. If there are no market failures, then the private market forces of demand and supply maximize the size of the pie; if there are market failures, there is the potential for the government to increase the size of the pie.

redistribution The shifting of resources from some groups in society to others.

The government may care not only about the size of the pie, however, but also its distribution, or the size of each person's slice. For reasons we discuss in Chapter 2, society may decide that the resource allocations provided by the market economy are unfair; for example, society may view another dollar of consumption by a very rich person as less valuable than another dollar of consumption by a very poor person. The primary way to correct such misallocations is through government interventions that redistribute resources from those groups that society has deemed "too well off" to those groups that society has deemed "not well off enough." For example, in the United States in 2010, 70% of the uninsured were in families with incomes below $50,000. Thus, society may feel that it is appropriate to redistribute from those with insurance, who tend to have higher incomes, to those without, who tend to have lower incomes.

In some cases, society can undertake redistributions that change only the distribution of the pieces and not the size of the pie itself. Usually, however, redistributing resources from one group to another will entail *efficiency losses*. These losses occur because the act of redistribution causes individuals to shift

[13] Centers for Disease Control and Prevention (2014).
[14] Raja and Mooney (2014).
[15] *New England Journal of Medicine* (2012).
[16] Atwell (2013).
[17] Martinez and Watts (2015).

their behavior away from the efficiency-maximizing point. For example, if we tax the rich to distribute money to the poor, then this tax may cause the rich to work less hard (because they don't get to take home as much money from their work) and the poor to work less hard (because they don't have to work as hard to maintain their living standards). When these groups work less hard, they don't produce goods that would be valued by consumers at more than they cost to produce, so social efficiency is reduced.

In general, then, there will be a trade-off between the size of the pie and the distribution of the pie, which we call an *equity–efficiency trade-off.* Societies typically have to choose between pies that are larger and more unequally distributed and pies that are smaller and more equally distributed.

How Might the Government Intervene?

Having decided whether to intervene, the next question is how the government should do so. There are several different general approaches that the government can take to intervention.

Tax or Subsidize Private Sale or Purchase One way that the government can try to address failures in the private market is to use the *price mechanism,* whereby government policy is used to change the price of a good in one of two ways:

1. Through *taxes,* which raise the price for private sales or purchases of goods that are overproduced, or
2. Through *subsidies,* which lower the price for private sales or purchases of goods that are underproduced.

Returning to the example of health insurance, one key element of the ACA is the subsidization of health insurance costs for low-income families, although those subsidies are delivered through the tax code as a tax credit that offsets the cost of insurance.

Restrict or Mandate Private Sale or Purchase Alternatively, the government can directly restrict private sale or purchase of goods that are overproduced or mandate private purchase of goods that are underproduced and force individuals to buy that good. The ACA mandates that individuals purchase health insurance or face a tax penalty. Many other nations, such as Germany and Switzerland, mandate that almost all citizens have health insurance coverage.

Public Provision Another alternative is to have the government provide the good directly in order to potentially attain the level of consumption that maximizes social welfare. In the United States, more than one-quarter of the population has insurance that is provided to it directly by the government; in Canada and many other developed nations, the entire population of the country has insurance that is provided directly by the government.

Public Financing of Private Provision Finally, governments may want to influence the level of consumption but may not want to involve themselves directly in the provision of a good. In such cases, the government can finance private entities to provide the desired level of provision. For example, the 2003 legislation to add a prescription drug benefit to the U.S. Medicare insurance program for the disabled and elderly involves federal government reimbursement of private insurers to provide prescription drug insurance.

As you can see, there is a wide spectrum of policy options. When considering how to intervene, policy makers should evaluate alternative options carefully before deciding which option is best. This evaluation leads naturally to the third question: How can we evaluate alternative policy options?

What Are the Effects of Alternative Interventions?

Answering this third question requires that policy makers understand the implications of each policy option under consideration. This evaluation is the focus of *empirical public finance,* which involves gathering data and developing statistical models to assess how people and firms might respond to policy interventions. We discuss empirical public finance in much more detail in Chapter 3.

In assessing the effects of government interventions, policy makers must keep in mind that any policy has *direct and indirect effects*.

Direct Effects The **direct effects** of government interventions are those effects that would be predicted if individuals did not change their behavior in response to the interventions. For example, suppose that in 2010, the government had decided to address the problem of the uninsured by providing free public health care, as is done in the United Kingdom. The government computed that, with 49 million uninsured and an average cost of treating each uninsured person of $2,500 per year, this intervention would cost about $125 billion per year. This is a huge amount, but it was much smaller than existing spending on health care by the U.S. government ($818 billion in 2010). According to this calculation, the government could have covered all of the uninsured for less than 3.5% of the federal budget of $3.7 trillion.[18]

direct effects The effects of government interventions that would be predicted if individuals did not change their behavior in response to the interventions.

Indirect Effects The **indirect effects** of government intervention are effects that arise only because individuals change their behavior in response to the interventions. For example, being uninsured is something that people can change about themselves; it is not a fixed personal characteristic such as being male or African American. By providing free health care to those who are uninsured, the government provides strong incentives for those paying for their own health insurance to drop that insurance and take part in the government's free health care program.

indirect effects The effects of government interventions that arise only because individuals change their behavior in response to the interventions.

Suppose that half of the non-elderly who are privately insured behaved this way. This would add another 88 million persons to the pool using this public source of health care. If each person in this group also costs $2,500 on average, the government cost of the program would almost triple to $340 billion per year! On the other hand, if only 10% of the privately insured behaved this way, the government cost of the program would rise to only $165 billion per year.

[18] Office of Management and Budget (2006a), Table 3.1.