CHAPTER 1

Introduction

Taxes are the sinews of the State.
Marcus Tullius Cicero (1st century B.C.)

It is not surprising and is indeed appropriate that fiscal policy … should be among the most controversial of policy issues. The fiscal process, as much as any other democratic institution occupies the middle ground between anarchy and absolute rule. It provides the forum on which interest groups and ideologies may clash without resort to the barricades, and on which compromise and cooperation may be sought.


Taxation has been a major subject of comment and analysis throughout history. It is not difficult to understand the source of this widespread attention. Taxes directly affect the daily lives of individual citizens while also providing “the sinews of state,” as pointed out long ago by the Roman writer Cicero. They give the government access to private economic resources and make possible the provision of essential public services, such as defense, police protection, and the enforcement of property rights through the courts. Their imposition influences the distribution of personal income and may alter the division of wealth among different groups. How a society employs taxation reveals much about the relation between its citizens and the state, and thus defines an important part of the nation’s character.

Economists have made many contributions to the study of taxation and fiscal choices. Although our analysis falls into this broad tradition, it also represents a new departure. The book is based on a definite point of view on how to approach the study of fiscal matters in democratic states. We see tax policies as equilibrium outcomes of a collective choice process that is constrained by political as well as economic forces, and we believe that tax analysis at its best should reflect this more inclusive and complex view of the fiscal process.

A different starting point often leads to new research questions, or to a reframing of the analysis and a changed emphasis. In the following remarks we indicate in some detail how the approach we develop in this book differs from other work on taxation and public finance generally.
2 Introduction

Public Finance and Collective Choice

The analysis in this book bridges the fields of public finance and collective choice. The traditional concerns of public finance – the incentive and incidence effects of taxation and the implications of these effects for efficiency in the allocation of resources and for interpersonal equity – all play an important role. In addition, the analysis reflects our view that a full understanding of taxation also requires examination of the process by which tax structure is determined. In most economic studies of public policy, political behavior and the public policy process lie outside the formal framework. This limited approach may be adequate from the perspective of policy makers who want to know how the status quo could be changed to achieve particular exogenously specified political or social objectives. It is no longer sufficient, however, if the objective is a full understanding of the forces that shape the fiscal system at a point in time, or its evolution over time.

Expanding the Domain of Fiscal Voting Analysis

Two elements are central to our approach: We assign an explicit role to the political process, and we interpret fiscal choices and policies as equilibrium outcomes. An emphasis on politics may not seem surprising or novel to those who agree with Richard Musgrave’s view of budgetary outcomes as “comromises without resort to the barricades,” or to the average taxpayer familiar with the phrase “no taxation without representation.” A large part of the economic literature has not followed popular experience, however, treating taxation and politics as two distinct fields. Although we do not attempt to capture the full force of the fiscal drama alluded to by Musgrave, we take the need for collective choice seriously and treat politics as an integral part of theoretical and empirical analysis.

Despite advances in understanding of the public sector made possible by the application of rational choice models to political behavior, much remains to be done in this area. At present, a typical study of the fiscal system that incorporates voting decisions explicitly into the analysis is focused on the overall size of government, or on the determination of an average tax rate in a simple fiscal system. But the observed structure of expenditures and taxes in modern nations is much richer. If public sector analysis is to progress, it must go beyond the study of narrowly limited fiscal systems and show that it can give guidance in a more realistic setting. Although useful models must always simplify and abstract from reality – a model of the entire U.S. tax code would probably be neither feasible nor desirable – the gap between the fiscal facts familiar to most taxpayers and the tax structures found in collective choice models of the public sector remains too wide.
Introduction

Unified Application of a Consistent Framework

After a review of available models, we choose the probabilistic voting framework as the most suitable one for dealing with the inherently multidimensional nature of tax policy. An important feature of this model is that equilibrium policy outcomes reflect a balancing of heterogeneous and opposing interests in the electorate. The model provides the starting point for all analysis in the book, be it theoretical, empirical, positive, or normative. The study represents the first comprehensive and unified evaluation of taxation based on a collective choice model other than the median voter framework. Because of the greater generality of the theoretical approach, we are able to raise a broader set of questions and deal with a wider set of issues than studies of taxation based on other formally developed models of collective choice.

General Equilibrium Analysis of the Public Sector and of the Political Economy

Our interest in fiscal systems, rather than in the effects of selected individual policies, derives from the view that interdependence among policies is crucial. We believe that decision makers in the public sector rely on a variety of instruments to achieve their objectives, adjusting policy mix so as to equalize the marginal costs of different policies, to the extent that such costs are relevant to their aims. As a result, changes in the use of one policy tool must lead to adjustments in the employment of other major instruments. Recognition of such interdependence has important implications for theoretical and empirical analysis, as well as for understanding of government actions.

We believe that the broader view adopted in this book is valid for studying all aspects of the public sector, but our analysis is restricted to taxation. This is done to keep a large subject within manageable bounds, and in the service of constructing a theoretical framework that can be tied effectively to empirical research. Although the expenditure side of the government’s budget is not treated in detail, the determination of expenditure levels is incorporated explicitly into the theoretical framework, with budget size being determined simultaneously with the structure of taxation.

The choice of policies takes place against a wider background that includes both the public and the private sectors of the economy. Several decades ago, Arnold Harberger revolutionized the study of public finance by showing how the general equilibrium effects of taxation within the private economy can be taken into account in studying the incentive or incidence effects of taxation. Contributors to the equilibrium approach to public finance since the time of his seminal work have no doubt been aware of the possibility of expanding the model further to make policy choices endogenous as well. But with few
4 Introduction

exceptions, they have chosen to widen the scope of their analysis in other
directions. In this book, we redirect attention to this important aspect of equi-
librium analysis. The study shows how significant aspects of the public and
private sectors may be integrated into an equilibrium framework, how this
more inclusive model may be used to study the political economy of fiscal
structure, and why such a broader framework leads to a fuller understanding of
major fiscal policies.

1.1 A BRIEF OUTLINE

Even though the study is unified by the use of a consistent theoretical
approach, it still covers a wide range of topics and issues related to taxation. In
order to provide the reader with an overall perspective, presentation of the
material has been divided into five parts, with each part corresponding to a
major topic area.

Part I provides a review of the existing literature on the positive political
economy of taxation, as well as a new theoretical analysis of how tax systems
and their main elements – such as rate structures, tax bases, and special provi-
sions – emerge in democratic states. The new framework provides the founda-
tion for the rest of the book.

Existing normative theories of taxation are reconsidered in Part II. The dis-
cussion reveals a need for a different approach to the normative evaluation of
tax systems in the presence of collective choice. We take several initial steps
toward reformulating normative tax analysis.

Part III serves as a bridge between the conceptual analysis and the subse-
quent empirical work. A computable general equilibrium version of the model
developed in Part I is constructed and used to identify economic and political
factors that are responsible for the evolution of U.S. fiscal history.

Part IV introduces issues and problems that face the researcher interested in
statistical modeling of tax systems. Two econometric analyses, implementing
the model described in Part I in different ways, are then presented. One study
focuses on differences in the reliance of political jurisdictions on particular
aspects of taxation at a given point in time, and on the concurrent relationship
between various parts of a tax structure. The other study is concerned with
modeling the evolution of a tax system as a whole over a longer period.

In Part V, we turn to the influence of political institutions that constrain
political competition. We investigate the effect on tax structure of differences
in the operation of parliamentary and congressional political systems. The
model developed in Part I serves as a background, but testing of hypotheses is
of a less formal nature.

For those who wish to focus on selected aspects of the analysis, we next
present a more detailed review of research questions and chapter content.
1.2 A SURVEY OF CONTENT

What major research questions and topics does our approach to taxation suggest? A natural starting point is to ask what collective choice model is most suitable for research on multidimensional fiscal issues in an equilibrium context. After examining the best-known available models, we resolve this question in Chapter 2 by choosing a framework where voting is probabilistic, with parties maximizing expected votes or support.

The central theoretical issues raised by our approach concern the nature and characteristics of fiscal systems. What type of tax system would self-interested political decision makers create? How would fiscal instruments arise, be shaped, and be combined into an equilibrium mix of tax policies in a world where taxpayer responses, economic welfare losses, administration costs, and budget size are part of the political calculus? The answers are developed in Chapter 3, where the basic theoretical framework is presented, and they point to a complex tax system having all the essential features observed in the real world: tax bases, separate rate structures, and a variety of special provisions.

Similar issues are taken up in Chapter 4, based on joint research by the authors with George Warskett, where the model is reformulated and extended to encompass self-selection behavior by taxpayers, and where the influence of administration costs, self-selection, and inequalities of political influence is examined formally. In addition, the chapter gives conditions under which a perfectly competitive political system will lead to the creation of a Pareto-efficient tax structure. For convenience, we call this formal result the “Representation Theorem,” a name suggested by the method of proof. We demonstrate that, under certain conditions, the fiscal equilibrium can be represented by solving a specific constrained optimization problem in which the objective function consists of a weighted average of the utilities of all voters and where weights reflect the sensitivities of individual voting probabilities to changes in economic welfare.

Much of the literature on public economics is written from a normative point of view and does not attempt to explain observed policy outcomes. Policy recommendations are derived in a framework that is restricted to economic variables and that excludes politics. The view adopted in this study forces one to question this approach and to ask explicitly what should be considered a valid counterfactual for judging tax systems and choices on taxation made by democratically elected decision makers.

In Chapter 5, we critically assess the three best-known normative approaches (Optimal Taxation, Equitable Taxation, and Fiscal Exchange) in the light of this question, examining the role assigned to the political process in each one of them. The discussion reveals a need for a new normative analysis that includes collective choice, while also dealing with the three basic steps underlying traditional welfare economics.
6  Introduction

Chapter 6 uses the Representation Theorem developed in Chapter 4 to suggest a new approach to the normative study of policy outcomes in competitive political systems. The new approach is contrasted with an analysis based on Lindahl equilibrium. Further topics include the implications of political market failure for fiscal policy and the measurement of welfare losses from taxation in a more comprehensive model that accounts for collective choice.

A major question in all of public economics concerns the interdependence of the public and private sectors. Computational general equilibrium models offer an opportunity to study this connection in a more systematic way than is otherwise possible. However, such models tend to have rather simple and stylized versions of the public sector and rarely include collective choices as an integral part of the analysis.

Chapter 7, based on research co-authored by Stanley Winer and Thomas Rutherford, incorporates probabilistic voting into a computable general equilibrium model of economic and political competition in which tax rates and the size of government are determined along with private market prices and quantities. Numerical implementation of the model relies on the Representation Theorem. The framework is applied to the United States with the use of the GEMTAP model (with 19 industries), amended to include individual demands for public services and foreign capital flows. The chapter investigates the Pareto set of fiscal policies for representative members of three interest groups defined by the level and source of factor incomes, and it demonstrates the importance of taking the general equilibrium effects of public policy into account when interpreting U.S. fiscal history.

Placing taxation in the context of the larger fiscal system has important implications for the direction of empirical research. In Chapter 8, we adapt the theoretical model to serve as a basis for statistical research. We raise methodological issues that arise in formulating estimating equations that describe a limited part of a larger fiscal system as well as in distinguishing empirical results based on probabilistic voting models from results derived with the use of competing frameworks. The chapter also contains a brief survey of empirical research on fiscal structure based on different political models.

Looking at revenue systems as a whole, we notice many aspects that call for explanation yet that until recently have received only scant attention by economists. An example is the significant variation observed among the tax systems of similar political entities, such as states, provinces, or nations. The statistical analysis presented in Chapter 9 focuses on two related decisions made by state governments: how much to rely on personal income as a tax base, and whether to introduce an income tax credit or rebate for local property taxes. A system of two simultaneous equations is used to analyze pooled cross-section data for 48 U.S. states.

Chapter 10 tests the theoretical framework in an historical context. Estimat-
ing equations are specified and used to explain the development of the revenue structure employed by the Government of Canada from 1871 to 1913, a period when major revenue sources consisted of the tariff, debt, and excises. The empirical analysis distinguishes between government plans and ex post observations of public revenues and places particular emphasis on the derivation of hypotheses linking economic, political, and administrative variables to the evolution of the revenue system as a whole.

The probabilistic voting model has little explicit institutional content. It is nonetheless used by many authors as a basis for research into the effect of institutions on policy outcomes. In Chapter 11, we turn to this question by investigating whether differences in the federal tax systems of the United States and Canada can be explained, at least in part, by differences in the constitutional frameworks of the two countries. The analysis is of a less formal nature than in previous chapters, but it provides support for the significance of institutions and suggests that a more formal treatment of their effects is an important task for future work.

The final chapter reviews what has been accomplished in light of the starting point of the book’s analysis. In so doing, Chapter 12 identifies topics for further research and briefly restates the case for approaching the study of taxation and other aspects of the public sector with an emphasis on collective choice and equilibrium policy outcomes.
PART ONE

THEORETICAL FRAMEWORK
CHAPTER 2

Models of Political Economy and the Study of Taxation

It is possible to go further and to consider the public sector in another way. One then tries to explain the actions of public authorities as determined by, for instance, such things as the various influences of social classes and pressures, the social mechanism of selection of leaders of state and municipal institutions, their knowledge or lack of knowledge when taking decisions, etc. This will be a theory about politics.

Leif Johansen (1965, p. 6)

The suitability of a model depends as much on what is left out as on what is put in.

Martin Shubik (1984, p. 11)

We begin the study of the power to tax in democratic states with a review of six well-known models that have been used to investigate important aspects of the formation or evolution of tax systems. Five of them include collective choice as an integral part. Johansen’s challenge to “go further and to consider the public sector in another way” has not gone unanswered in the fiscal literature during the last four decades. Many authors have attempted to explain how selected aspects of tax systems, or tax structure as a whole, emerge in an equilibrium resulting from the interaction of the private economy and the political process. The major contending frameworks include the median voter model, structure-induced equilibrium, probabilistic voting, the Leviathan model, and cooperative game theory. We provide a sketch of each of these approaches. In addition, we refer to a sixth framework, the representative agent model, which is often employed in tax analysis but does not take into account the collective nature of decisions on tax policy.¹

The chapter then proceeds to a comparative assessment of the modeling traditions by considering how they deal with several elements that are necessary to create a collective choice analysis, and by contrasting the determination of

¹ References to the models provided in the text are to selected seminal contributions. Additional references are provided in surveys of the literature by Hettich and Winer (1997) and Inman (1987). A concise and readable introduction to the models is provided by Mueller (1989).
equilibrium tax rates in five of the approaches. The discussion is designed to highlight the relative strengths and weaknesses of the different models when they are used for the analysis of taxation. In a separate section, we pay particular attention to the choice between present and future taxation, an aspect of fiscal structure that raises special questions for the analysis.

We conclude the chapter by selecting the framework that appears best suited for the explanation of widely observed stylized facts on tax structure. All of the approaches contribute to the understanding of fiscal choices, but we believe that the probabilistic voting model provides the best starting point for analyzing the formation and evolution of complex fiscal policies.

### 2.1 A REVIEW OF ALTERNATIVE FRAMEWORKS

All predictive models in which collective choice plays an important role have three major elements: a collective choice mechanism, usually some variant of majority rule; an explicit or implied institutional structure within which collective choice takes place; and an economy of private agents whose activity is being taxed to provide public services and to coercively redistribute income. Although the models reviewed in this section all assign a similar role to the private economy, they are distinguished from each other by the collective choice process and by the political institutions assumed to govern this process. They also differ in their ability to explain stable choices in a political setting, a problem to which we drew attention in Chapter 1.

In order to make a meaningful diagrammatic comparison possible, and to contrast the predictions of the different frameworks, we use a set of simple assumptions to characterize the fiscal economy. We imagine a situation where the public sector provides one public good and where the resources needed to provide it are raised by proportional tax rates imposed on two bases. Voters have preferences for the public good, as well as for the output of the private economy. Most diagrams in the chapter relate voter utility to different combinations of the two proportional tax rates, and they are best thought of as representing indirect utility functions. It is assumed that preferences result in indifference curves having circular shape. An exception is the examination of the median voter model, where the model’s limitations restrict the analysis to rankings over a single tax rate.

The simple fiscal framework excludes consideration of lump-sum taxation and benefit taxation. This is in accordance with the approach taken in other chapters. We are mainly interested in exploring situations where a significant separation exists between taxing and spending, since we believe that this best describes tax policy in democratic states. Lump-sum taxation can be a useful...