

Lectures on **PUBLIC ECONOMICS**

A.B. Atkinson and J.E. Stiglitz



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Anthony B. Atkinson

*Professor of Economics
London School of Economics*

Joseph E. Stiglitz

*Professor of Economics
Princeton University*

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PREFACE

This volume is based on lectures that the authors have given to graduate courses in public economics at (A.B.A.) the University of Essex, Massachusetts Institute of Technology, and University College London, and at (J.E.S.) Yale University and Stanford University. Our first acknowledgement is to the many students who attended these courses and helped us develop the material.

The translation of lectures into the format of a book is always difficult, and in the present case has taken much longer than we envisaged when we embarked on the venture in 1970. In the course of the ten years, we have accumulated many debts to colleagues and friends. Our understanding of the field in general owes a great deal to Peter Diamond, James Mirrlees and Peter Mieszkowski. We have individually benefited from collaboration at different times with Partha Dasgupta, Mervyn King, David Newbery, Agnar Sandmo and Nicholas Stern. Drafts of the Lectures have been circulated widely over a number of years, and we are most appreciative of the comments we have received. We should single out in particular Richard Arnott, who played a key role in the preparation of the penultimate version, and Leif Johansen and Nicholas Rau, who read all the 1977 draft and made most valuable criticisms. In addition, we received helpful comments from the publisher's readers and from: Syed Ahsan, Mike Boskin, David Bradford, Harvey Brazer, Mono Chatterji, Steve Clark, Paul Grout, Jane Hannaway, Claude Henry, Jon Kesselman, Jack Mintz, Robert Moffitt,

Knud Munk, Peter Neary, Janusz Ordover, Mitch Polinsky, Tom Romer and John Whalley. All these people, to whom we are most grateful, have made a great contribution to improving the form of the lectures; they should not however be held in any way responsible for the contents.

Different versions of the manuscript have been typed by a succession of secretaries in Essex, Stanford, Princeton and Oxford, but particular thanks are due to Anne Robinson. She typed both the first full draft and the final version, with remarkably little complaint, as well as attempting on occasion to improve the style. Celia Rhodes of University College London prepared the bibliography and gave editorial help in the last critical weeks. Andrew Best of Curtis Brown, and Julia Maidment and Bonnie Lieberman of McGraw-Hill, provided patient help with the publication. Franklin Allen of Nuffield College, Oxford, was most helpful at proof stage.

We are grateful to those authors and publishers who have given us permission to use material in this book.

Finally, the book is dedicated to our children, in the hope that they have survived the intrusion of this cuckoo into their respective nests.

April 1979

Anthony B. Atkinson
London
Joseph E. Stiglitz
Princeton

INTRODUCTORY NOTE

This book is intended as a graduate text in the field of public economics. As such, it is more advanced than undergraduate textbooks such as *Public Finance in Theory and Practice* by R. A. and P. B. Musgrave. It assumes a good understanding of modern microeconomics and familiarity with basic calculus. At the same time, it should be emphasized that the book uses no sophisticated mathematics, and that considerable effort has been made to explain the more technical sections. There is nothing in the book that should be beyond the reach of a first-year graduate student, and much of it should be accessible to final-year undergraduates.

In the *Lectures*, we have placed particular stress on recent developments in public economics, aiming to bring together material that is at present scattered in the journal literature. The fields covered include the general equilibrium incidence of taxation, the econometric study of responses to taxes and social security benefits, the optimum design of fiscal policy, debt policy and capital accumulation, and the provision of public goods. In each case we are especially concerned with the development of tools that can be applied to current issues—as aids to “thinking about policy”.

In attempting to encompass this range of new developments within the constraints of length imposed by the publishers, we had to face several problems. The first is that we need to refer to a large number of books and articles, drawn from many different fields. The limitations of space have

meant however that we cannot provide an exhaustive bibliography of all relevant work. In view of this, we have cited particular sources to demonstrate specific points or to illustrate the kind of work that has been done. We have also included a brief (one-paragraph) guide to reading at the end of Lectures 2–17. Together with the Bibliography at the end of the book (which itself is over 25 pages long), these should provide the reader with an introduction to the literature. In all cases references are given as A. Smith (1776), with the full citation being given in the Bibliography. Where A. Smith published two works in that year, the first is referred to as (1776a), the second as (1776b).

Second, even within the subjects on which we concentrate, we have had to be highly selective in our coverage. As a result, we have been forced to cut out many gems, and we apologize in advance to those whose work has not been adequately treated. This is partially redressed by the addition of Exercises, which are intended both to test the reader's understanding and to extend the scope of material covered. These exercises vary considerably in difficulty and length (one at least can be answered in a single word). We have in some places indicated that the exercise is based on a particular source, which the reader may like to consult (after attempting it).

Third, the range of material covered has meant that it is impossible to maintain the same standard notation throughout the book, let alone use symbols that are clearly mnemonic. Since we are drawing on several different branches of literature, we have to recognize that to use t for time is as natural in growth theory as it is to use t for taxes in public finance. (We have in fact kept t for taxes, with a variety of subscripts, and occasionally resorted to τ or T , while we use u for time.) We have tried to reserve \bar{X} for the mean of X , X' for its derivative (except in diagrams), and \hat{X} for the logarithmic derivative. We have used \mathbf{X} to denote the vector (X_1, X_2, \dots, X_n) . The reader may detect certain other regularities. There are however symbols that take on different meanings in different Lectures, and all that we can claim is that we have tried to explain carefully the notation employed in each case.

CONTENTS

Preface	xiii
Introductory Note	xv
PART ONE Analysis of Policy	1
Lecture 1 Introduction: Public Economics	3
1-1 Introduction	3
1-2 Role of the Government	4
1-3 Guide to the Lectures	10
Note: The Public Sector—Statistical Background	15
Lecture 2 Household Decisions, Income Taxation and Labour Supply	23
2-1 Introduction	23
2-2 Income Taxation and Labour Supply	31
2-3 Broader Models of Labour Supply	43
2-4 Empirical Evidence on Labour Supply	48
2-5 Concluding Comments	58
Note on the Expenditure Function	59
Reading	61
Lecture 3 Taxation, Savings and Decisions Over Time	62
3-1 Intertemporal Decisions and Taxation	62
3-2 The Basic Intertemporal Model	69
	vii

3-3	Developments of the Model and Alternative Views	81
3-4	Empirical Evidence—Taxation and the Interest Elasticity of Savings	90
3-5	Concluding Comments	94
	Reading	95
Lecture 4	Taxation and Risk-Taking	97
4-1	Risk-Taking and Portfolio Allocation	97
4-2	Effects of Taxation	104
4-3	Special Provisions of the Tax System	112
4-4	Generalization of Results	117
4-5	Concluding Comments	124
	Note on Risk Aversion	126
	Reading	127
Lecture 5	Taxation and the Firm	128
5-1	Taxes and the Firm	128
5-2	Corporation Tax and the Cost of Capital	132
5-3	Taxation and Investment	142
5-4	A Wider View of Investment	149
5-5	Empirical Investigation of Taxation and Investment	154
5-6	Concluding Comments	158
	Reading	159
Lecture 6	Tax Incidence—Simple Competitive Equilibrium Model	160
6-1	Introduction: Tax Incidence	160
6-2	Static Two-Sector Model	165
6-3	Incidence of Corporation Tax	173
6-4	General Tax Incidence	178
6-5	Incidence in a Two-Class Economy	187
6-6	Numerical Applications of the Model	192
6-7	Concluding Comments	197
	Note on the Cost Function	198
	Reading	199
Lecture 7	Tax Incidence: Departures from the Standard Model	200
7-1	Introduction	200
7-2	Market Imperfections	201
7-3	Monopolistic Competition	208
7-4	Structure of Production	217
7-5	Non-Market-Clearing	222

7-6	Concluding Comments	226
	Reading	226
Lecture 8	Taxation and Debt in a Growing Economy	227
8-1	Introduction	227
8-2	An Aggregate Model of Equilibrium Growth	230
8-3	Growth and Taxation	237
8-4	Taxation in a Life-Cycle Model	243
8-5	Burden of the National Debt	249
8-6	Concluding Comments	257
	Reading	258
Lecture 9	Distributional Effect of Taxation and Public Expenditure	259
9-1	Taxation, Spending and Redistribution	259
9-2	Modelling the Distribution of Income	267
9-3	Distributional Incidence	278
9-4	Empirical Studies of the Redistributive Impact of the Government Budget	283
9-5	Concluding Comments	292
	Reading	293
Lecture 10	Theories of the State and Public Economics	294
10-1	Introduction	294
10-2	Voting and Decisions	299
10-3	Administration and Bureaucracies	310
10-4	Power, Interest Groups and Marxist Theories	316
10-5	Empirical Studies of Public Expenditure	321
	Reading	329
PART TWO	The Design of Policy	331
Lecture 11	Introduction to Part Two—Normative Analysis	333
11-1	Introduction	333
11-2	Normative Theories of the State	336
11-3	Pareto Efficiency and Welfare Economics	343
11-4	Standard Public Finance Objectives	350
11-5	Range of Government Instruments	356
	Note on the Measurement of Income Inequality	364
	Reading	365

Lecture 12 The Structure of Indirect Taxation	366
12-1 Introduction	366
12-2 The Ramsey Tax Problem	370
12-3 Application of the Ramsey Results	376
12-4 Partial Welfare Improvements and Tax Reform	382
12-5 Optimal Taxation in a Many-Person Economy	386
12-6 Concluding Comments	392
Reading	393
Lecture 13 The Structure of Income Taxation	394
13-1 Introduction	394
13-2 A Simple Model	398
13-3 Linear Income Tax	405
13-4 General Income Tax	412
13-5 Concluding Comments	422
Reading	423
Lecture 14 A More General Treatment of the Optimal Tax Problem	424
14-1 Introduction	424
14-2 Indirect Taxes and Linear Direct Taxation	428
14-3 Nonlinear Tax Schedules and Tax Exemptions	435
14-4 Taxation of Savings	442
14-5 Externalities in Consumption and Corrective Taxes	451
14-6 Concluding Comments	454
Reading	456
Lecture 15 Public Sector Pricing and Production	457
15-1 Introduction	457
15-2 Departures from Marginal Cost Pricing	461
15-3 Choice of Technique and Production Efficiency	470
15-4 Cost-Benefit Analysis and Social Rate of Discount	474
15-5 Concluding Comments	480
Reading	481
Lecture 16 Public Goods and Publicly Provided Private Goods	482
16-1 Introduction	482
16-2 Optimum Provision of Pure Public Goods—Efficiency	487

16-3	Optimum Provision of Pure Public Goods— Distribution	494
16-4	Publicly Provided Private Goods	497
16-5	Equilibrium Levels of Public Expenditure	505
16-6	Revelation of Preferences	513
	Reading	518
Lecture 17	Local Public Goods	519
17-1	Introduction	519
17-2	Optimum Provision of Local Public Goods	522
17-3	Market Equilibria and Optimality: Identical Individuals	533
17-4	Market Equilibria and Optimality: Heterogeneous Individuals	540
17-5	Fiscal Federalism	551
	Reading	556
Lecture 18	Public Economics: Theory and Policy	557
18-1	On the Sources of Disagreement in Policy Analysis	557
18-2	Thinking About Policy: Taxation	563
18-3	Thinking About Policy: Expenditures	570
18-4	Policy Reform and Political Economy	575
Bibliography		577
Author Index		605
Subject Index		610

PART
ONE

THE ANALYSIS OF POLICY

INTRODUCTION: PUBLIC ECONOMICS

1-1 INTRODUCTION

These Lectures are concerned with the economics of the public sector. We are all constantly affected by the economic decisions of the government. This is most noticeable in the taxes we pay. Income tax, sales taxes, local taxes, and social security contributions account for a substantial proportion of our income. Owners of capital are affected by taxes on corporate profits, inheritance taxes and capital gains taxes. Almost all of us are at one time or another recipients of income from the government: for example, via social security programmes. A large proportion of workers are paid by the government or produce goods sold to the government. Many children go to schools supported by the government. We enjoy municipal parks, swimming pools, roads and other publicly provided facilities. Many people are concerned about public policy towards the environment or about the conservation of natural resources.

In these Lectures we attempt to describe in a systematic manner the principal consequences of such economic activities by the government and their relation to social objectives. In Part One we examine the effects of various tax and expenditure policies. This “positive” section of the book is concerned with such questions as “Does income taxation discourage work effort or risk-taking?” or “What is the incidence of the corporation tax?”. In contrast, in Part Two we present the “normative” theory of public finance, which is an attempt to postulate some simple criteria for government decision-making and to follow through their logical implications. Thus, it deals with such issues as the degree of progression for the income tax, the choice between direct and indirect taxation, the provision of public goods, and pricing rules for public enterprises.

In addressing these questions, we make no attempt to provide a

comprehensive coverage. The choice of the title *Lectures on ...* is intended to dispel any impression that the book is an exhaustive account of public economics. The aim of the Lectures is to illustrate the current state of the art, to give some flavour of the strengths and weaknesses of recent developments, and to point to areas where future research is necessary.

The ways in which the book falls short of being comprehensive should be clear from the Table of Contents. Most seriously, no attempt is made to cover stabilization and macroeconomic policy. This is an essential element in any global view of the role of the government, and many issues are dominated by macroeconomic considerations. However, the economics of publishing have changed since the time when Musgrave could devote 210 pages of *The Theory of Public Finance* (1959) to stabilization policy, and there are many excellent treatments in the literature. Our emphasis is therefore on goals other than those of stabilization.

Even with this restriction, the coverage is selective. Some readers will no doubt be horrified or disappointed by the omissions, which include the international aspects of taxation, the economics of property rights, externalities in production, the fiscal problems of economic development, and the administration of taxes and benefits. We hope however they will feel that this selective treatment is justified by the greater depth in which we have been able to discuss the subjects covered. These include, on the taxation side, income and wealth taxes, levies on the transfer of wealth, corporation tax, and indirect taxes. The expenditure side covers the provision of goods and services by central and local governments, and—to a lesser extent—transfer payments. Other subjects included are the national debt and the policy of public enterprises/utilities.

As will be clear from the Lecture titles, the book stresses those subjects in which there has been considerable recent research. This is particularly true of the incidence and design of taxation, which receives rather more emphasis than the expenditure side. The past decade has indeed seen a rapid expansion of the literature, most notably in econometric investigation of the effects of taxation and in theoretical analysis of the optimal design of tax policy.

Finally, we should emphasize the obvious fact that many areas are still unresearched. Despite the long tradition of public finance, and despite the recent influx into the field of economic theorists and econometricians, a great many important issues have yet to be discussed, let alone resolved.

1-2 ROLE OF THE GOVERNMENT

At the beginning of this Lecture we described some of the ways in which the government affects the typical individual. The state, however, has a much more basic role to play in that its first function is to establish and enforce

the “rules of the economic game”. We are concerned with modern mixed capitalist economies, such as the United States, Canada, Western Europe and Japan, where these rules typically include the legal enforceability of contracts, provisions for bankruptcy, laws defining property rights and liabilities. This basic framework has much to do with how the economy performs, and the other functions of government are very much affected by the kind of ground rules under which the private economy operates. It may indeed be argued that the tax and expenditure activities of the government are of minor significance in relation to its primary function “of preserving and stabilizing the property relations of the capitalist economy” (Gordon, 1972, p. 322). This is not a view we find totally convincing, and we consider that it is still valuable to analyse, as in these Lectures, the impact of fiscal instruments within a given economic system. At the same time, we recognize that it gives only a partial picture of the state’s role in modern society, and we return to this below.

Even within the framework of a mixed capitalist economy, the government has a wide range of instruments at its disposal. These Lectures focus on taxation, public spending, and state participation in production (public enterprises/utilities); but in addition the government may make use of direct controls (e.g., rationing, central planning, zoning, licensing), regulation (e.g., of public utilities in the United States, of prices and wages in many countries), legislation controlling firms (e.g., anti-monopoly, pollution, safety) or unions, and monetary and debt policy (and the regulation of monetary institutions). These are areas of state activity that are of actual, or potential, importance. What is more, they overlap considerably with the instruments studied here. Thus, in the case of air pollution caused by automobiles, a government may decide to set minimal standards to be followed in automobile manufacture. It could, however, choose to impose taxes related to the amount of pollution, or to subsidize research into the production of pollution-free automobiles. In the same way, monetary and fiscal policy are closely interrelated.

There may therefore be difficulties in drawing precise demarcation lines. The reader also needs to bear in mind that the effects of the instruments considered may depend on other aspects of government activity. The design of taxation or expenditure may rest critically on the availability of other policies. At the same time, the fiscal instruments on which we concentrate in these Lectures are used in a major way in most modern capitalist economies. (In the Note at the end of this Lecture we provide some background evidence on the importance of different instruments.)

Welfare Economics and Government Intervention

The standard justification of state intervention takes as its starting point the behaviour of the economy in the absence of the government, that is, in the