

PUBLIC ECONOMICS

William Vickrey

Winner of
the 1996 Nobel
Memorial Prize
for Economics

Edited by Richard Arnott
Kenneth Arrow, Anthony B. Atkinson
and Jacques H. Drèze

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Public Economics

SELECTED PAPERS BY WILLIAM VICKREY

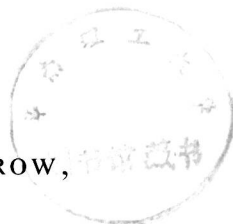
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William Vickrey is one of the truly important figures in contemporary economics. Over the past fifty-five years he has published several books and some 140 papers scattered over many journals. This book offers a thoughtful selection from these papers, organized so as to bring out the scope and yet the unity of the work. Vickrey has the unique distinction of having contributed, often seminally and always operationally, to all major branches of public economics. The papers collected here cover Social Choice and Allocation Mechanisms, Taxation, Pricing in Public Utilities and in Urban Transportation, Urban Economics and Macroeconomic Policies. Each topic is introduced by one of the four editors, and the book is completed with a full annotated bibliography of Vickrey's work. For the first time, we have convenient access to a set of important, creative and stimulating contributions, which have helped shape the modern field of public economics. This is a fascinating overview of the field and of the life-time work of a great economist.

Public Economics

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Foreword

This volume is meant as a tribute to William Vickrey on his eightieth birthday. We are pleased to express in this way our admiration and gratitude to an outstanding economist and to a marvelous human being.

Two of us had the benefit of being Vickrey's students at Columbia, and of writing dissertations under his friendly, inspiring supervision. We all share a deep appreciation for his work. The fact that it took four editors to select and introduce the papers collected here is indicative of Vickrey's breadth of interests.

The most difficult step in our project was choosing between one and several volumes. Our final option for a single volume, in spite of the wealth of available material, rests on the hope that specialist readers will discover contributions in related areas.

In order to facilitate the use of this volume, the papers are grouped under six main headings, plus a few "miscellany." Each part opens with a brief introduction by one of the editors. We have not attempted to coordinate the style or content of these introductions, which also reflect different contacts with the work and personality of William Vickrey. The minor element of repetition and cross-referencing in these introductions reflects the complementarities of the different parts.

A special bonus to users of this volume is the annotated bibliography, which came right out of Vickrey's computer and is reprinted (with his kind permission) with minimal editing, thus with unadulterated spontaneity.

Richard Arnott undertook the painstaking task of assembling the papers listed in the bibliography and making them available to the other editors. He will gladly make copies of these papers available to interested readers, upon requests addressed to him at Boston College (Economics), Chestnut Hill, Mass. 02167, USA.

Ms. Kelly Chaston shared with Richard Arnott responsibility for proofreading. She deserves the gratitude of the editors and readers for her dedicated attention to that demanding task.

We thank Cambridge University Press, and in particular economics editor Patrick McCartan, for their enthusiastic endorsement of our project. Material support from the Economics Department at Boston College and from the Center for Operations Research and Econometrics (CORE) at Université Catholique de Louvain is also gratefully acknowledged.

Happy birthday to you, Bill, and many happy years ahead. It was a rewarding pleasure to reread or discover your extensive work. You are never dull, whether in writing or in person. We have learned a lot from you, and we are glad to provide the economics profession with a new opportunity of becoming acquainted with your innovative ideas.

The Editors
Boston College, Stanford University
Cambridge University, Université Catholique de Louvain.

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The author would like to thank the publishers of the following articles for their kind permission to reprint them in this book.

- Chapter 1 “Measuring Marginal Utility by Reactions to Risk,” *Econometrica*, 13 (1945, Econometric Society)
- Chapter 2 “Utility, Strategy, and Social Decision Rules,” *Quarterly Journal of Economics*, 74 (1960, MIT Press)
- Chapter 3 “Counterspeculation, Auctions, and Competitive Sealed Tenders,” *Journal of Finance*, 16 (1961, American Finance Association)
- Chapter 4 “Auctions and Bidding Games,” *Recent Advances in Game Theory* (1962, Princeton University Press)
- Chapter 5 “Averaging of Income for Income Tax Purposes,” *Journal of Political Economy*, 47 (1939, University of Chicago Press)
- Chapter 6 “Cumulative Averaging after Thirty Years,” *Modern Fiscal Issues: Essays in Honor of Carl S. Shoup*, Richard M. Bird and John G. Head, Eds. (1972, University of Toronto Press)
- Chapter 7 “An Integrated Successions Tax,” *Taxes*, 23 (1945, University of Toronto Press)
- Chapter 8 “Expenditure, Capital Gains, and the Basis of Progressive Taxation,” *The Manchester School*, 25 (1957, Blackwell Publishers)
- Chapter 9 “The Problem of Progression,” *University of Florida Law Review*, (1968, University of Florida, College of Law)
- Chapter 10 “Marginal- and Average-Cost Pricing,” *The New Palgrave*, vol. III, Eatwell *et al.* Eds. (1987, Macmillan)
- Chapter 11 “Some Objections to Marginal-Cost Pricing,” *Journal of Political Economy*, 56 (1948, University of Chicago Press)

- Chapter 12 "Responsive Pricing of Public Utility Services," *Economics of the Regulated Communications Industry in the Age of Innovation* (1970 Seminar, New England Telephone, mimeo)
- Chapter 13 "Airline Overbooking: Some Further Solutions," *Journal of Transport Economics and Policy*, 6(3) (1972, University of Bath)
- Chapter 14 "A Proposal for Revising New York's Subway Fare Structure," *Journal of the Operations Research Society of America*, 3 (1955)
- Chapter 15 "Pricing in Urban and Suburban Transport," *American Economic Review*, 52(2) (1963, American Economic Association)
- Chapter 16 "Congestion Theory and Transport Investment," *American Economic Review*, 59 (1969, American Economic Association)
- Chapter 17 "The City as a Firm," *The Economics of Public Services*, Martin S. Feldstein and Robert F. Inman, Eds., Proceedings of a conference held by the International Economic Association at Turin (1977, London, Macmillan, New York, Wiley)
- Chapter 18 "General and Specific Financing of Urban Services," *Public Expenditure Decisions in the Urban Community*, Howard G. Schaller, Ed. (1963, Resources for the Future)
- Chapter 19 "The Impact on Land Values of Taxing Buildings," *Proceedings of the 62nd National Tax Conference*, Boston (1969, Tax Institute of America)
- Chapter 20 "The Optimum Trend of Prices," *Southern Economic Journal*, 25 (1959, Southern Economic Association)
- Chapter 21 "Design of a Market Anti-Inflation Program," *Incentives-Based Incomes Policies*, David C. Colander, Ed. (1986, Ballinger Publishing)
- Chapter 23 "Today's Task for Economists," Presidential Address to the American Economic Association, 6 January, 1993 (revised 3 February, 1993). Original version published in *American Economic Review* (March 1993, American Economic Association)
- Chapter 24 "Resource Distribution Patterns and the Classification of Families," *Studies in Income and Wealth*, 10 (1949, National Bureau of Economic Research)
- Chapter 25 "On the Prevention of Gerrymandering," *Political Science Quarterly*, 76 (1961, Academy of Political Science)
- Chapter 26 "One Economist's View of Philanthropy," *Philanthropy and Public Policy*, F.G. Dickinson, Ed. (1962, Columbia University Press)

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William Vickrey

Maybe Bill Vickrey could be described as a theorists' theorist, and some of his achievements, like an article on auction markets singled out in the full text of the 1978 AEA citation, do require experts to appreciate them fully. But pure theory was never Bill's main objective. He is an economists' theorist, certainly an applied economists' theorist, as well as a theorists' applied economist. He seems always to have believed that the principles and analytical tools of economics can be put to work in the social interest. His mind is always on potential applications – in policy-making, legislation, administration, and institutional architecture. The AEA citation rightly describes his work as “persistently operational.”

*James Tobin at the presentation of
the 1992 Frank E. Seidman Distinguished Award
in Political Economy.*

The selected papers by William Vickrey reprinted in this volume speak for themselves. There is no need for an introduction, and no claim on our part that a brief overall presentation adds to the contents of the book. Still, we wish to invite prospective readers to avail themselves fully of the opportunity provided by the convenient availability, in a single volume, of a set of papers written over a span of more than fifty years and covering a broad range of topics.

The motivation for this project came from our conviction that easy access to a representative set of Vickrey's published papers would be valued by economists, not only today, but for many years to come. There is of course the additional motivation of paying tribute to William Vickrey, as he approaches his eightieth birthday. But the essence of the tribute lies in our conviction of the lasting value of the papers, as originally written. The element of personal gratitude, for all we have learned from our friend and could not at the time have learned from anyone else, is genuine but ancillary. The conviction that this book will be of lasting service to the profession is in itself the main tribute.

All the papers in this book are resolutely modern. Whether written in 1939, in the forties, fifties, or later, they are part of the contemporary development of our discipline. With remarkable intuition, Vickrey sensed very early how new ideas or tools – ranging from decision theory to electronics technology – could contribute new solutions to old problems; and he sensed how new problems – associated with the scale economies of modern technology or with urban congestion and pollution – required appropriate solutions inspired by well-established principles. We wish to invite users of this volume to reflect on the continued challenge of discovering the potential applications of new concepts, while identifying the conceptual issues raised by evolving economic realities.

Surveying the lifetime work of a creative economist provides an opportunity to

search for that person's implicit answers to a set of questions permanently confronting all of us: What problems are worthy of attention? How should these problems be approached? What constitutes a significant result? Where are the open challenges? Answers to these questions remain in part subjective, as they reflect not only a person's interests and values but also his skills, background, and environment. There is much to be learned from the revealed preferences of others. Vickrey chose for his Presidential Address to the American Economic Association in January 1993 the title "Today's Task for Economists." That address is reprinted below as chapter 23 – with the preceding twenty-two chapters revealing the main tasks that economist Vickrey had taken up over the previous fifty-five years. We wish to invite users of this volume to reflect on what we do, or should do, as economists, and how to do it better.

The title, and organization, of the book recognize the recent emergence of "Public Economics" as a well-defined field, with its place in graduate curricula, its specialist journals and textbooks, its meetings and societies. The work of William Vickrey is intimately associated with that development, for which in several important respects he provided seminal inspiration. In comparison with the more traditional, more institutional, and narrower field of "public finance," the new field encompasses all aspects of the "economics of the public sector"¹ and of "government's effect on the economy."² The *Editorial* of the *Journal of Public Economics* (1, 1972) lists such areas as "taxation, fiscal policy, planning and control of public expenditure (including specific areas such as health, education and transport), redistributive effects of the government's budget, management of public enterprises, regulation of public utilities, social security, metropolitan and local finance, tax harmonization, etc. . . ." For each of these areas, modern public economics covers issues ranging from the logical *foundations* rooted in social choice theory, through the theoretical and empirical *analysis* of problems specific to the area, to the development of *implementable guidelines*.

It is remarkable that a single person's contributions could provide landmarks for such a broad and diversified field, both along the "horizontal" dimension corresponding to the *substantive scope* of the field, and along the "vertical" dimension corresponding to its *methodological depth*. And it is even more remarkable that these contributions could combine the merits of precursory *anticipation*, *originality*, and *classicism*.

The *substantive scope* of the field is charted by Musgrave (1959) under three headings, corresponding to the distributive, allocative, and stabilization functions of the state. In the organization of the present volume, the distributive function

¹ Atkinson and Stiglitz (1980) p. 3, Boadway and Walsassin (1984).

² Auerbach and Feldstein (1987).

corresponds to part II, devoted to taxation; the allocative function corresponds to parts III and IV, dealing with pricing policies in public utilities and transportation; and the stabilization function corresponds to part VI devoted to macroeconomic policy. In addition, the logical foundations, in terms of social choice theory and strategic behavior, are the subject matter of part I; and the integration of the diverse functions at the municipal level is treated in part V. Nearly all significant areas of modern public economics are thus covered by Vickrey's work.

The *methodological depth* of the field is exceptionally well covered also, because Vickrey spans the full range from the logical foundations through the analysis of area-specific problems to the detailed discussion of implementable procedures. On this score, Vickrey occupies a rather unique place among contemporary economists. As early as 1945, he sketched the basis of modern utilitarianism, later developed by Harsanyi (1953, 1955), and he introduced the concept of the "original position" (behind the "veil of ignorance") which is central to the construction of a *Theory of Justice* (Rawls, 1971). When Vickrey treats allocative problems of public utilities and transportation, in the late forties and early fifties, the need for public intervention is not simply assumed or taken for granted; rather, it is founded on specific features leading to market failure: increasing returns, externalities (congestion), or uncertainty. Vickrey's original recommendations (about subway fares, road pricing, or airline overbooking) are developed in response to these specific features. And the recommendations bear the unique Vickrey trademark of being developed all the way to the stage of practical implementation. Thus, in the area of taxation, cumulative averaging ("a master stroke of simplification and tax neutralization") provides the practical answer to achieving "neutrality with respect to the time of realization or reporting of all forms of income" (Vickrey, 1972, p. 117). Forty years later, Atkinson and Stiglitz (1980, p. 64), reviewing *Intertemporal Decisions and Taxation*, note: "The fundamental difficulty is the translation from economic concepts to tax legislation." Vickrey in 1939 had not stopped short of overcoming concretely that fundamental difficulty. In the area of public transportation, the subway fare structure he proposed in 1951–2 for New York City on the basis of a precursory second-best welfare analysis is supported by a detailed description of the new electronic turnstiles required to implement the variable fares (geared to time-of-day and to origin–destination). Similarly, the "Statement on the Pricing of Urban Street Use" to a Congressional Hearing in 1959 was supplemented by an actual on-the-spot demonstration of "Electronic Vehicle Identification" equipment. A similar attention to practical implementation underlies another innovation, namely the "Second Price Auction" better known today as the "Vickrey Auction."

No other economist exemplifies to the same degree the ability of treating a relevant problem all the way from the conceptual clarification, through the careful