

Principles of Public Utility Rates

Second Edition

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Public Utilities Reports, Inc.
Arlington, Virginia

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We are especially indebted to Dr. Calvin S. Monson and Dr. Alexander C. Larson, both of whom are economists with Southwestern Bell, for drafting large segments of the telecommunications section of Chapter 22. We also appreciate Dr. James A. Leggette, Manager — Economic Analysis, AT&T — Southern Region for critically offering perceptive observations and constructive suggestions on the telecommunications materials in Chapter 22 and elsewhere. We are also beholden to Dr. William R. Hughes, Putnam, Hayes & Bartlett, Inc. and, Mr. William F. Hederman, ICF Inc., who contributed major portions of the prose and/or concepts in the electric and natural gas segments respectively in Chapter 22. Finally, we are thankful beyond measure to Professor John B. Legler, who took the lead in revising Chapters 14 and 15. Of course, neither the contributors nor their affiliations would necessarily subscribe to the final version of these three chapters.

By far our greatest debt is to our mothers Geneva G. Danielsen and Elsie Kamerschen Barkell who gave us the opportunity to write this book.

The generosity of all the aforementioned people should not leave them open to a charge of guilt by association, for the errors of omission and commission in this book are our own work.

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December 8, 1987

CONTENTS

PART ONE	<i>Scope and General Paradigm Issues</i>	
Chapter 1	The Public Utility Concept	5
Chapter 2	Alternative Paradigms of Regulation	26
Chapter 3	The Public Interest as the Assumed Goal of Ratemaking	67
PART TWO	<i>The Paradigm of Public Utility Regulation</i>	
Chapter 4	The Role of Public Utility Rates	85
Chapter 5	Cost of Service as a Basic Standard of Reasonableness	108
Chapter 6	Value of Service as an Ancillary Standard	124
Chapter 7	Competitive Price as a Rate Regulation Standard	140
Chapter 8	Social Principles of Ratemaking	164
Chapter 9	Fairness Versus Functional Efficiency in Ratemaking	179
PART THREE	<i>The Rate Base and Rate of Return</i>	
Chapter 10	Criteria of a Fair Return	197
Chapter 11	The Rate Base: Cost or Value	210
Chapter 12	The Rate Base: Original Cost with or without Adjustment for Price-Level Changes	233
Chapter 13	Original and Replacement Cost Standards of Rate Base	265
Chapter 14	The Fair Rate of Return	302
Chapter 15	Some Problems with Using a Fair Rate of Return Standard	340

PART FOUR	<i>The Rate Structure</i>	
Chapter 16	Criteria of a Sound Rate Structure	377
Chapter 17	Marginal Costs and Optimal Pricing	408
Chapter 18	The Philosophy of Marginal-cost Pricing	443
Chapter 19	Fully Distributed Costs	478
Chapter 20	Discrimination, Due and Undue	514
PART FIVE	<i>Criticisms of and Alternatives to Traditional Public Utility Regulation</i>	
Chapter 21	Criticisms of and Alternatives to Traditional Regulation	547
Chapter 22	Assessment of Competition and Regulation in Telecommunications, Electrics, and Natural Gas	579
	References	647
	Index of Authors	678
	Index of Public Laws and Cases	685
	Index of Subjects	688

FOREWORD

This study is devoted primarily to a specification and analysis of the standards of reasonable or socially optimum prices applicable to public utility companies. We are concerned mostly, but by no means exclusively, with those companies and industries that either have been, or are presently, subjected to the regulation of their prices and/or profits. More specifically, our focus is on those investor-owned electric, natural gas, telecommunications and water companies that are regulated by the Federal Energy Regulatory Commission (FERC), Federal Communications Commission (FCC) and/or the state-level public service commissions. It should not be inferred, however, that the theory of public utility rates developed herein is invalid under public ownership. On the contrary, the essential principles, as developed in this study, apply with modification to both public and private organizations.

With only minor exaggeration, the entire book may be viewed as an attempt to play variations on a main theme first expressly set forth in Chapter 4. This theme runs to the effect that utility rates, like other prices, are designed to perform multiple functions as instruments of economic control. To a high degree these functions can be performed in harmony; necessarily so, indeed, since they are partly complementary. But the harmony is far from complete, for the most efficient performance of any one function may require the acceptance of a system of rates not best designed to perform any one of the others. In consequence, one of the most frustrating problems of rate theory and of practical ratemaking is that of suggesting and applying principles of workable compromise.

Developing standards of socially optimal rates is exceedingly difficult because these standards must perforce depend upon a multitude of considerations, including the the scope and efficient functions to be performed by government, the general competitive environment, the governance structure and production processes that are utilized to deliver the specific services, the limited cognitive abilities of any person or group to comprehend these and other factors (such as the level of costs and consumer demands), and a great many other things that influence the optimum use of resources. In short, there is an "economic problem" involving the allocation of scarce resources to the relatively unlimited demands upon them; and the function of utility rates is to reconcile the ends with the limited means.

The general principles required to comprehend why and under what conditions certain industries are singled out for public utility status are discussed in Part One; and the general principles and

But one possible example of such an opportunity may serve here as an illustration. It concerns the question whether or not public utility rates, like income taxation, should be based on the relative abilities of rich and poor consumers to pay for the service, thereby serving partly to offset inequalities in personal cash incomes. If, in answering this question, public utility specialists were under obligation to pass judgment on the whole public policy of programs of social control looking toward reduction of personal income differentials, they would be carried hopelessly out of their field into a controversial area in which they have no special competence and about which they could probably say nothing not already said more ably and succinctly by other writers. Yet, in appraising the merits of ability-to-pay criteria of reasonable utility rates, they are not completely silenced by a lack of professional competence in income distribution philosophy in general. A significant answer to the question just raised — admittedly not conclusive in all situations, yet persuasive for general ratemaking policy — is that public utility rates are ineffective instruments by which to minimize inequalities in income distribution; and that alternative instruments (including public education, social security laws, progressive taxation, and possibly even some forms of subsidized public services) are better designed to accomplish this objective, on the assumption that the objective itself is desirable. Reasons for this conclusion are suggested in Chapter 8.

Role of the Rate Theorist

Writers on general principles of public utility rates naturally welcome feasible opportunities to simplify their assignment by limiting attention to those objectives of ratemaking policy, the attainment of which can be aided by fairly definite standards of optimum or reasonable rates. Thus, a study of rate theory may ignore or dismiss with brief comments — political considerations, special statutory provisions, and important technical details or special situations that call for close considerations by people engaged in the actual practice of ratemaking or rate regulation. These practical or legal issues do not lend themselves to useful generalizations. Moreover, they can be discussed more intelligently by actual practitioners than by those professional economists on whom has fallen the major responsibility for the development of general rate theory.

But what must be noted is the assertion, frequently found in the literature of rate theory, that this theory is concerned solely with *economic* principles of ratemaking, or solely with considerations of *economic* efficiency or *economic* welfare. Writers may use this device to

delimit the scope of their own work, and this is useful in many if not most cases. In a recent study on public utility pricing, Brown and Sibley (1986) adopted a strictly normative point of view. They were concerned solely with “economic efficiency and consumer welfare” (1986, p. 4). Our approach is more eclectic in the sense that we consider multiple functions or desiderata of rates (as will be amply demonstrated in Chapter 4) and multiple criteria of a sound rate structure (see especially Chapter 16). The general nature and scope of our approach and orientation are presented in the following section. Little (1950, p. 6) contends that the phrase “economic welfare” involves a misplacement of the adjective. The proper distinction, he insists, is between economic and noneconomic means of attaining human welfare. However, as usual in economics, we operate under the unverified probability that changes in economic welfare usually lead to changes in social welfare, though not necessarily of the same magnitude.

MULTIPLE GOALS OF RATEMAKING

Fairness and Equity in Public Utility Rate Theory

Major advancements are under way among academic economists in an attempt to integrate considerations of fairness and equity into formal discussions of normative rate theory. Prior to the recent developments introduced here, which are developed more thoroughly in Chapter 9, economists generally absolved themselves from any professional concern for considerations of fairness or equity as between investors and consumers, or as among different classes of consumers. Instead, the merits of alternative rules of ratemaking were to be judged solely by reference to their functional efficiency in getting the work of the world accomplished — in attracting capital to public utility enterprises, in supplying incentives to high-grade management, in controlling the demand for the service, etc. Whether or not the various methods proposed could give results that were just or equitable was not to be discussed, presumably because they raised ethical questions about which an economist had little, if any, professional competence.

However, contributions by Foley (1967), Rawls (1971), Kolm (1972, 1974), and others such as Baumol (1986), who recently summarized the history of the development of this literature (pp. 71-74), have provided a new impetus to the formal integration of the fairness issue into economic analysis. While this literature is in its swaddling clothes, and the full implications for rate theory are by no means worked out

presently, the arguments are developed sufficiently well that we would be remiss if we failed to include them in the present discussion.

The Pareto Improvement Criterion. The formal analysis of fairness rests on the same hedonistic principles and value judgments as the theory of consumer behavior, producer behavior, and traditional welfare theory. Fairness is judged on the basis of the preferences of the affected people rather than those of an outside observer or judge. A long-standing basis for judging the fairness of a redeployment of goods and resources is the "Pareto improvement" criterion. According to this standard, beginning in an initial state, a *Pareto improvement* is possible if at least one person can be made better off without leaving anyone else worse off. If so, the redeployment is judged to be a "Pareto improvement," and to be fair in the sense that none of the affected parties would object to the change. The reason that economists are reticent about calling desirable an economic action that harms some people, while benefiting others, is that it is presently impossible to compare the cost to some people with the benefit to other people. It also follows that, provided bargaining and transaction costs are zero or negligible, it may be possible for the gainers to compensate the losers so as to make all affected people better off. A closely related concept is that of a *Pareto optimum*, which exists when endowments of goods are such that one person cannot be made better off without leaving someone else worse off. While there are, no doubt, a large number of actions which may result in a Pareto optimal solution, the criterion is so strict that such situations cannot be determined. A situation is said to be *Pareto efficient* if there is no way to make everyone better off, so no other feasible situation is unanimously preferred by all people.

The general class of transactions that are judged to be fair in the sense of effecting Pareto improvements is the exchange of goods between consenting adults in free markets. Exchange is a beneficial process, or is "fair" from the standpoint of those involved in such transactions. This is one of the primary reasons that economists generally support free exchange in competitive markets. For instance Varian (1984) proves that every competitive equilibrium is Pareto efficient and essentially every Pareto efficient allocation is a competitive equilibrium for some possible distribution of products.

The Status Quo Criterion. Much less widely recognized among economists, but not necessarily by the general populace and regulators, is the idea that the fairness of rates and rate changes depends on their level in a recent period. To the extent that people have committed

themselves to irrevocable, or inflexible and costly investment decisions, it is considered to be unfair to change the cost or price structure substantially because such changes inherently alter the wealth position of affected parties. Some may gain, while others lose, in the short run. Thus, the Pareto improvement criterion is not satisfied. Even if in the long run all people could be made better off, the changes would not universally be judged fair unless the gainers were to actually compensate the losers. And even then, the changes would not universally be judged fair unless all parties involved in the transaction were free to decide whether or not the change should be effected. Thus, the "status quo" criterion is a separate and distinct criterion that must be met, even for conditions where the Pareto improvement criterion is satisfied. Otherwise, the rates or rate changes could be judged unfair to one or more of the people affected (Baumol, 1986, pp. 4-7).

The Superfairness Criterion. Superfairness is a more restrictive and demanding criterion than even the Pareto improvement and status quo criteria (Baumol, 1986). Taken literally, the question is whether or not a bundle of goods is distributed so as to be judged fair. In essence, if the goods are allocated so that each person would rather have their bundle of goods than the bundle allocated to some other person, then the allocation is judged to be *superfair*. Starting from scratch, or assuming each person on earth were endowed initially with no material goods, it is difficult to conceive of a distribution of income that could be judged superfair. However, the problem can be simplified considerably by assuming the extant distribution of resources and narrowing the problem to changes from that position. Thus, we may consider only changes from the status quo. The importance of individual preferences and choice in judging the superfairness of reallocations may be seen in the following example.

The "I-cut-you-choose" procedure for dividing a cake is a device designed to assure the outcome of an incremental change will be superfair, although the actual outcome may not be. However, if the cake is half chocolate and half lemon, and, provided the person cutting the cake knows his or her own preferences and those of the other person, and that their preferences for chocolate and lemon differ, the outcome will very likely be superfair. This will invariably be true if recontracting (i.e., recutting) is possible. For no matter who slices the cake, the larger portion of chocolate will eventually go to the person who prefers chocolate, and of course the same is true for the person who prefers lemon. One implication of this analysis is that free exchange

will generally permit at least one outcome that is both Pareto optimal and superfair in the senses defined above.

Reasonable Versus Optimum Rates

It is a general doctrine of American law, almost universal in its application to public utility companies operating under special franchises or certificates of convenience and necessity, that these companies are under a duty to offer adequate service at reasonable (or just and reasonable) rates. In addition, the governing state or federal statutes require that, in its rates of charge as well as in its supply of services, a company must avoid unjust or undue discriminations or preferences among consumers. But the rule against undue discrimination is a mere extension of the mandate of reasonable pricing to reasonable price relationships, and is considered in Chapter 20.

While some of the public utility statutes rest content with the requirement that rates be reasonable and not unjustly discriminatory, others go a certain distance toward prescribing or implying standards of reasonableness. This may take the form of an enumeration of objectives of rate-control policy or as a specification of measures or tests of reasonable rates which the regulating commission is instructed to follow or which it must take into consideration in reaching a rate decision. All of these statutory provisions leave much room for interpretation by a commission, subject to the rulings of the appellate courts.

In many of the pages throughout this book, we shall have occasion to compare the criteria of reasonable rates established by statutes, courts, and commissions with those ratemaking principles that have had the support of economists. But what calls for present comment is the distinction between the traditional legal standard of reasonable rates or rate relationships, and the standard of optimum rates often set forth as the ideal of public utility rate theory. The law accepts results that are merely satisfactory, whereas economic theory seeks the conditions for the attainment of the ideal.

A full treatment of the import of the legal rule of reasonableness as applied to utility rates would go far beyond the scope of this study. But certain aspects of the subject are fairly elementary. In the first place, the law of public utility rates is, for the most part, a law of rate regulation. Instead of prescribing a complete set of principles or measures of rates, it leaves primary responsibility for ratemaking policies to the management of the enterprise, private or public, so long as the management keeps within bounds set by public-interest or consumer interest considerations. Only rarely will a commission feel called upon

to take the initiative in dictating the precise rates that a company must charge. Its usual action is that of deciding whether or not existing or proposed rate schedules are reasonable or unreasonable.

As a matter of practice rather than of legal authority, state public service commissions tended historically to allow private companies much more freedom in determining rate structure or rate design than in determining the general level of their rates. This situation changed radically in the 1970s as the emphasis in regulation shifted to rate design (Phillips, 1984, p. 379). Under some of the state utility statutes, courts and commissions have traditionally thought in terms of a zone of reasonableness, within which zone existing rates may not be disturbed by commission fiat (barring a finding of unjust discrimination). But if a commission finds, "as a judicial fact," that existing rates lie outside this zone, it might be justified in setting the precise new rates or directing the company to propose reasonable alternatives. For a general treatment of the concept of a zone of reasonableness under the Interstate Commerce Act, see Sharfman, (1936, pp. 417-421, 425-463, 652). Unlike this Act, the Natural Gas Act of 1938 authorized the federal regulating commission to order a reduction in rates to "the lowest reasonable rates."

But even if the scope of rate regulation were not so limited and even if the whole task of ratemaking were to fall upon regulating commissions, these commissions could not possibly hope to discover that particular rate structure, or even that particular complex of rate-making criteria, which is better than any other when judged by any plausible tests of goodness. Satisfactory results, not ideal or optimum results, are all that can be expected of the ablest group of ratemakers.

Unlike actual practitioners of ratemaking, rate theorists seldom have the task of putting their theory into practice. Any attempts on their part to set up principles of optimum rates are therefore mere attempts to state conditions, the attainment of which would result in the best rates if the factual situation and the objectives of ratemaking were those which they postulate. But even economists, if they wished to get beyond highly artificial, simplified assumptions as to the role of utility rates, so as to participate with the practical rate experts in developing workable standards of rate design, would be compelled to abandon the goal of optimum rates in favor of less lofty and less precise standards of adequate performance. Like the court judges or the public service commissioners, economists must then rest content with principles of *reasonable* rates, although their standards of reasonableness may differ materially from those accepted by the law or by popular opinion.