

## WHAT HAVE WE LEARNED ABOUT PRIVATIZATION AND REGULATORY REFORM?\*

RICHARD SCHMALENSEE

Massachusetts Institute of Technology and NBER

### Abstract

*In the 1970s, economists generally advocated deregulation under competitive conditions but had little to say about privatization or methods of monopoly regulation. Largely reflecting innovations in all these policy areas, economists have generally raised their estimates of the benefits of privatization, deregulation, and reform of monopoly regulation. Logically and empirically, however, the economic implications of these reforms depend importantly on the political and institutional context. This essay considers what recent experience has taught us about the effects of privatization and regulatory reform, stressing the roles of information and commitment, and discusses implications of those lessons for research and policy analysis.*

### I. Introduction

In the 1970s, economists generally supported removing economic regulation of the price/output behavior of private firms in potentially competitive industries. There was less enthusiasm for privatization or for changing the methods and institutions used to regulate monopolies. In the intervening years, the profession's center of gravity has shifted significantly on these policy issues. The difference between public and private ownership is now considered to be much more important, economic regulation is considered much more expensive, and the scope for regulatory reform is considered much more significant. In large part these shifts reflect the widespread adoption of policies of privatization, deregulation, and regulatory reform.

\* This paper was presented at the Thirteenth Latin American Meeting of the Econometric Society, Caracas, Venezuela, August 2-5, 1994. I am indebted to Peter Diamond for helpful comments.

While these policy innovations have taught us a good deal about the consequences of alternative ownership and regulatory policies, I believe some observers have oversimplified the lessons of this experience and other relevant evidence by neglecting the influence of political and institutional context. In what follows I discuss what I believe we have in fact learned in the last fifteen years or so in these important policy areas, stressing the roles of information and commitment, and I sketch some of implications for research and policy analysis.

## II. Privatization

Fifteen years ago, the English language literature generally did not portray the choice between government and private ownership as particularly simple — or particularly important.<sup>1</sup> Many argued that government enterprises in competitive industries could provide valuable instruments for pursuit of social objectives, but their success at doing this was clearly mixed. Most observers recognized that actual patterns of government ownership importantly reflected historical accidents.<sup>2</sup> In traditional public utility sectors, government enterprises were dominant in most countries. Regulated private enterprises remained the norm in the U.S., though many critics had attacked what Horace Gray (1940, p. 8) termed "the delusion that private privilege can be reconciled with public interest by the alchemy of regulation." By the late 1970s, the once-fierce debate over public versus private ownership of public utilities had cooled considerably. Many urban transit systems in the U.S. quietly became government enterprises in the 1960s, for instance, without great debate — or dramatic changes in performance.<sup>3</sup> Even the great debate between capitalism and communism seemed to be almost entirely about politics rather than about economic performance.

In the late 1970s, government enterprises operated under a variety of institutional arrangements in numerous sectors in many nations, and cross-section comparisons suggested that performance ranged from excellent to terrible. The government-owned French electricity system may have outperformed the privately-owned U.S. system, for instance, but the telephone service provided in the U.S. by AT&T was clearly better than that provided by the French Post Office.

Theory offered little useful guidance as to the proper scope of public ownership or the optimal institutional arrangements for managing government enterprises. Informal agency theory suggested that effective political control over public enterprises in monopoly sectors would be necessary to prevent managerial shirking, but since the 1930s reformers had favored using public corporations and other devices to weaken political control. (Postal service in the United States was transferred from a government department to a public corporation in 1971, for instance.)

### *Research and Experience*

In any case, the economic literature of the late 1970s did not suggest that great efficiency gains were likely from the extensive privatization programs that

emerged in Chile in the mid-1970s and in Britain in the early 1980s. Both programs seemed at the time to have been driven by combinations of anti-socialist ideology and anti-deficit necessity rather than clear-headed concerns for economic efficiency.

During the 1980s, empirical analysis of the performance of government enterprises continued to produce mixed results. Several studies (e.g., Boardman and Vining (1989) and Vining and Boardman (1992)) found that government enterprises in competitive industries had lower profitability and productivity than comparable private firms, but this would be expected if government enterprises were being used to pursue important social or political objectives. More than a few economists (e.g., Shepherd (1988)) remained convinced of the potential value of government enterprises in competitive sectors. In traditional public utility sectors, cross-section econometric studies often failed to find significant performance differences between government and private enterprises (e.g., Atkinson and Halvorsen (1986) and Teeple and Glyer (1987)), though differences in regulatory and tax treatment made these results hard to interpret. In a major study evaluating the first eight years of the U.K. privatization program, Vickers and Yarrow (1988) argued that increasing the scope of competition and making regulation effective were likely to contribute a good deal more to the economy than privatization per se.<sup>4</sup>

Thus, until very recently the English language literature, based largely on cross-section studies and experience in a few OECD nations, would have justified a lukewarm attitude toward the economic effects of privatization. Elsewhere, however, the performance of many state-owned enterprises came in the 1970s and 1980s as simply unacceptable.<sup>5</sup> In a number of developing countries, such enterprises required huge and apparently permanent subsidies. Reform proved difficult to implement and nearly impossible to sustain.<sup>6</sup> As the Soviet empire imploded in the late 1980s, it became clear that the government enterprises that dominated its economy performed terribly by world standards, and many needed massive subsidies to stay afloat.

Privatization programs were begun during the 1980s in Latin America, Eastern Europe, and other regions in large part in reaction to perceived inefficiencies and unsustainable losses.<sup>7</sup> Based on before-and-after comparisons, there seems to be a nearly universal consensus that these programs have been hugely successful.<sup>8</sup> Based largely (though not exclusively) on positive experience with privatization outside the OECD, the World Bank has concluded that, contrary to Vickers and Yarrow (1988), while regulation and competition do matter, "Private ownership itself makes a difference," and the Bank has accordingly pressed for widespread privatization.<sup>9</sup>

### *Information and Commitment*

On balance, the evidence suggests that the effects of privatization may vary considerably from firm to firm, industry to industry, and country to country. It would plainly be worthwhile to understand the causes of this variation. It seems

intuitively clear that agency theory, broadly defined, provides a useful lens through which to view privatization and its effects, though it is a good deal less clear which agency relations are typically most important.

Early views through this lens, especially analyses concerned primarily with natural monopolies, considered "the government" as a selfless principal concerned with the public interest and portrayed government enterprise managers as selfish agents whose behavior must be controlled.<sup>10</sup> But, as Vickers and Yarrow (1988, ch. 2) indicate, this leads in general to an agnostic view regarding government enterprise versus regulated private monopoly, since in the latter institution regulators and owners are competing principals also unable perfectly to control managers.<sup>11</sup>

More importantly, as noted above, efficiency-oriented reformers have generally sought to *reduce* political control of government enterprises, not to make such control more effective.<sup>12</sup> These reformers have acted as if the more important agency problem involved politicians, not managers. Because, as Sappington and Stiglitz (1978) have argued, privatization makes it harder over time for the government to intervene in an enterprise's affairs, privatization can be viewed as an extension of these reform efforts.

Shapiro and Willig (1990) note that it may be desirable for efficiency-oriented reformers to seek this sort of commitment, even if it rules out socially desirable actions in some future states of nature, if future elected officials cannot generally be expected to exercise discretion in ways that enhance efficiency.<sup>13</sup> This is not an implausible assumption, of course: politicians may not think past the next election and may seek to increase their supporters' wealth even if total wealth is thereby reduced. Boycko, Shleifer, and Vishny (1993a) also view privatization as a commitment device. In their analysis privatization is a way to make it difficult to reverse a decision to impose a hard budget constraint, a decision to cease providing the subsidies government enterprises need to pursue political objectives.

As Boycko, Shleifer, and Vishny (1993a) argue, government failure to pursue overall economic efficiency has been particularly visible and important in the Russian case. The Soviet government had little concern for the economic welfare of the general public, and anti-reform forces have been powerful in Russia throughout the post-Soviet period. Reformers have served their purposes well by removing assets from political control, using privatization to erect durable political barriers against the recreation of Soviet-style institutions.<sup>14</sup>

In a world of rational actors, agency-related inefficiencies generally reflect the presence of private information.<sup>15</sup> Government enterprises generally have private information, of course, but the importance of that information depends on the laws and institutions with which enterprises interrelate. At the simplest level, an enforceable requirement to produce detailed, public, audited financial statements surely tends to reduce private information.

It is instructive in this context to consider the critical role that secrecy plays in facilitating corruption, as discussed in detail by Shleifer and Vishny (1993).<sup>16</sup> Though unproductive behavior by government enterprises is not necessarily cor-

rupt in their strict sense, it often represents a hidden payoff to a special interest that is made in an inefficient manner in order to mask its true nature. Policies that limit competition, for instance, are usually easier to defend in public than, say, cash subsidies. While they create rents that can be transferred, such policies also give rise to deadweight losses and costly rent-seeking activity.<sup>17</sup> The key point, again, is that if such unproductive actions cannot generally be blocked ex post, it may be best to bar certain classes of actions ex ante, even if theoretical minimum costs are thereby increased. "Corruption" in this broad sense surely also occurs in private firms: there are stories of headquarters being moved long distances to areas mainly noted for golf courses. But there does seem a difference between public and private enterprise on this score, and the factors that cause its magnitude to vary from place to place and from time to time also thereby affect the relative efficiency of public and private enterprise.

While it may sometimes be useful to think of "the government" as the agent of "the electorate," this can be seriously misleading in many contexts. Members of the electorate often have opposed interests on particular issues, and it is problematic to think of the many elected and non-elected office-holders in any nation as a single entity, "the government," consistently maximizing any objective function. Like the rest of us, individual office-holders have a strong tendency to pursue their self-interest, using their own bits of private information and subject to the many shifting constraints they face. The results vary. Sometimes office-holders maximize their utility by following orders or by ignoring them and "doing the right thing"; sometimes shirking or outright theft is apparently optimal. More narrowly, the importance of government enterprises' pursuit of political objectives varies considerably — compare the Soviet and French systems.

### *Performance*

Since the 1970s we have surely learned by considerable before-and-after experience that privatization can greatly improve enterprise performance, but we should not forget the substantial literature suggesting there are situations in which ownership is not terribly important. We appear to have learned that political and institutional differences have much to do with the performance of government enterprises and thus with the gains from privatization, though we are well short of a complete explanation of variations in those gains. Experience and available theory do suggest a few general observations, however.

First, consider the privatization of an enterprise operating in a potentially competitive industry. Basic economics suggests that if the industry is in fact competitive and if the enterprise is well-managed (as measured, in particular, by the level of subsidies it requires), the short-run gains from privatization will be relatively small, since inefficient firms lose money under competition. Under competition, losses provide a decent measure of inefficiency — or pursuit of non-economic objectives.

In this same context, Kikeri, Nellis, and Shirley (1992, ch. 3) stress the importance of "a market-friendly policy framework" in determining post-privatiza-

tion performance. The preceding discussion indicates that an important dimension of such a framework is the strength of the non-intervention commitment implied by privatization. If it is relatively easy for later governments to renationalize, privatization today does not mean much. In particular, if nationalization is always a serious risk, incentives to make tangible and intangible investments are seriously reduced. Models that assume that privatization decisions are irreversible may seem natural in some nations today, but they clearly are not universally applicable.

One might argue that economies with "a market-friendly policy framework" are likely to be economies in which government enterprises already face hard budget constraints and are likely to be well-run, so that gains from privatization are, on that score, reduced. This argument is correct to a point and broadly consistent with the OECD experience discussed above. The correlation between market-friendly policy frameworks and well-run public enterprises is far from perfect, of course. More important, large-scale privatization is often an important part of a transition toward a "market-friendly" regime. In fact, privatization may have the greatest benefit when it helps politically to hasten such a transition — as in the Russian case.<sup>18</sup>

Now consider the privatization of a public utility or other monopoly enterprise. In this case one cannot generally rely on competition to guarantee post-privatization performance. Along with many others, Kikeri, Nellis, and Shirley (1992, ch. 3) stress that privatization of government enterprises that operate as natural monopolies risks having increases in prices swamp increases in efficiency unless an effective regulatory regime is put in place. Because both institutions are imperfect (for reasons that are not unrelated), there is no simple a priori reason to believe that regulation should always dominate government ownership in natural monopoly sectors, and empirical support for the superiority of private enterprise appears weakest in these sectors.

### III. Deregulation

In the late 1970s, economic regulation of private firms' prices and conditions of service was largely (though not exclusively) confined to the United States. Industries that were regulated in the U.S. were generally government-owned elsewhere. Economists interested in U.S.-style economic regulation were in the process of digesting two important developments. First, George Stigler (1971) and others had effectively advanced the then-heretical "capture theory," according to which regulators generally act to serve those they regulate, rather than any notion of the broader public interest. Stigler attributed the imposition of regulation to benefit the regulated mainly to the lower costs of organizing a small group of firms in the same industry than a large group of consumers, even if (because of efficiency gains) consumers in aggregate had more to gain from deregulation than producers had to lose.<sup>19</sup>

The second development could have been viewed as the empirical refutation of the first. Despite strong opposition from incumbent producers and their union-

ized workers, and with the strong support of most economists and the active participation of some,<sup>20</sup> a number of important U.S. industries were deregulated.

#### *Commitment*

Out of these two developments emerged a deeper understanding of the politics of regulation and deregulation in the U.S.; the simple capture theory now faces effective competition from an array of more complex alternatives.<sup>21</sup> In addition, as Clifford Winston (1993) has stressed, a great before-and-after experiment in microeconomics was performed: between 1977 and 1988, Winston estimates that economic regulation was removed from about 10% of U.S. production.<sup>22</sup>

Deregulation, like privatization, is a commitment to reduced government intervention over time. The durability of this commitment depends on both political and institutional context and on issue-specific developments. Even in the U.S., in which a minority opposed to legislative action can often delay it for years, cable television was deregulated in 1984 and re-regulated eight years later. The question of reversing the airline deregulation of 1978 is still seriously debated from time to time.<sup>23</sup> But, just as privatization is more of a commitment than a parliament's refusal to put subsidies in this year's budget, deregulation is more than a particular regulator's refusal to regulate today.

A commitment to forbear from regulation makes sense from the perspective of an efficiency-oriented political actor, even though it may mean giving up powers that could be socially valuable in the future. If regulation is unlikely to enhance efficiency over time. In industries that are potentially competitive, the only coherent argument for economic regulation (as for government ownership) is that it can be used to deal with market failures and social problems. Rarely is it the best or even a particularly good instrument for these purposes, however, and the most interesting question in this case is the magnitude of the net efficiency cost of regulation.

In natural monopolies or industries that would be imperfectly competitive, the desirability of deregulation turns in principle on an inherently complicated cost-benefit analysis that depends on exactly how regulation would operate. With imperfect regulation, there is no theoretical support for the view that all natural monopolies and only natural monopolies should be regulated.<sup>24</sup> Many authors have argued that because of agency problems and institutional constraints, regulation is unlikely to promote efficiency, but no single simple model of regulatory behavior has yet emerged as clearly best.<sup>25</sup>

#### *Experience*

As with privatization, a little bit of time-series evidence on the effects of deregulation has been more valuable than a library of theoretical analyses and cross-section comparisons. There is a near-universal consensus among U.S. economists that deregulation has produced important benefits in a number of industries,

particularly in transportation. Costs fell, as economists had predicted.<sup>25</sup> As Winston (1993) shows, however, other aspects of the behavior of deregulated industries did not conform well to economists' predictions. In particular, few if any economists predicted the extent of price dispersion (and apparent price discrimination) that we now observe.

More importantly, deregulation led to a number of substantial, unforeseen changes in firms' operations and technologies. My favorite example has to do with airline route structures. By dealing with requests to offer service on a route-by-route basis, airline regulation had made it impossible even to think of implementing a hub and spoke system. As a result, this efficient system architecture was known only to a few academic specialists. After deregulation, hub and spoke systems were rapidly adopted under competitive pressure, reducing cost and enhancing service quality.<sup>27</sup>

Economists had long been concerned with the effects of regulation on technological change,<sup>28</sup> but until the 1980s the available data did not permit much quantitative analysis. Before then economists wrote generally about how regulation blunted incentives to innovate and analyzed specific cases in which procedural requirements and the influence of precedent and equity considerations on regulatory decisions served to inhibit innovation.<sup>29</sup> However, the extraordinary growth rates of productivity in the regulated telephone and electric power industries seemed important counterexamples. Only in retrospect is it clear that regulation's adverse effects are strongest on radical process innovation and on product innovation — exactly the sort of effects that are hardest to measure without a good unregulated benchmark.

#### *Context and Performance*

The broad lesson I believe most economists have correctly learned from the U.S. experience with deregulation is that economic regulation is even a less effective substitute for competition than was believed in the 1970s. Not only is it unreasonable to assume that regulators generally seek to enhance economic efficiency, as Stigler (1971) and others had argued, it is unreasonable to assume that the institutions and procedures of regulation would permit them to do so effectively if they tried.<sup>30</sup> The effect is that regulators, like managers of government enterprises, at least act as if they were primarily pursuing economically inefficient political goals, and their behavior seems generally to discourage innovation and thus to raise costs over time.

In large part because of the deregulation experience of the 1980s, policy debates in the U.S., even under a democratic administration, now involve reducing the scope of regulation in ways that would have been unthinkable 20 years ago. The U.S. seems in the process of following the U.K. to a system in which electricity generation is deregulated. Many have argued for deregulating cable television systems, even though very few communities are served by more than one,<sup>31</sup> in part on the grounds that the industry saw a flowering of innovation when it was previously deregulated. This argument was strengthened when cable deregulation

was followed by rate increases for about 30 percent of subscribers.<sup>32</sup> Similarly, even though competition is plainly imperfect in long-distance telephony,<sup>33</sup> its complete deregulation seems inevitable, and phased deregulation of local telephone service is emerging as a serious possibility. Much attention in U.S. policy debates is given to difficult regulatory issues that arise in industries, like telephony and electric power, that contain both potentially competitive and natural monopoly elements.<sup>34</sup>

As privatization proceeds throughout the world, and industries that have been regulated in the U.S. become privately owned elsewhere, it is important to learn from the U.S. experience with deregulation. As in the case of privatization, however, it is also important not to overgeneralize from recent experience.

Just as the structure, conduct, and performance of government enterprises have varied over time and space, there is every reason to suspect that new regulatory regimes will differ importantly from those created in the past in the U.S., and analyzed extensively in the published literature. The U.K. approach to monopoly regulation, discussed at length in Anderson, Cowan, and Vickers (1994) differs in two basic respects from that in the U.S., and there is every reason to think that qualitatively similar differences are likely to be the norm as economic regulation spreads in the wake of privatization.

First, Anderson, Cowan, and Vickers (1994, esp. ch. 11) stress that as compared with U.S., regulation in the U.K. is informal, not legalistic, and U.K. regulators enjoy greater discretion than their U.S. counterparts. Regulation in the U.S. reflects the nature of our legal and political systems, particularly the body of administrative law that fundamentally shapes the process of non-legislative governmental decision-making. In general, U.S. administrative agencies must solicit information in writing from all affected parties, must make all submissions public, and must make decisions that are consistent with both the weight of the evidence submitted and the relevant law. Regulators' decisions can be overturned by the courts as "arbitrary and capricious" if these procedures are not followed.<sup>35</sup> In this system there is a high degree of transparency but relatively little opportunity for frank expression of views, negotiation, or compromise.<sup>36</sup> On the other hand, while regulatory decisions are often controversial, they rarely have a strongly partisan character.

As McCubbins, Noll, and Weingast (1987) have stressed, shaping the *process* of decision-making can have a strong influence on the *content* of decisions. Because no other nation is likely to replicate the administrative procedures and political culture of the United States, no other nation's regulators are likely to replicate the range of behavior of their U.S. counterparts. For this reason, it seems likely that performance in any widely regulated industry will come to vary significantly over time and among nations. Empirical analysis of differences in regulators' behavior may advance understanding of the effects of procedural restrictions and institutional environments.

In addition, the structure, conduct, and performance of U.S. regulation also reflects the outcome of numerous decisions, many industry-specific, about regulatory methods and techniques. No two U.S. industries have been subjected to

exactly the same regulatory regime, and there is a good deal of intra-industry variation where, as in electric power, states play important regulatory roles. Even so, regulation in the U.K. began in the 1980s using methods that were well outside the U.S. experience. It seems obvious both, that different nations will come to apply different regulatory methods and that these differences will also affect the performance of regulated industries. Careful cross-national analyses of the performance of particular regulated industries may advance the normative theory of regulation in useful directions.

#### IV. "Incentive Regulation"

During the 1970s, monopoly regulation in the U.S. generally applied "rate-of-return" methods, according to which prices were set to generate a "fair" return on invested capital and were held constant in nominal terms until either the firm or its regulator triggered a review. Most theoretical work on natural monopolies dealt with either, second-best optimal departures from marginal cost pricing or with implications of rate-of-return regulation for capital-labor ratios. In the U.S. policy literature, proposals to institutionalize "regulatory lag",<sup>37</sup> so that prices would remain fixed for relatively long, predetermined periods, faded in the inflation that followed the first oil shock. In fact, electric utility rates in most states came to be automatically adjusted to reflect changes in fuel costs.

By the late 1970s, few economists advocated fundamental changes in U.S. regulatory methods. A review of historical experience and the available literature suggested to me at that time that the design of regulatory regimes involved a fundamental tradeoff between responsiveness to changes in economic conditions, which is necessary to keep prices in line with costs, and price rigidity, which is necessary to provide incentives for cost reduction.<sup>38</sup> It follows that no single regime is likely to be optimal in all economic environments. This was not a controversial conclusion.

#### Theory and Reform

The design of regulatory institutions and mechanisms became important during the 1980s, in two very different ways. A rigorous economic theory of the optimal design of regulatory regimes under various conditions was developed. In addition, an important new method of monopoly regulation was implemented. Oddly, these were almost completely independent developments.

The new theory was an outgrowth of the development of agency and mechanism design theory during the 1970s.<sup>39</sup> Most of the work on optimal regulatory regimes assumed that regulators were concerned only with aggregate efficiency and were capable of making payments to, or collecting payments from the firms they regulated. Using such payments, net profit could generally be related to observed performance without the need to distort pricing to vary operating income. While this work has yielded a variety of general insights applicable to

both procurement and regulation, it has not much affected regulatory practice or even debates about regulatory policy. This contrasts with the impact of earlier theoretical work on marginal cost and second-best pricing.<sup>40</sup>

The new method of monopoly regulation, generally called "price cap" or, in the U.K., "RPI-X" regulation, involves setting ceilings on average price increases equal to some measure of the general level of inflation less an assumed rate of productivity growth, which is in fact implicitly or explicitly negotiated. ("RPI" is short for the U.K.'s Retail Price Index, and "X" refers to the assumed rate of productivity growth.) These ceilings then remain in effect for some predetermined period, generally around four or five years, so that reductions in cost during this period translate dollar for dollar into increases in profit.

The first public utility to be subjected to price cap regulation was the newly privatized British Telecom in 1984.<sup>41</sup> This approach was not derived as optimal in a rigorous analysis of a large set of alternatives; it was selected as the best of a small number of alternatives on the basis of rather informal theoretical arguments.<sup>42</sup> The large literature on the shortcomings of traditional U.S.-style rate-of-return regulation appears to have had a significant impact on this debate, as did the argument that price caps would facilitate ultimate deregulation. Since 1984, price caps have been applied to other newly privatized enterprises in the U.K. and at both state and federal levels in the U.S.

#### Analysis and Implications

What have we learned about desirable regulatory regimes from experience with price caps? We have certainly learned that departures from rate-of-return regulation do not necessarily cause catastrophe and that price caps have some significant virtues, particularly in settings in which the role of competition is increasing. I do not, however, believe that it has been established that price caps offer a qualitatively superior alternative to rate of return regulation of monopolies, let alone that this mechanism is optimal in any broad set that includes both types of regimes.<sup>43</sup> The fact that very little theoretical work seems to have been done on this last question, despite the extensive theoretical literature on optimal regime design, seems to reflect the fact that "economists find themselves analyzing [price cap] regimes as a result of a true *policy* innovation in the United Kingdom, rather than a breakthrough in regulatory theory in the United States."<sup>44</sup>

Most attention has been paid to the implications of alternative regulatory methods for productive efficiency and average price levels. In some early and enthusiastic theoretical discussions of price caps, rate-of-return regulation was treated as a cost-plus regime, while price cap regulation was assumed to involve prices fixed forever. If one also implicitly assumes a stable world, it is not hard to make a strong case for the superiority of price caps.

In fact, in real rate-of-return regulation nominal prices are sometimes fixed for long periods of time, and provisions designed to strengthen performance incentives are common.<sup>45</sup> Similarly, in real price cap regimes price ceilings must be changed from time to time to prevent both ruinous losses and unacceptable



profits, and rates of return are calculated for that purpose. Both systems thus involve more or less credible commitments to provide an adequate long-run average return on investment, without which socially desirable investments will not be made.<sup>46</sup> The nature of these commitments differ, however, in subtle ways involving indexation and the timing of price reviews. Modeling the effects of differences of this sort has barely begun, and little relevant empirical work has been performed.<sup>47</sup> Few have claimed that price caps have ever produced the sort of dramatic overall performance improvements that have been associated with privatization and deregulation. It seems likely that the overall incentive effects of price cap and rate-of-return approaches do not differ dramatically in principle and need not differ dramatically in practice, but the matter is by no means settled.<sup>48</sup>

While most discussions of price caps have focussed on the average price level, I believe that the most important difference between the price cap and rate-of-return regimes thus far observed may be in their treatments of relative prices. Beginning in the early postwar period, theorists demonstrated the importance of having prices of individual products sold by regulated monopolies on marginal cost and designing departures from marginal cost carefully to enhance welfare subject to a break-even constraint. While practice varied, U.S. rate-of-return regulation had traditionally involved attempting to derive all product-specific prices from cost data. This generally required arbitrary allocations of joint costs and led to odd and controversial variants of average-cost pricing.<sup>49</sup> Through most of the 1980s, U.S. regulatory economists argued that regulators should base utility prices on marginal cost and carefully set price-cost gaps to achieve second-best welfare optima.<sup>50</sup> In response, as Faulhaber and Baumol (1988) have stressed, pricing practice moved some distance in the direction of theoretical prescription.

In sharp contrast, under pure textbook price cap systems, regulators constrain only some measure of average price and cede all control over relative prices to regulated firms. Real price cap systems generally embody additional constraints on rates of change of prices and averages of subsets of prices, but there seems to be a clear qualitative difference as compared to observed rate-of-return regimes. While regulators did not always follow economists' pricing advice, the swiftness with which many U.S. economists began urging that authority for setting relative prices be handed from regulators to public utility monopolists was nonetheless quite striking.

I am aware of no empirical studies demonstrating that price cap regimes are better in any relevant sense at determining relative prices than rate-of-return regulation. Elementary theory does indicate that relative prices will be based on marginal cost under price caps, while this is not necessarily the case in rate-of-return regimes. A number of early theoretical analyses noted further that under some price cap systems, prices would tend over time to Ramsey prices.<sup>51</sup> However, more recent theoretical work suggests that the behavior of relative prices depends delicately on the details of the price cap regime and on market conditions generally.<sup>52</sup>

Once again we see that the actual effects of government policy depend significantly on details of design and process, or, as they say in the halls of the U.S.

Congress, "The devil is in the details." Since the "rate-of-return" and "price cap" labels can each be attached to sets of systems that differ significantly on several dimensions, and these two sets appear to overlap in important respects, it is unclear that either approach is generally superior to the other or to any of a range of variants and hybrids as regards average price and productive efficiency. Similarly, since regulators can set relative prices well or poorly under rate-of-return regimes, and since price cap regimes can apparently do likewise, no general ranking appears possible along this dimension either. Thus careful empirical analysis may be required to compare performance under rate-of-return and price cap regimes, but it may be difficult to generalize the results of such analysis across industries and institutional contexts.

## V. Concluding Observations

An old joke says that economics professors never have to change exam questions even though students have access to old exams, since the correct answers change from year to year. Like other jokes that endure, this one has a kernel of truth. Most economists of a certain age can agree that the profession's views on some issues have changed substantially in the absence of comparably important advances in knowledge.

In the structural policy areas I have considered in this essay, however, I believe that more is going on than changing fashion or the ebb and flow of competing ideologies. Policy innovations in privatization and regulatory reform have generated a good deal of high-quality time-series evidence. I have tried to argue that it is important to confront that evidence with adequately sophisticated models that do not neglect the political and institutional contexts in which that evidence was generated.

As Oliver Williamson (1985) and others have stressed, in a world of ignorance and bounded rationality, there are no perfect institutions. Political actors can at best choose rationally among imperfect alternatives, knowing that the relative importance of different imperfections varies over time and space. All political actors attempt to make it hard to reverse government decisions of which they approve. Privatization and deregulation of firms in competitive industries are, among other things, devices by which, under some conditions, those concerned with economic efficiency can produce such commitment. Efficiency-enhancing regulatory regimes also involve commitments of various sorts. The evolving political, legal, and institutional systems within which policies of privatization and regulatory reform are adopted and implemented affect the impacts of those policies by shaping information flows and in other complicated ways.

We learned during the 1980s that privatization can significantly enhance enterprise performance, particularly in competitive markets, and that deregulation can dramatically improve efficiency and stimulate innovation. We learned that rate-of-return regulation is not the only way to control legal monopolies; price cap and related regimes have some appealing attributes.<sup>53</sup> In all of these policy

areas, particularly in privatization and replacement of rate-of-return regulation, theory has followed practice, and practice is moving rapidly. The bad news is that some future policy innovations will no doubt disappoint. The good news is that if economists observe and analyze the consequences of these innovations carefully, paying due attention to the effects of political and institutional context, we should develop a richer understanding of the economic implications of institutional change, understanding that will enhance our ability to contribute to the policy process.

## Notes

- 1 For a contemporary overview of much of the literature relevant to this paragraph and the next several, see Schmalensee (1979, ch. 6).
- 2 In particular, as Shepherd (1988) notes, failing "strategic" firms have historically tended to become government enterprises — a process sometimes described as "lemon socialism."
- 3 Pashigian (1976) analyzes the consequences and causes of this transition.
- 4 See also Vickers and Yarrow (1991) and Foster (1992).
- 5 In general see Kikeri, Nellis, and Shirley (1992, ch. 2); for the Latin American experience, see World Bank (1993, ch. 6).
- 6 On this general problem, see Foster (1992).
- 7 The Chinese system has also begun to move toward an economy based on private ownership, but it has not so far embarked on a path involving privatization; see Eckaus (1994) and Jefferson and Rawski (1994) for recent discussions.
- 8 In the fall of 1990 the U.S. Council of Economic Advisers proposed to prepare and publish an analysis of the dramatic economic transition then beginning in Eastern Europe. In an Oval Office meeting, President Bush instructed us not to neglect the important economic transformation going on in the Americas. See U.S. Council of Economic Advisers (1991) for the result.
- 9 The quote is from Kikeri, Nellis, and Shirley (1992, p. 1); see also World Bank (1993) and, especially, the studies summarized in Galal and Shirley (1994). Paredes-Molina (1994) has recently provided a positive analysis of the Chilean privatization program.
- 10 See, for instance, Schmalensee (1979, ch. 6). For a recent variation on this theme, see Laffont and Tirole (1993, ch. 17). In their model the unique failing of public enterprise is its managers' reluctance to devote effort (i.e., to make a "nonpecuniary and noncontractible investment") to develop assets that may be turned ex post to the government's purposes and thus yield the managers no direct, personal benefit.
- 11 Laffont and Tirole (1993, ch. 11) and Spiller (1990) provide alternative three-party agency-theoretic models of regulation.
- 12 See, e.g., Schmalensee (1989, ch. 6), Kikeri, Nellis, and Shirley (1992, pp. 16-20) and Foster (1992).
- 13 On this general point, see also Laffont and Tirole (1993, chs. 11 and 15). In the normative model of Shapiro and Willig (1990), a key role is played by "the framers," who choose institutional arrangements to maximize social welfare despite possible future antisocial actions by politicians. As a descriptive matter, of course, there are no "framers"; there are only political actors who attempt to use the power of the state to advance a variety of objectives. Privatization is a way in which actors concerned with economic efficiency can attempt to prolong the effects of a political victory, to "stake the deck," à la McCubbins, Noll, and Weingast (1987) against future actions they would oppose but might otherwise be unable to prevent.
- 14 For more on the economics and politics of Russian privatization, see Boycko, Shleifer and Vishny (1993b) and Joskow, Schmalensee, and Tsukanova (1994). Tirole's (1991) thoughtful discussion of privatization in Eastern Europe concentrates on implications of high uncertainty rather than problems associated with political control.

- 15 Becker's (1985) argument that interest group competition tends to produce efficient resource allocations rests on an implicit assumption of full information. Shapiro and Willig (1990) argue that privatization makes intervention harder by limiting officials' information, but I would contend that ignorance is historically a weak brake on government action.
- 16 For another useful perspective on the role of information in this general context, see Foster (1992).
- 17 Tollison (1982) provides a useful general survey of the rent-seeking literature; see Posner (1975) on rent-seeking in this context. Note also that industry-specific subsidies tend to encourage entry. On this point, see Boycko, Shleifer, and Vishny (1993b) and Joskow, Schmalensee, and Tsukanova (1994).
- 18 In contrast to Becker (1985), Stigler (1971) assumes that there are constraints on the methods that the state can use to increase the wealth of politically powerful groups. Thus creating protected monopolies may be inefficient, but it is frequently feasible. In addition, it represents a commitment: regulatory regimes and institutions are inherently longer-lived than, say, provisions of the U.S. tax code or majorities on appropriations committees.
- 19 The essays in Phillips (1975) provide a useful compilation of influential economists' pre-deregulation views on these and related issues.
- 20 Wilson (1980), Noll (1989), and Peltzman (1989) provide valuable overviews.
- 21 This section draws on Joskow and Rose (1989), Winston (1993), and Joskow and Noll (1994), who provide useful overviews and assessments of economic deregulation during the Carter and Reagan administrations.
- 22 See, for instance, Cudahy (1993).
- 23 Schmalensee (1974) develops this point.
- 24 Wilson (1980) provides a useful, empirically-based discussion of alternative political settings and modes of agency behavior; for general discussions, see Noll (1989) and Joskow and Rose (1989).
- 25 See Berndt et al. (1993) for an interesting recent study of rail costs.
- 26 On airline deregulation generally, see Morrison and Winston (1986) and Winston (1993).
- 27 See Capron (1971), for example.
- 28 For a particularly interesting study of this sort, see MacAvoy and Sloss (1967).
- 29 In an interesting recent paper, Krueger and Duncan (1993) argue that government controls generally tend to become more complex and accordingly more expensive over time. This is broadly consistent with U.S. regulatory experience.
- 30 Jaffe and Kanter (1990) and others have found evidence of market power in some but not all local cable markets.
- 31 See *New York Times*, November 19, 1993, Section D, pp. 1, 6.
- 32 Taylor and Taylor (1993).
- 33 Anderson, Cowan, and Vickers (1994) provide an extensive treatment of these issues, both in general and as they have arisen in U.K. industries.
- 34 See generally, Spulber (1989, ch. 2).
- 35 Anderson, Cowan, and Vickers (1994, ch. 11) argue that even in the U.K. privatization plus regulation produced a marked increase in transparency.
- 36 Baumol (1967) is a leading example.
- 37 Schmalensee (1979, esp. chs. 7 and 8).
- 38 Baron (1989), Spulber (1989, ch. 11), Laffont (1994), and Anderson, Cowan, and Vickers (1994, chs. 2 and 3) provide useful surveys; Laffont and Tirole (1993) provide a comprehensive and rigorous development.
- 39 For a discussion of this impact, see Faulhaber and Baumol (1988).
- 40 On this history and the system it produced, see Besley and Litan (1989), Vickers and Yarrow (1988, ch. 8) and Anderson, Cowan, and Vickers (1994, ch. 6). Price caps had been applied in 1982 by the U.K. Monopolies and Mergers Commission to the leading seller of contraceptive sheaths.
- 41 The idea that one might want to increase price rigidity in order to enhance incentives for efficiency is, of course, broadly consistent with some themes in the mechanism design literature. However, that literature generally finds that regulated firms should be offered a menu of compensation schemes, differing in the strength of the efficiency incentives they provide. To my knowledge, no such menu-based scheme has ever been implemented — or even seriously debated.
- 42 This latter point is developed at length in Schmalensee (1989).



- 44 Breautgam and Panzar (1993, p. 197), emphasis in original.
- 45 This theme is developed, with particular reference to electric utilities, in Joskow and Schmalensee (1986).
- 46 The importance of such commitments is stressed by the World Bank (1993, p. 83).
- 47 Pint (1992) and Mathios and Rogers (1989) provide interesting theoretical and empirical analyses, respectively.
- 48 For discussions of this issue, see Joskow and Schmalensee (1986), Breautgam and Panzar (1993), Liston (1993), and, with reference to the U.K. experience, Anderson, Cowan, and Vickers (1994, esp. ch. 11).
- 49 See, for instance, Breautgam (1980).
- 50 See, for instance, Brown and Sibley (1986) and Spulber (1989, chs. 5-8).
- 51 E.g., Vogelzang (1988) and Brennan (1989).
- 52 See Armstrong and Vickers (1991), Bradley and Price (1988), Neu (1993), and Sappington and Sibley (1992).
- 53 In situations such as municipal trash collection in which investment in and transfer of idiosyncratic assets do not pose serious problems, competition for the right to be the sole producer may yield the best results. This "franchise bidding" approach to natural monopolies was first discussed by Chadwick (1859) and rediscovered by Demsetz (1968); see Schmalensee (1979, ch. 5), Spulber (1989, ch. 9), and Laffont and Tirole (1993, chs. 7-8) for discussions.

## References

- ANDERSON, MARK, SIMON COWAN, and JOHN VICKERS (1994). *Regulatory Reform - Economic Analysis and British Experience*. Cambridge: MIT Press.
- ARMSTRONG, MARK, and JOHN VICKERS (1991). "Welfare Effects of Price Discrimination by a Regulated Monopolist", *Rand Journal of Economics*, 22: 571-580.
- ATKINSON, SCOTT E., and ROBERT HALVORSEN (1986). "The Relative Efficiency of Public and Private Firms in a Regulated Environment: The Case of U.S. Electric Utilities", *Journal of Public Economics*, 29: 281-294.
- BARON, DAVID P. (1989). "Design of Regulatory Mechanisms and Institutions", in R. Schmalensee and R.D. Willig, eds., *Handbook of Industrial Organization*. Amsterdam: North-Holland.
- BAUMOL, WILLIAM J. (1967). "Reasonable Rules for Rate Regulation in an Imperfect World", in A. Phillips and O.E. Williamson, eds., *Prices: Issues in Theory, Practice, and Public Policy*. Philadelphia: University of Pennsylvania Press.
- BECKER, GARY S. (1985). "Public Policies, Pressure Groups, and Dead Weight Costs", *Journal of Public Economics*, 28: 329-347.
- BEESELEY, M.E., and S.C. LITTLECHILD (1989). "The Regulation of Privatized Monopolies in the United Kingdom", *Rand Journal of Economics*, 20: 454-472.
- BERNDT, ERNST, ANN F. FRIEDLAENDER, JUDY SHAW-ER WANG CHIANG, and CHRISTOPHER A. VELTURIO (1993). "Cost Effects of Mergers and Deregulation in the U.S. Rail Industry", *Journal of Productivity Analysis*, 4: 127-144.
- BOARDMAN, ANTHONY E., and AIDAN R. VINING (1989). "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises", *Journal of Law and Economics*, 32: 1-34.
- BOYCKO, MAXIM, ANDEI SHLEIFER, and ROBERT W. VISHNY (1993a). "Property Rights, Soft Budget Constraints, and Privatization", mimeo, Harvard University, January.
- BOYCKO, MAXIM, ANDEI SHLEIFER, and ROBERT W. VISHNY (1993b). "Privatizing Russia", *Brookings Papers on Economic Activity*, 2: 139-192.
- BREAUTGAM, RONALD R. (1980). "An Analysis of Fully-Distributed Cost Pricing in Regulated Industries", *Bell Journal of Economics*, 11: 182-196.
- BREAUTGAM, RONALD R., and JOHN C. PANZAR (1993). "Effects of the Change from Rate-of-Return to Price Cap Regulation", *American Economic Review*, 83: 191-198.
- BRADLEY, IAN, and CATHERINE PRICE (1988). "The Economic Regulation of Private Industries by Price Constraints", *Journal of Industrial Economics*, 37: 99-106.
- BRENNAN, TIMOTHY J. (1989). "Regulating by Capping Prices", *Journal of Regulatory Economics*, 1: 133-147.
- BROWN, STEPHEN J., and DAVID S. SIBLEY (1986). *The Theory of Public Utility Pricing*. Cambridge: Cambridge University Press.
- CARON, WILLIAM M., ed. (1971). *Technological Change in Regulated Industries*. Washington: The Brookings Institution.
- CHADWICK, EDWIN (1859). "Results of Different Principles of Legislation and Administration in Europe: of Competition for the Field, as Compared with Competition within the Field, of Service", *Journal of the Royal Statistical Society, Series A*, 22: 381-402.
- CUDAHY, RICHARD D. (1993). "The Coming Demise of Deregulation", *Yale Journal on Regulation*, 10: 1-15.
- DEMSETZ, HAROLD (1968). "Why Regulate Utilities?" *Journal of Law and Economics*, 11: 55-65.
- ECKAUS, RICHARD S. (1994). "The Metamorphosis of Giants: China and India in Transition", mimeo, MIT Department of Economics, March.
- FAULHABER, GERALD R., and WILLIAM J. BAUMOL (1988). "Economists as Innovators: Practical Products of Theoretical Research", *Journal of Economic Literature*, 26: 577-600.
- FOSTER, C.D. (1992). *Privatization, Public Ownership, and the Regulation of Natural Monopolies*. Oxford: Blackwell.
- GALAL, AHMED, and MARY SHIRLEY, eds. (1994). *Does Privatization Deliver?* Washington, DC: World Bank.
- GRAY, HORACE M. (1940). "The Passing of the Public Utility Concept", *Journal of Land and Public Utility Economics*, 16: 8-20.
- JAFFE, ADAM B., and D.M. KANTNER (1990). "Market Power of Local Cable Television Franchises: Evidence from the Effects of Deregulation", *Rand Journal of Economics*, 21: 226-234.
- JEFFERSON, GARY H., and THOMAS G. RAWSKI (1994). "Enterprise Reform in Chinese Industry", *Journal of Economic Perspectives*, 8: 47-70.
- JOSKOW, PAUL L., and ROGER G. NOLL (1994). "Deregulation and Regulatory Reform during the 1980s", in M. Feldstein, ed., *American Economic Policy in the 1980s*. Chicago: University of Chicago Press.
- JOSKOW, PAUL L., and NANCY L. ROSE (1989). "The Effects of Economic Regulation", in R. Schmalensee and R.D. Willig, eds., *Handbook of Industrial Organization*. Amsterdam: Elsevier.
- JOSKOW, PAUL L., and RICHARD SCHMALENSEE (1986). "Incentive Regulation for Electric Utilities", *Yale Journal on Regulation*, 4: 1-49.
- JOSKOW, PAUL L., RICHARD SCHMALENSEE, and NATALIA TSUKANOVA (1994). "Competition Policy in Russia during and after Privatization", *Brookings Papers on Economic Activity: Microeconomics*: 301-381.
- KIKERI, SUNITA, JOHN NELLIS, and MARY SHIRLEY (1992). *Privatization: The Lessons of Experience*. Washington: The World Bank.
- KRUEGER, ANNE O., and RODERICK DUNCAN (1993). "The Political Economy of Controls: Complexity", Working Paper 4351, National Bureau of Economic Research, April.
- LAFONT, JEAN-JACQUES (1994). "The New Economics of Regulation Ten Years After", *Economica*, 62: 507-538.
- LAFONT, JEAN-JACQUES and JEAN TIROLE (1993). *A Theory of Incentives in Procurement and Regulation*. Cambridge: MIT Press.
- LISTON, CATHERINE (1993). "Price-Cap versus Rate-of-Return Regulation", *Journal of Regulatory Economics*, 5: 25-48.
- MACAVOY, PAUL W., and JAMES SLOSS (1967). *Regulation of Transport Innovation*. New York: Random House.
- MCCUBBINS, MATTHEW D., ROGER G. NOLL, AND BARRY R. WEINGAST (1987). "Administrative Procedures as Instruments of Political Control", *Journal of Law, Economics, and Organization*, 3: 243-277.
- MATHIOS, A.D., and R.P. ROGERS (1989). "The Impact of Alternative Forms of State Regulation of AT&T on Direct-Dial Long Distance Telephone Rates", *Rand Journal of Economics*, 21: 226-234.

- MORRISON, STEVEN A., and CLIFFORD WINSTON (1986). *The Economic Effects of Airline Deregulation*. Washington: The Brookings Institution.
- NOLL, ROGER G. (1989). "Economic Perspectives on the Politics of Regulation", in R. Schmalensee and R.D. Willig, eds., *Handbook of Industrial Organization, Volume 1*. Amsterdam: Elsevier.
- NEU, WERNER (1993). "Allocative Inefficiency Properties of Price-Cap Regulation". *Journal of Regulatory Economics*, 5: 159-182.
- PAREDES-MOLINA, RICARDO D. (1994). *Privatization and Regulation in a Less Developed Economy: The Chilean Case*, unpublished Ph.D. dissertation, Department of Economics, University of California, Los Angeles.
- PASHIGIAN, B. PETER (1976). "Consequences and Causes of Public Ownership of Urban Transit Facilities". *Journal of Political Economy*, 84: 1239-1260.
- PELTZMAN, SAM (1989). "The Economic Theory of Regulation after a Decade of Deregulation". *Brookings Papers on Economic Activity: Microeconomics*, 1-60.
- PHILLIPS, ALMARIN, ed. (1975). *Promoting Competition in Regulated Markets*. Washington: The Brookings Institution.
- PINT, E.M. (1992). "Price-Cap versus Rate-of-Return Regulation in a Stochastic-Cost Model". *Rand Journal of Economics*, 23: 564-578.
- POSNER, RICHARD A. (1975). "The Social Costs of Monopoly and Regulation". *Journal of Political Economy*, 83: 807-827.
- SAPPINGTON, DAVID E.M., and DAVID S. SIBLEY (1992). "Strategic Nonlinear Pricing Under Price-Cap Regulation". *Rand Journal of Economics*, 23: 1-19.
- SAPPINGTON, DAVID E.M., and JOSEPH E. STIGLITZ (1978). "Privatization, Information, and Incentives". *Journal of Policy Analysis and Management*, 6: 567-582.
- SCHMALENSEE, RICHARD (1974). "Estimating the Costs and Benefits of Utility Regulation". *Quarterly Review of Economics and Business*, 14: 51-64.
- SCHMALENSEE, RICHARD (1979). *The Control of Natural Monopolies*. Lexington: D.C. Heath.
- SCHMALENSEE, RICHARD (1989). "Good Regulatory Regimes". *Rand Journal of Economics*, 20: 417-436.
- SHAPIRO, CARL, and ROBERT D. WILLIG (1990). "Economic Rationales for the Scope of Privatization", in E.N. Suleiman and J. Waterbury, eds., *The Political Economy of Public Sector Reform and Privatization*. Boulder and London: Westview.
- SHEPHERD, WILLIAM G. (1988). "Public Enterprise: Criteria and Cases", in H.W. de Jong, ed., *The Structure of European Industry*. Amsterdam: Kluwer.
- SHLEIFER, ANDREI, and ROBERT W. VISHNY (1993). "Corruption". *Quarterly Journal of Economics*, 108: 599-618.
- SPULBER, DANIEL (1989). *Regulation and Markets*. Cambridge: MIT Press.
- SPILLER, PABLO T. (1990). "Politicians, Interest Groups, and Regulators: A Multiple-Principals Agency Theory of Regulation, or 'Let Them Be Bribed'". *Journal of Law and Economics*, 33: 65-101.
- STIGLER, GEORGE J. (1971). "Theories of Economic Regulation". *Bell Journal of Economics*, 5: 335-358.
- TAYLOR, WILLIAM E., and LESTER D. TAYLOR (1993). "Postdivestiture Long-Distance Competition in the U.S.". *American Economic Review*, 83: 185-190.
- TEEPLES, RONALD, and DAVID GLYER (1987). "Cost of Water Delivery Systems: Specific and Ownership Effects". *Review of Economics and Statistics*, 69: 399-408.
- TROLE, JEAN (1991). "Privatization in Eastern Europe: Incentives and the Economics of Transition", in O. Blanchard and S. Fischer, eds., *The NBER Macroeconomics Annual 1991*, Cambridge: MIT Press.
- TOLLISON, ROBERT D. (1982). "Rent-Seeking: A Survey". *Kyklos*, 35: 575-602.
- U.S. COUNCIL OF ECONOMIC ADVISERS (1991). "Economies in Transition Around the World". In *Economic Report of the President, 1991*. Washington: Government Printing Office.
- VICKERS, JOHN and GEORGE YARROW (1988). *Privatization: An Economic Analysis*. Cambridge: MIT Press.
- VICKERS, JOHN and GEORGE YARROW (1991). "Economic Perspectives on Privatization". *Journal of Economic Literature*, 5: 111-132.

WHAT HAVE WE LEARNED ABOUT PRIVATIZATION AND REGULATORY REFORM? 39

- VINING, AIDAN R., and ANTHONY E. BOARDMAN (1992). "Ownership versus Competition: Efficiency in Public Enterprise". *Public Choice*, 73: 205-239.
- VOGELSSANG, INGO (1988). "Price-Cap Regulation of Telecommunications Services: A Long-Run Approach". in M.A. Crew, ed., *Deregulation and Diversification of Utilities*. Boston: Kluwer.
- WILLIAMSON, OLIVER E. (1985). *The Economic Institutions of Capitalism*. New York: Free Press.
- WILSON, JAMES Q. (1980). "The Politics of Regulation". in J.Q. Wilson, ed., *The Politics of Regulation*. Cambridge: Harvard University Press.
- WINSTON, CLIFFORD (1993). "Economic Deregulation: Days of Reckoning for Microeconomists". *Journal of Economic Literature*, 31: 1263-1289.
- WORLD BANK (1993). *Latin America and the Caribbean*. Washington, DC: World Bank.