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Regime Change and Corruption

A History of Public Utility Regulation

Werner Troesken

8.1 Introduction

The history of public utility regulation in the United States has an odd circular quality. During the late nineteenth century, gas and electric companies were subject to limited regulatory oversight; by the early twentieth century, they were subject to burdensome municipal regulation; and by 1940, most gas and electric companies were subject to state and federal regulation (Stigler and Friedland 1962; Troesken 1996). Yet during the 1980s and 1990s, the regulatory bodies that had built up over the previous 100 years were abrogated, and gas and electric companies began operating in regulatory environments akin to those that had existed in the 1880s and 1890s (Joskow 1989). Similarly, in the American water industry, the governance regime progressed from private provision with limited municipal oversight during the nineteenth century to widespread municipal ownership by the mid-twentieth century (Baker 1897; Troesken 1999). During the 1970s and 1980s, municipally owned water companies were privatized by the score and returned to the governance regime that had prevailed during the nineteenth century, with private provision and limited municipal oversight (Galiani, Gertler, and Schargrodsky 2003; Vitale 2001).

What explains the circularity of public utility regulation? At least three possibilities suggest themselves. The first possibility is that technological changes altered the viability of alternative governance regimes over time.

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The second possibility is that ideological changes altered the preferences of voters and policymakers. During the early twentieth century, these ideological changes led policymakers to favor state-oriented solutions; by the late twentieth century, these changes led policymakers to favor market-oriented solutions. The third possibility appeals to the work of Mancur Olson (1982), who argued that over time institutions tend to ossify and slow economic growth as entrenched interest groups work to secure a greater share of society's resources. Olson's work suggests that transitions in regulatory and governance regimes—whether from market-oriented to statist, or vice versa—can dramatically improve the operation markets.

I argue that technological and ideological change can only partially account for the circularity of public utility regulation. Olson's theory of institutional ossification, which suggests that occasional regime changes are desirable in public utility markets, provides a more complete explanation. In developing this line of thought I build on three observations. First, corruption is endemic to public utility industries; corruption exists, in some form, across all regulatory and ownership regimes. Second, regime change in utility industries does not eliminate corruption; it only alters the type of corruption observed. Third, for any type of governance regime (e.g., state regulation or municipal ownership) corruption grows increasingly severe over time and, at some point, becomes politically untenable.

8.2 The Evolution of Public Utility Regulation

The following sections examine public utility regulation in the gas and electric industries and the water industry.

8.2.1 The Gas and Electric Industries

Regulation in the gas and electric industries evolved in four distinct phases: the first phase (ca. 1850–99) was a period of weak municipal control, referred to here as franchise regulation; the second phase (ca. 1900–1909) was a period of aggressive municipal control, referred to here as municipal regulation; the third phase (ca. 1907–77) was a period of state regulation; and the fourth phase (ca. 1978–present) has been characterized by limited state and municipal control and competition, and in many ways it mimics the first evolutionary phase described here.

In the first phase, gas and electric companies were regulated by municipal franchises. Franchises gave utilities the power to dig up streets and operate in particular cities and, in return for these rights, imposed obligations on the utility in question. Typically franchises were written as long-term contracts running from twenty to fifty years. These contracts also established price ceilings and minimum service thresholds. Franchises often expressed price ceilings in nominal dollars. Nominal price ceilings, however, worked poorly because the general price level fell steadily over the nine-

teenth century and because the technology of producing gas and electricity improved rapidly. These changes drove down the profit-maximizing price for gas and electricity. Consequently, within a few years of being established, price ceilings were typically not binding, even for firms holding monopoly positions. For example, Cleveland issued a franchise to the People's Gas Light Company in 1867. The franchise prohibited the company from charging more than \$3 per 1,000 cubic feet (MCF), yet by the early 1870s, the company was charging only \$2 MCF (Troesken 1996, pp. 12–15; Wilcox 1910).¹

On occasion, cities supplemented their efforts to regulate gas and electric companies by encouraging competition. In large cities it was not uncommon to have as many as six or seven companies competing with one another, and there is little question that such competition reduced utility rates. For example, in Chicago during the late 1880s, competition among multiple gas companies on the city's west side drove gas prices down from \$2.25 MCF to \$1.00. However, except for very large cities like Chicago and New York, most markets were not sufficiently large to support competition, and even in those places where competitive price wars erupted, effective competition was short-lived. In Chicago, within a few years of the aforementioned price wars, all of the city's competing companies had merged into a single firm, and gas rates in the city were increased by 25 percent. The pattern observed in Chicago—competitive price wars followed by merger and price increases—was also observed in Atlanta, Baltimore, Buffalo, Cleveland, New York, and other large American cities (Troesken 1996, pp. 26–34).

It is important to be clear that municipal franchises were contracts. They imposed obligations on both the city and the private utility company, and they required the consent of both parties. City authorities could not unilaterally dictate the terms of the franchise. Indeed, in most areas, state constitutions prohibited municipal governments from directly and unilaterally regulating the rates charged by gas companies and other utilities without express legislative permission. As one federal court explained, “the regulation of the prices to charge consumers by gas companies is not one of the powers essential to municipal government, and is not included in general powers conferred on cities.” The same court went on to explain that unless the state legislature explicitly granted regulatory powers to city governments, only the state could regulate gas rates: “and such power cannot be exercised by a city unless it has been delegated by the state in express words, or by fair implication from a power expressly granted” (*Mills v. City of Chicago, et al.*, 127 Fed. 731 1904, p. 731).

1. It was worth noting that in cable television, the regulatory structures adopted by cities in the late twentieth century were identical to those described here: franchises awarded to companies who would agree to terms specified by city officials. Compare the franchises described by Wilcox (1910) to those described by Williamson (1985).

The second phase in the evolution of public utility regulation took place between 1900 and 1909. During this period, many states began to pass laws authorizing municipal governments to directly regulate the rates charged by gas and electric companies, as well as other utilities. The states that passed municipal regulation laws were Arkansas, California, Florida, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, and Ohio. The new municipal regulation laws meant that once a utility company's franchise contract with the city expired, city authorities could unilaterally dictate rates; gas and electric companies did not have to consent to the rates in order for them to become legally binding. Even in those states that did not pass these general municipal regulation laws, it was not uncommon to have the state legislature authorize specific cities to regulate utility rates. For example, in 1887 Tennessee authorized the City of Memphis to regulate gas rates, subject to the provision that the city never set rates below \$1.50; other cities in the state continued to use municipal franchises to regulate gas rates.²

State regulation, the third phase in the regulation of gas and electricity, began in earnest around 1910. However, harbingers of this phase could be observed as early as 1887, when Massachusetts created a statewide commission to regulate public utilities in the state. Other states that created state regulatory commissions before 1910 were Georgia (1907), Michigan (1909), New York (1907), Vermont (1908), and Wisconsin (1907). The years between 1910 and 1920 witnessed the most rapid growth in state public utility commissions, with the following twenty-nine states introducing such commissions: Alabama, Arizona, California, Colorado, Connecticut, Idaho, Illinois, Indiana, Kansas, Maine, Maryland, Missouri, Montana, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Virginia, Washington, West Virginia, and Wyoming (Stigler and Friedland 1962; Troesken 1996, pp. 6–17).

Of the phases of regulation discussed thus far, state regulation appears to have been the most durable and longest lasting. It was not until 1978 that the fourth phase in the regulatory history of gas and electricity was reached. In 1978, Congress passed the Public Utilities Regulatory Policy Act. Ostensibly designed to promote renewable energy sources, this law encouraged entry into the gas and electric industries across the United States and according to one authority “demonstrated the viability of competitive entry into the capital-intensive power generation business” (White 1996, p. 207). The competition-promoting aspect of this law was furthered when Congress passed the Energy Policy Act of 1992. The Energy Policy Act

2. See *New Memphis Gas & Light Company v. City of Memphis*, 72 Fed. 952 (1896). See also Troesken (1997).

mandated that the operators of regional transmission networks act as common carriers and allow unaffiliated producers to transmit power over their networks. The economic logic underlying this law was that the transmission of power had the characteristics of a natural monopoly but that the production of such power did not. In the years following the Energy Policy Act, individual states began allowing power consumers to purchase gas and electricity from any number of competing producers (White 1996).

8.2.2 The Water Industry

The water industry in the United States passed through three regulatory phases. In the first phase (1800–1879) privately owned and operated water companies were governed by municipal franchises, which, as noted above, were a weak form of municipal control. The second phase (1880–1970) was marked by municipal ownership, and private water companies governed by municipal franchises were replaced by municipally owned enterprises. The rise of municipal ownership began slowly during the late nineteenth century and grew quickly during the early twentieth century. Between 1890 and 1920, the proportion of water companies that were municipally owned grew from 43 percent to 68 percent. Similarly, between 1880 and 1932 the number of municipally owned water companies grew from 293 to 7,853 (Troesken 2001).

8.3 Corruption and Other Problems

All of the contractual mechanisms described above—franchise regulation, municipal regulation, state regulatory commissions, and municipal ownership—are imperfect devices, and each is susceptible to corruption, rent seeking, and other economic distortions. Understanding how these problems vary across different regulatory regimes is essential if one is to explain the link between corruption and the circular evolution of public utility regulation.

Before discussing the problems associated with each regulatory regime, a definition is in order. For my purposes, corruption refers to the *illicit* sale of political influence. The sale of political influence can take many forms, including the following: patronage arrangements (politicians buy votes by offering plum jobs at above-market wages); political extortion (politicians can extract bribes from private utility companies by threatening to impose confiscatory regulations and taxes); and industry capture (private utilities spend resources to make friends with regulators). For these examples of the definition of corruption offered above, the word *illicit* is critical. The act of selling political influence is not, in and of itself, corrupt. For example, through franchise bidding schemes, private utility companies pay for the right to an exclusive and legally protected market. As long as the fees

private utilities pay for this right are returned to voters, either directly in the form of reduced taxes or through the provision of public services, this is a completely legitimate sale of political influence. The act only becomes corrupt if politicians pocket for themselves some or all of the proceeds of the sale.

8.3.1 Municipal Franchises

Municipal franchise regulation in many ways mirrored the franchise bidding schemes advocated by Demsetz (1968). Demsetz argued that by auctioning off the exclusive right to operate in a particular market, local governments could secure the benefits of regulation with none of the costs. Ex ante competition for the franchise, not a costly and corruptible administrative agency, would govern the behavior of the utility. As long as Demsetz's bidding scheme is fair and open, the utility that won the franchise would offer rates and service such that the utility would earn zero economic profits; price would equal average total cost. This solution is, of course, second best. A first-best solution would force the utility to adopt marginal-cost pricing and offer the utility a subsidy to compensate for its losses (Telser 1969, 1971). In an exchange with Telser (1969), Demsetz (1971) argued that concerns about marginal cost pricing were relatively unimportant in the context of public utility markets. History suggests Demsetz was correct on this point; there are much bigger fish to fry, particularly those related to corruption.

Franchise bidding schemes are subject to myriad corrupt and inefficient practices. The most obvious potential source of corruption relates to the initial sale of the franchise. It is easy to imagine scenarios whereby politicians allow producers to charge rates above average cost and then split the subsequent excess rents with producers through outright bribes and political donations. Different forms of corruption can also emerge depending on the length of the utility's franchise. Consider the case of a public utility that is offered a very short franchise, say for five years. Because the utility's assets are much longer lived, when the franchise comes up for renewal there are potential holdup problems. Politicians, for example, could claim that the utility failed in some areas of performance and then deny renewal. Local politicians could then undervalue the exiting firm's capital and split the rents with the entering firm, which acquires the capital at bargain rates (Miller 1993).

8.3.2 Regulatory Commissions

State regulatory commissions are subject to two problems. The first problem is not related to corruption and stems from the mechanics of rate regulation. State commissions in the United States set utility rates high enough to allow private utilities to earn a reasonable rate of return on their capital investments, typically around 8 percent. Rate-of-return regulation

creates strong incentives for private utilities to exaggerate the size of their capital stock so that they will be able to charge higher rates. Jarrell (1979) presents evidence that, during the mid-twentieth century, privately owned electric companies that were regulated by state commissions had suspiciously high levels of capital investment. But private utilities need not cook their books to get favorable treatment; simply by investing more in capital investments than would unregulated firms, private utilities are able to secure a more favorable rate base (Averch and Johnson 1962).

The second problem comports with the definition of corruption offered above and is the long-standing idea that regulatory commissions are subject to industry capture. Crudely put, industry capture occurs when regulators get too close to the industry they regulate and begin promoting the interests of the industry at the expense of broader societal interests. More formally, one might think of industry capture in the context of the well-known work by McCubbins, Noll, and Weingast (1987, 1989). In this work, administrative agencies (like regulatory commissions) embody a contract between the legislature that created them and the interest groups that originally lobbied for them. It is in the interest of the legislature that creates an administrative agency to make it difficult for subsequent legislatures to undo their legislative actions, which represent a contract with the interest groups. It is also in the interest of the creating legislature to design a set of rules so that no matter the political, ideological, or economic background of the administrators, the agency will reflect the needs and wishes of the interest groups with whom the legislature struck its bargain. When subsequent legislatures undo the original contract, it is called coalitional drift. When subsequent administrators undo the original contract, it is called bureaucratic drift (Macey 1992; Shepsle 1992).

Industry capture is a type of bureaucratic drift. As the word itself connotes, capture upsets the original contract between the legislature and the interest groups, and it does so because the regulators get cozy with the industry. The legislature that creates a regulatory commission can try to limit the amount of coziness through any number of rules. It might, for example, prohibit commissioners from working in the regulated industry for some number of years after leaving the commission. It might also prohibit commissioners from communicating with industry leaders outside of a narrow set of official channels. But no matter how many rules the legislature makes, there always exists the possibility that the ideological or economic backgrounds of future regulators will undo the legislature's original commitments.³

3. While historical studies of regulatory commissions provide numerous examples of industry capture, they also suggest that industry capture is not inevitable. Moreover, to the degree that regulatory commissions have been captured in the past, it is not always producers who capture them. There are examples of consumers capturing the regulatory apparatus. The most famous of these is Albro Martin's (1971) study of farmers and the Interstate Commerce Commission during the early twentieth century.

8.3.3 Municipal Ownership

Municipal ownership is subject to the following three types of problems, which depending upon one's perspective might be considered corrupt. First, the assets of public utilities are long-lived, with distribution systems lasting 50 to 100 years before they are fully depreciated. Yet the time horizons of local politicians and voters—that is, those who control the assets under municipal ownership—are relatively short. Politicians come up for election every few years, and most voters move once or twice in a lifetime. This means that, confronted with a choice between the long-term viability of the utility system and an immediate short-term payoff, such as reduced rates for consumers or well-paying jobs for political supporters, politicians would invariably choose the short-term payoff. Investments that pay off ten to twenty years down the road are of little use to politicians concerned with the next election, or for voters with weak ties to the municipality served by the utility system in question.

The incentive to sacrifice the long-term viability of the capital stock for short-term payoffs can be minimized by granting control over investment and finance decisions to federal authorities (while most voters move from town to town, relatively few move from country to country) or by creating an oversight agency that is immune to short-term political cycles (as are many state judiciaries). The problem with these solutions is that they are, by their construction, immune to democratic forces, even though one of the standard justifications for public ownership is that it allows for a more democratic and egalitarian distribution of resources.

A second and related concern is the idea that municipal ownership supports a giant patronage scheme. In particular, politicians might garner support by giving away jobs at the local gas and electric companies. Nobody said it better than George Washington Plunkitt, the inimitable boss of Tammany Hall (Riordon 1994, p. 78):

Some of the reformers are sayin' that municipal ownership won't do because it would give a lot of patronage to the politicians. How those fellows mix things up when they argue! They're givin' the strongest argument in favor of municipal ownership when they say that. Who is better fitted to run the railroads and the gas plants and the ferries than the men who make a business of lookin' after the interests of the city? Who is more anxious to serve the city? Who needs the jobs more?

Progressive Era conservatives worried that as the number of municipally owned utilities grew, so too would the number of municipal employees. Eventually municipal employees would come to dominate local politics. "One day," prophesied Robert Porter, the "unconsidered trifles who cluster round the local authority" would grow into a political "Frankenstein," a

collective monster “so huge” that its “creators would not be able to control” it (Porter 1907, p. 109).⁴

The third concern with municipal ownership relates to the transition from private to public ownership. Consider the case of a city trying to purchase a private water company. Because the water company’s capital is fixed, the city can use its power to regulate and tax strategically to reduce the water company’s asking price. This difficulty is compounded by the fact that in nearly all situations there is a bilateral monopoly problem: there is only one seller (the private utility company) and only one buyer (the city). Of course, to the degree the municipality and the water company anticipate these difficulties, they can devise their primary contracts accordingly and minimize some of the problems associated with the transition from private to public ownership. Unfortunately, in practice, it was difficult for parties to anticipate every possible contingency, and some contracts simply were not allowed by the courts. Consequently, the actual transition from private to public ownership has, at least in the United States, frequently resulted in litigation—during the early twentieth century, about one-third of all attempts by cities to municipalize private water companies in their jurisdictions culminated in litigation (Troesken and Geddes 2003).

8.4 Corruption and Municipal Franchises, 1850–1905

During the nineteenth and early twentieth centuries, cities and private utility companies contracted through municipal franchises. As stated above, this arrangement mimicked the franchise bidding scheme proposed by Demsetz (1968). In theory, franchise bidding schemes sounded great. If the private utility (city) refused to agree to the rate ceiling (limits on regulatory authority), the city (private utility) could have turned to another private company (city) that was more amenable to such promises. Their actual historical performance was much less satisfactory, however. In practice, there was a dearth of firms competing for the right to enter specific urban markets, and more seriously, the absence of even a single firm willing to enter with only the promise of competitive returns. All potential entrants seemed to realize that there were substantial risks of ex post opportunism, no matter what cities might have promised in writing. Consequently, as compensation for this risk, private firms generally refused to enter unless there was a real possibility of recouping most of their investments within a relatively short time span. This meant that to attract private

4. Although municipal ownership might have facilitated patronage arrangements, it was not a prerequisite for patronage. Private utility companies and local politicians could just trade favors directly: “you hire our friends and political supporters, and we’ll go easy on you the next time the city sets gas rates.” In describing the situation during the late nineteenth and early twentieth centuries, Yearly (1970, pp. 117–18) observes that in return for favors from local politicians, private utility companies “were obliged to respond not only with cash but also with places for those who, though deserving, could not be accommodated on the public payroll.”

capital, cities typically had to permit utility companies to charge rates at or near monopoly levels (Troesken 1997; Troesken and Geddes 2003).

The promise of high profits, even it came with risks, was sufficient to attract private investors. For monopolistic franchises with few regulatory constraints, private companies were willing to pay handsomely, and it was this willingness to pay that helped finance much corruption. To highlight the connection between monopolistic franchises and corruption, consider the following examples. During the early 1900s, in Grand Rapids, Michigan, the mayor and multiple members of the city council were implicated, and eventually convicted, in a scheme to sell a lucrative franchise to a private water company. The politicians and the promoters of the water company were eventually caught, tried, and convicted. Their trials garnered nationwide attention and were front-page news in cities as far away as New York and Phoenix. At one point during the trials, at least one defendant tried to bribe jury members to vote against conviction.⁵

In Chicago in 1894, the promoters of a local railway company spent lavishly to secure passage of a valuable franchise that faced widespread voter opposition. Four members of the city council received \$25,000 each for their votes in favor of the franchise, and other members of the council received \$8,000 each for their votes. One particularly important Chicago politician was said to have received \$100,000 for his role in securing passage of the franchise. W. J. Onahan, for two years the comptroller for the City of Chicago, believed that all of the bribery and graft associated with the sale of franchises cost the city millions of dollars that otherwise could have been used to lower taxes:⁶

If the city . . . had received proper annual compensation for all the franchises that have been ignorantly and corruptly disposed of for nothing, Chicago would today have income enough to run its affairs without levying a dollar of taxation on real estate or personal property. . . . The street railways, the gas companies, the electric lighting companies, the telephone companies, the water privileges, the dock privileges . . . every one of these favored interests, which secured their privileges by bribing Aldermen and corrupting officials, ought to [pay] millions in annual tribute to the city.

In St. Louis in 1898, the promoter of a local railway company paid bribes between \$3,000 and \$17,500 to local politicians in return for securing a

5. See *Arizona Gazette* (Phoenix), December 1, 1903, p. 1, and December 2, 1903, p. 1; and the following issues of the *New York Times*: November 15, 1903, p. 2; November 22, 1903, p. 1; December 1, 1903, p. 1; December 2, 1903, p. 3; and December 27, 1903, p. 2. For some of the legal issues surrounding the trials of the men convicted in this scheme, see the following court cases: *People v. Albers*, 137 Mich. 678 (1904); *People v. Mol*, 137 Mich. 692 (1904); *People v. McGarry*, 136 Mich. 316 (1904); and *People v. Salsbury*, 134 Mich. 537 (1904).

6. The information and quotation in this paragraph are from Stead (1894), pp. 176–77 and 199.

franchise to operate in the city. In the end, the promoter paid about \$250,000 in bribe money, none of which was returned to the city. The promoter, however, was eventually convicted and sentenced to five years in prison, as were several prominent St. Louis politicians. The same basic story obtained when St. Louis granted lighting franchises. Once, in the midst of all this graft and corruption, a newly elected member of the city council expressed concern that if voters discovered such schemes he and other politicians might be voted out of office. His colleagues “laughed” and “assured him that the political power of the boodlers was too great.”⁷ The histories of Chicago, St. Louis, and Grand Rapids, while perhaps exceptional in terms of the richness of the historical record and the detailed information about the amount of money that changed hands, are representative of a much larger pattern of graft and corruption associated with the granting of franchises to private utility companies.⁸

8.5 Corruption and Municipal Regulation, 1900–1915

As stated above, during the early twentieth century, many states began to pass laws authorizing municipal governments to directly regulate the rates charged by gas and electric companies, as well as other utilities (Troesken 1997). These new municipal regulation laws meant that once a utility company’s franchise contract with the city expired, city authorities could unilaterally dictate rates; gas and electric companies did not have to consent to the rates in order for them to become legally binding. Although the political origins of this form of municipal rate regulation have not been studied extensively, the existing evidence seems to suggest that it was consumers and local politicians who pushed state legislatures to authorize municipal governments to regulate utility rates unilaterally (Troesken 1996, pp. 55–63). Consumers saw municipal regulation as a way to get lower utility rates while local politicians saw it as a way to extract rents from the industry more effectively. Unfettered municipal rate regulation probably helped to reduce utility rates to consumers, but it did not eliminate the presence of corruption, and might have even exacerbated it.

Describing municipal regulation of urban transit systems during the late twentieth century, Pashigian (1976, p. 1258) writes: “With some exceptions, the regulatory agencies [at a local level] have been captured not by the transit firms of the industry but by the riders.” Observers of the early twentieth-century gas industry said the same thing. In a speech be-

7. These events are recounted in an article published by a St. Louis district attorney, Folk (1903).

8. See, for example, Brown (1905), National Civic Federation (1907), National Municipal League (1896), Rosewater (1903), Zueblin (1918), and Steffens (1964). See also Troesken (1996, pp. 45–49) for the corruption associated with the granting of gas company franchises in Chicago.

fore the Pacific Gas Association, an officer of a San Francisco gas company stated:⁹

When the time for the regulation of rates arises, a [city] councilman or supervisor, elected on a platform that calls for a reduction in the gas and electric rates, is hardly in a proper frame of mind to listen to evidence and impartially vote thereon. No matter what the evidence is, if he does not vote for a reduction a large number of citizens, and all of the daily papers, will accuse him of being biased in favor of the corporation.

Forrest McDonald, biographer of Samuel Insull and noted historian, concurs: “At the turn of the century, public utilities were regulated by municipal governments. Such regulation was governed largely by political concerns; shrewd politicians . . . recognized . . . that voters were often inclined to respond favorably to attacks on utilities” (McDonald 1957, p. 117).

A few examples illustrate the politicized and often corrupt nature of municipal regulation. In 1905 Illinois granted the Chicago City Council the authority to regulate gas rates. A few years later, Carter Harrison ran as a Chicago mayoral candidate. Harrison, and several candidates for city council, promised that, if elected, they would reduce gas rates in the city from 85¢ to 70¢. After Harrison and his friends won they launched an investigation into the costs of manufacturing and distributing gas. The expert they hired, W. J. Hagenah of the Wisconsin Public Utilities Commission, recommended a 77¢ rate. According to Hagenah, anything lower than 77¢ would not allow producers a reasonable rate of return. Chicago authorities promptly fired Hagenah and hired Edward Bemis. After paying Bemis five times the salary they paid Hagenah, Chicago authorities got the result they wanted. Bemis recommended, and the city eventually passed, a 70¢ rate ordinance. Ironically, earlier in his political career Carter Harrison had opposed attempts by the city to regulate gas rates, arguing that the city would use the power to regulate rates only as a way of “blackmailing” Chicago gas companies—if the gas companies did not pay off the city council, the city would order them to reduce rates (Troesken 1996, pp. 67–73).

On May 4, 1891, the Cleveland City Council passed an ordinance requiring the city’s two gas companies to reduce their rates from \$1.00 to \$0.60. The ordinance grew out of a plan launched by Cleveland’s newly elected mayor. The mayor thought the city paid too much to light streets and public buildings. He directed several members of the city council to meet and devise a plan to lower the city’s gas bill. At one of these meetings, one council member suggested that private consumers also paid too much for their gas. Someone else said that the price of gas for private consumers

9. From a speech delivered before the Pacific Gas Association at its annual convention in the fall of 1908. The speech was reprinted in the *American Gas Light Journal*, September 28, 1908, p. 527.

should be reduced to 60 cents. The other council members agreed that 60 cents was a good rate. Within a few days, and without any investigation into the costs of manufacturing gas, the council passed an ordinance setting rates at 60 cents.¹⁰ Officials in other cities exhibited a similarly cavalier attitude.¹¹

Perhaps the clearest example of outright corruption occurred in San Francisco. In 1906, fifteen of the city's sixteen supervisors took bribes from the Pacific Gas Light and Coke Company in return for reducing not to 75¢ but to 85¢ per 1,000 cubic feet. These supervisors had been elected on the Union Labor platform which during the preceding election had promised voters that rates would be reduced to 75¢ (Jacobson 2000, p. 99).

Although substantive due process¹² protected utility companies from the most egregious forms of municipal regulation, securing that protection was neither cheap nor timely. Recall the story about Chicago and the 70¢ gas ordinance. After the city enacted the ordinance, Chicago gas companies sued for injunctive relief. They claimed, among other things, that 70 cents was a confiscatory rate. Litigating in every state and federal court imaginable, the city and Chicago gas companies battled for nearly two decades before the gas companies won (Troesken 1996, pp. 71–72). Litigating substantive due process questions took so long, in part, because of the rules adopted by the courts. For example, the courts granted immediate injunctive relief only when there was overwhelming evidence that regulators had set confiscatory rates. In more ambiguous cases, the courts allowed the rates to go into effect. If after the rates went into effect the company continued to find them confiscatory, it could file another claim.¹³

10. The following issues of the *Cleveland Leader and Herald* describe the battle between the city council and the gas company: May 5, 1891, p. 8; August 11, 1891, p. 8; August 12, 1891, p. 5; August 25, 1891, p. 8; August 28, 1891, p. 8; November 14, 1891, p. 8; and June 1, 1892, p. 1.

11. One might ask if the examples from Cleveland and Memphis truly illustrate corruption. They clearly illustrate bad public policy, but this is not necessarily the same thing as corruption. What happened in Cleveland and Memphis was corrupt in the following sense. Local politicians used gas rates as a way to score short-term political points at the expense of the longer-term and broader interests of voters in both cities. One might also argue that had voters been fully aware and informed of the long-term consequences of such capricious regulatory behavior they would not have tolerated such actions.

12. Substantive due process, which grew out of the Fourteenth Amendment, protected private utility companies against confiscatory rate regulation—regulation that set rates so low that firms could not earn a reasonable rate of return. The famous *Reagan* and *Smyth v. Ames* decisions established the rule: when regulators set rates too low, they violated producers' Fourteenth Amendment rights. Reconstructionists intended the Fourteenth Amendment, adopted in 1868, to protect recently emancipated slaves from the ravages of Jim Crow. As it read, the amendment guaranteed all persons "equal protection of the laws" and forbade governments from depriving "any person of life, liberty, or property, without due process of law." Whatever its original purpose, though, by the late nineteenth century, the Fourteenth Amendment protected all industries against overzealous regulatory policies. See Hovenkamp (1991) and Troesken (1996), p. 12.

13. See *William R. Wilcox v. Consolidated Gas Company of New York*, 29 S. Ct. 192 (1908), and *Des Moines Gas Company v. City of Des Moines*, 35 S. Ct. 811 (1914).

Municipal rate regulation undermined the long-term viability of private utilities in much the same way as termites destroy a home: slowly eating away at unseen support structures. Once local politicians acquired the ability to regulate utility rates unilaterally, they abused that authority to win election or extort bribes from private utility companies. This raised the costs of operating private utilities and discouraged future investment in utility industries. As Troesken (1996, pp. 74–76) shows, the implementation of municipal regulation of gas rates in Chicago was associated with a slowdown in investments in new gas lines in the city. Other studies show that onerous municipal regulations discouraged capital formation in the gas and water industries throughout the United States (Troesken 1997; Troesken and Geddes 2003). In the case of water, underinvestment posed serious public health risks, leaving cities vulnerable to epidemics of typhoid, cholera, and diarrheal diseases (Troesken 2001).

8.6 Corruption and State Regulation, 1907–70

Between 1907 and 1922, nearly thirty states created statewide commissions to regulate public utilities (Stigler and Friedland 1962; Stotz and Jamison 1938, p. 450). Legislators created regulatory commissions largely in response to the lobbying efforts utilities. Utilities lobbied for state regulation because they saw it as a politically expedient way to undermine the periodic shakedown schemes implemented by local authorities. Testifying before the Illinois legislature, an official of the People's Gas Light and Coke Company (of Chicago) pleaded (*Chicago Tribune*, April 28, 1905, p. 6):

By city regulation you place it in the hands of the people interested to sit in judgement of their own case. Despite their protestations of fairness they could not restrain from giving themselves the best of it. Therefore we fear city regulation. . . . [W]e do not want to be at the mercy of the city. Let there be a commission appointed, a state commission appointed by the governor. . . . Let this commission examine books and investigate accounts, let the commission fix rates.

Blackford (1970 and 1977), McDonald (1957, 1958 and 1962) and others document the same patterns in many other states.

Although utilities supported state regulation because they believed it would undermine the onerous policies of local regulators, it is important to be clear that in a perfect world they would have preferred to have been subject to no rate regulation whatsoever. Furthermore, there is evidence that consumers and municipal governments played an instrumental role in shaping the creation of state public utility commissions. Indeed, state commissions represented, at least initially, a compromise position among utility companies, local governments, and consumer groups (Troesken 1996, pp. 79–89). The nature of this compromise was highlighted by the Illinois

General Assembly (1913, p. 861) when the assembly recommended the creation of a state regulatory commission:

If municipalities are incapable of protecting their citizens for any reason from the unjust exactions of public service corporations, it is the duty of the State to protect them in such a manner it deems right and proper. Conversely, if the citizens of a municipality, through their representatives, take such action as will destroy or confiscate public utility investments, it is likewise duty of the State to assert its paramount authority to the end that justice may be accorded to citizens interested in such concerns.

In short, state regulatory commissions were designed to protect the interests of both consumers and producers from the opportunistic behavior of competing parties (Goldberg 1976; Troesken 1996).

During the early years of state regulation, it appears that the regulatory commissions did a reasonably good job balancing the interests of consumers and producers. Existing studies of the effects of utility regulation during the period from 1915 through 1940 find that the commissions kept rates substantially below their monopoly levels but at the same time not so low that they were confiscatory (see, for example, Troesken 1996, pp. 81–93, and Twentieth Century Fund 1948).

This early optimism, however, eventually gave way to pessimism, and since the 1960s a series of studies have emerged suggesting that regulation during the late twentieth century has been much less effective. In a seminal paper, Stigler and Friedland (1962) compared electric rates in states with and without state utility commissions; their data come from the early twentieth century when regulatory regimes varied across space. Stigler and Friedland found that rates and profits were not significantly lower in states with utility commissions. From this, they concluded that state regulation allowed utility companies to charge high rates and earn monopoly profits. Similarly, Moore (1970) estimates demand and cost equations to isolate the effects of regulation. Moore uses a cross section of electric utilities operating in 1962. He finds that state regulation lowered rates from monopoly levels by only 3 percent.¹⁴

The evolution suggested by the extant literature is that state utility regulation grew increasingly pro-producer over time and that state commissions gradually came to be captured by the interests of private utility companies. Although the origins of the deregulation movement of the late

14. A study by Meyer and Leland (1980) is slightly more sanguine and finds that state regulation can, in some cases, have a substantial effect on utility rates. Meyer and Leland pool data from forty-eight states over the period 1969 through 1974. These data, and the estimating procedure used, allow for the possibility that the effectiveness of regulation varies over time and across space. Allowing for this possibility distinguishes Meyer and Leland's study from earlier work. They find "pervasive differences" in "regulatory impact across states." In a few states, state regulation significantly reduced utility rates; in other states it did not.

1970s and early 1980s remain puzzling to many students of political economy (e.g., Peltzman 1989), one possibility is that industry capture and corruption became too costly to be sustained and that deregulation was pursued as a means to reduce these costs. It is still too early to tell if the deregulation of private utility companies was a complete success (see Joskow 1989, 1997). Nonetheless, if history is any guide, it would seem that to the extent current governance frameworks mirror those that were tried in the past (i.e., franchise bidding schemes), they too will give way to problems of corruption.

8.7 Corruption and Municipal Ownership, 1880–1970

Largely a response to concerns about corruption (Glaeser forthcoming), the move to public ownership was, at least initially, associated with dramatic and observable improvements in the operation of utility industries. In particular, public acquisition was associated with dramatic price reductions; expansions in service to previously underserved neighborhoods; and, in the case of water, reduced disease rates especially for poor socioeconomic groups. In terms of the effect of public ownership on prices, consider the following. In 1899 the federal government conducted a survey of the rates charged by public and private water companies. Including nearly one-third of all water companies then operating in the United States, the survey found that the rates charged public water companies were, on average, 24 percent lower than the rates charged by private companies (U.S. Commissioner of Labor 1899). However, the discount offered by public companies varied with size; small public companies offered large discounts from comparably sized private companies while large public companies offered little, if any, discount from comparably sized private companies. Historical time series data suggest the same interpretation: utility prices fell sharply after public acquisition (see, for example, Thompson 1925). Formal econometric studies comparing the rates of public and private utility companies during the late twentieth century provide further corroboration: publicly owned utilities tend to charge lower rates than privately owned utilities (e.g., Peltzman 1971; Kwoka 2002).

The experiences of Billings, Montana, and New Orleans, Louisiana, illustrate the dramatic improvements in service quality and the reduction in waterborne disease rates that often followed public acquisition. Before being taken over by the city, the Billings Water Company had no purification plant and only a limited system of mains. After acquiring the company in 1915, city officials immediately began raising funds to build a purification plant and extend mains to all areas of Billings (*Engineering News*, February 18, 1915, p. 365).

In New Orleans, the New Orleans Waterworks Company began operations in 1878. A private corporation chartered by the State of Louisiana,

the company was the exclusive supplier for the portion of New Orleans located on the north side of the Mississippi River. Court documents and government investigations indicate that the company distributed water from the Mississippi unfiltered. Because thousands of municipalities upstream of New Orleans dumped raw and untreated sewage into the Mississippi, failure to filter and chlorinate water generated serious outbreaks of waterborne diseases such as typhoid fever and infantile diarrhea. In addition to being tainted by disease, the water distributed by the New Orleans Waterworks Company was visibly muddy. Consequently, almost no one used the water for drinking, and instead most city residents purchased bottled water or used cisterns to collect rainwater. When the National Board of Fire Underwriters visited New Orleans at the turn of the century, they found the city's water system wholly inadequate, and recommended the city take immediate steps to extend mains and increase the number of fire hydrants.

During the 1890s, residents of New Orleans grew so dissatisfied with the high rates, poor service, and rampant political corruption associated with the New Orleans Waterworks Company that they began pushing to have the company's charter revoked. These efforts were successful, and the state supreme court appointed a receiver to liquidate the company's assets in 1901. The city initiated proceedings to acquire the New Orleans Waterworks Company in 1903 and acquired the water system in 1908.¹⁵

Soon after the city acquired the water company, there was an unprecedented expansion in service. Miles of water mains per 10,000 persons grew by a factor of 4.5 between 1905 and 1915. Besides extending mains to all areas of the city, local officials also installed a water filtration system immediately after acquiring the waterworks in 1908—the new filtering system employed sedimentation, coagulation, slow sand filtration, and mechanical filtration. The installation of filters and the extensions in service reduced waterborne disease rates in New Orleans. In the years before the city municipalized the water system, typhoid rates in the city rose steadily, but after the system was municipalized in 1908, the trend was reversed and typhoid rates began a permanent downward trend (Troesken 2001).

But the initial benefits of public acquisition eventually gave way to problems as politicians began using municipally owned utility systems to win short-term political payoffs and in the process allowed the associated infrastructure to deteriorate. In particular, investments in patronage and unremunerative rate structures steadily displaced investments in upkeep and new equipment. Nathan Matthews, a Boston mayor, lent credence to this hypothesis as early as 1894 when he argued that local politicians derived

15. This paragraph is based on the following sources: *State v. New Orleans Waterworks Company* 107 La. 1 (1901); New Orleans, *Water Purification*; and National Board of Fire Underwriters, *New Orleans*.

electoral benefits by setting water rates at municipal plants below those that would have prevailed at private plants: “there have been deliberate attempts in various cities . . . to reduce rates below the point of profit . . . for the mere purpose of deriving some temporary popularity for the administration that happens to be in power” (Matthews 1894, p. 3). Matthews believed that this practice would, in the long run, undermine the financial viability municipal utilities and city finances, and delay the construction of needed improvements in utility systems.

In terms of using employment at municipal utilities to garner political support, there is much historical evidence to suggest that patronage was a serious problem. Exploiting a sample of nearly 90,000 workers in turn-of-the-century America, Troesken (1999) provides evidence that in cities where patronage was widespread, state and local employees earned 40 percent more per hour, worked 16 to 17 percent fewer hours, and earned 22 percent more per week than comparable workers in the private sector. Similarly, a study conducted by the National Civic Federation—a lobbying group that strongly favored municipal ownership—claimed that municipal employees often had to pay sizable annual assessments to incumbent politicians. Such assessments were intended to defray the costs of local elections. Workers that failed to pay their assessments were fired. Data reported by the National Civic Federation suggest that the size of assessments ranged between 2 and 4 percent of a worker’s annual salary depending on the worker’s occupation (National Civic Federation 1907, pp. 488–92).

In addition, the federation found that employees of publicly owned utilities were often required to work in local elections. Politicians also hired more workers than needed just so that they would have more supporters come election time. Conditions at the Wheeling Gas Company, a municipally owned and operated firm, were described as follows (National Civic Federation 1907, p. 492):

The Superintendent of the Gas Works requires his employees to assist in the primaries and the elections. It is partly on account of the political usefulness of these gas workers that the Superintendent has employed about 20 per cent more men than are needed to do the work. He makes his appointments as much as possible to conciliate the Councilmen.

Elsewhere the same gas plant was characterized as follows (National Civic Federation 1907, p. 156):

The management is honeycombed with politics. Appointments in the gas department are parceled out and controlled by the councilmen. All employees are supposed to belong to the party in power. Should that party change, it is probably true that the whole force in the department would change. All employees are regularly assessed for campaign purposes . . . the assessment ranging from \$2 to \$75.

The National Civic Federation (1907, pp. 149–52) found the same level of patronage and political influence at the municipally owned and operated gas works in Philadelphia.

The cumulative effect of patronage and unprofitable rate structures was a long-term decline in service quality. By the late 1970s, municipally owned water systems in the United States were in such disrepair that many were unable to meet federal guidelines for water quality. The response to this was privatization; by privatizing these systems officials hope to inject new capital and life into urban water supplies, in much the same way that municipalization had done some fifty to seventy years earlier.

The long-term effects of patronage and low rates has been made clear in a recent paper by Paul Gertler and his coauthors. Galiani, Gertler, and Schargrotsky (2005) describe the motivation and effects for privatization of municipal water systems in Argentina. They show that municipal companies had such bloated payrolls that those companies were unable even to replace or repair existing water mains when they burst. As a result, whole urban neighborhoods were often without water service for weeks at a time. Infant mortality rates from diarrheal diseases were high until the water systems were privatized and patronage employment eliminated. Galiani, Gertler, and Schargrotsky show that infant mortality rates fell by as much as 25 percent following privatization and that these reductions were particularly large for the poorest segments of society.

8.8 Alternative Interpretations

There are at least two other plausible explanations for the circular history of public utility regulation. One possibility is that regulatory regimes changed in response to technological changes. For example, perhaps gas and electric utilities were deregulated during the 1980s and 1990s because technological changes altered the cost structure of producing these commodities. There are three problems with this interpretation. First, while one might be able to identify technological changes in the production of electricity that made the industry more competitive (Joskow 1989; White 1996), it is difficult to identify similar changes taking place in the gas and water industries. Second, there exists an historical counterexample. During the nineteenth century there were, in fact, technological innovations that lowered the fixed costs associated with manufacturing lighting gas. These technological changes induced much entry in the gas industry in the short run, but in the long run they played a central role in promoting more aggressive forms of municipal and state regulation (Troesken 1996, pp. 21–57). Third, the deregulation and privatization of gas, electricity, and water occurred at the same time as deregulation in airlines, trucking, banking, telecommunications, railroads, cable television, and brokerage services (Winston 1993, 1998). It seems unlikely that such a large and diverse group

of industries simultaneously experienced technological changes that made regulation less attractive.

This third point—that simultaneous regime change was observed across a wide spectrum of industries—is strong evidence in favor of an explanation rooted in ideological change. In particular, during the late twentieth century, policymakers and voters began to prefer market-oriented solutions to problems and pushed for deregulation and privatization. By the same token, during the early twentieth century, the rise of Progressive Era politics was associated with a preference for state-centered solutions to problems. As a result, municipalization and state regulation grew increasingly common. One needs to ask, however, why ideology was changing. Was there a shift in preferences independent of some underlying economic or political pathology? While there is room for debate on this question, there is much evidence to suggest that ideological changes about the proper role of the state in regulating public utilities were driven by genuine dissatisfaction with the operation of utility markets. For example, the discussion above shows that voters began demanding state regulation of gas and electric utilities in response to real problems associated with various forms of municipal regulation. By the same token, it is clear that the deregulation and privatization waves of the 1980s were a response to a growing body of evidence showing that regulation and public ownership had failed on several important margins (Winston 1993, 1998).

8.9 Concluding Remarks

In conclusion, it is useful to contrast the findings of Galiani, Gertler, and Schargrodsky (2005) and with my own research (Troesken 2001). Galiani, Gertler, and Schargrodsky present clear and incontrovertible evidence that privatizing water systems in Latin America had a large and beneficial effect on waterborne disease rates and that these benefits were particularly large for the poor. In contrast, my research shows that municipal acquisitions in the United States some 100 years earlier had the same effect: they reduced waterborne disease rates substantially, and this was particularly true for the poor (Troesken 2001). How does one reconcile the findings of Galiani and colleagues with my earlier work? Or more precisely, why would one expect privatization to reduce waterborne disease rates in one context and municipalization (the exact opposite process) to reduce disease rates in another context?

This paper has offered one possible avenue of reconciliation. Based on the historical evidence presented above it appears that corruption, and the necessity to eliminate corruption when it gets too costly, accounts for the efficacy of regime change. In this context, the direction of regime change—from public to private, or private to public—is of second-order importance. What matters is some radical reshuffling of the institutional matrix

to disrupt the underlying corrupt relationships. Unfortunately, this disruption is only temporary, and gradually new forms of corruption emerge and must again be broken down by institutional change.

References

- Averch, Harvey, and Leland Johnson. 1962. Behavior of the firm under regulatory constraints. *American Economic Review* 52:1052–69.
- Baker, Moses. 1897. *Manual of American water works*. New York: Engineering News.
- Blackford, Mansel G. 1970. Businessmen and the regulation of railroads and public utilities in California during the Progressive Era. *Business History Review* 44: 7–19.
- . 1977. *The politics of business in California, 1890–1920*. Columbus: Ohio State University Press.
- Brown, Wolstan R. 1905. Municipal ownership and league organization. *The Arena* 33:377–82.
- Demsetz, Harold. 1968. Why regulate utilities? *Journal of Law and Economics* 11: 55–65.
- . 1971. On the regulation of industry: A reply. *Journal of Political Economy* 79:356–63.
- Folk, Joseph W. 1903. Municipal corruption. *The Independent* 55:2804–6.
- Galiani, Sebastian, Paul Gertler, and Ernesto Schargrotsky. 2005. Water for life: The impact of the privatization of water services on child mortality. *Journal of Political Economy* 113:83–111.
- Glaeser, Edward L. Forthcoming. Public ownership in the American city. In *Urban issues and public finance: Essays in honor of Dick Netzer*, ed. A. E. Schwartz. Northampton, MA: Edward Elgar.
- Goldberg, Victor. 1976. Regulation and administered contracts. *Bell Journal of Economics* 7:426–52.
- Hovenkamp, Herbert. 1991. The political economy of substantive due process. *Stanford Law Review* 40:404–60.
- Illinois General Assembly, Illinois Legislative Public Utilities Commission. 1913. Report of the Special Joint Committee to Investigate Public Utilities. Springfield, IL: State Printing Office, April 17.
- Jacobson, Charles. 2000. *Ties that bind: Economic and political dilemmas of urban utility networks, 1800–1990*. Pittsburgh: University of Pittsburgh Press.
- Jarrell, Gregg A. 1979. Pro-producer regulation and accounting for assets: The case of electric utilities. *Journal of Accounting and Economics* 1:93–116.
- Joskow, Paul L. 1989. Regulatory failure, regulatory reform, and structural change in the electrical power industry. *Brookings Papers on Economic Activity, Micro-economics*: 291–327.
- . 1997. Restructuring, competition, and regulatory reform in the U.S. electricity sector. *Journal of Economic Perspectives* 11:119–38.
- Kwoka, John E., Jr. 2002. Governance alternatives and pricing in the U.S. electric power industry. *Journal of Law, Economics, and Organization* 18:278–94.
- Macey, Jonathan R. 1992. Organizational design and the political control of administrative agencies. *Journal of Law, Economics, and Organization* 8:93–114.

- Martin, Albro. 1971. *Enterprise denied: Origins of the decline of American railroads, 1897–1917*. New York: Columbia University Press.
- Matthews, Nathan. 1894. Address of welcome to thirteenth annual convention of the New England Water Works Association. *Journal of the New England Water Works Association* 9:1–8.
- McCubbins, Matthew D., Roger G. Noll, and Barry R. Weingast. 1987. Administrative procedures as instruments of political control. *Journal of Law, Economics, and Organization* 3:243–72.
- . 1989. Structure and process, politics and policy: Administrative arrangements and the political control of agencies. *Virginia Law Review* 75:431–82.
- McDonald, Forrest. 1957. *Let there be light: The electric utility industry in Wisconsin, 1881–1955*. Madison, WI: American History Research Center.
- . 1958. Samuel Insull and the movement for state utility regulatory commissions. *Business History Review* 32:241–54.
- . 1962. *Insull*. Chicago: University of Chicago Press.
- Meyer, Rober A., and Hayne E. Leland. 1980. The effectiveness of price regulation. *Review of Economics and Statistics* 62:555–71.
- Miller, Geoffrey P. 1993. Comments on Priest. *Journal of Law and Economics* 36: 325–30.
- Moore, Thomas Gale. 1970. The effectiveness of regulation of electric utility prices. *Southern Economic Journal* 36:365–81.
- National Civic Federation. 1907. *Municipal and private operation of public utilities*. Part I, vol. I, *General conclusions and reports*. New York: National Civic Federation.
- National Municipal League. 1896. *Proceedings of the fourth annual Conference for Good City Government and second annual meeting of the National Municipal League*. Held at Baltimore, MD, May 6–8. Philadelphia: National Municipal League.
- Olson, Mancur. 1982. *The rise and fall of nations: Economic growth, stagflation, and social rigidities*. New Haven, CT: Yale University Press.
- Pashigian, B. Peter. 1976. Consequences and causes of public ownership of urban transit facilities. *Journal of Political Economy* 84:1239–59.
- Peltzman, Sam. 1971. Pricing at public and private enterprises: Electric utilities in the United States. *Journal of Law and Economics* 14:109–47.
- . 1989. The economic theory of regulation after a decade of deregulation. *Brookings Papers on Economic Activity, Microeconomics*: 1–49.
- Porter, Robert. 1907. *The dangers of municipal ownership*. New York: Century Company.
- Riordon, William L. 1994. *Plunkitt of Tammany Hall: A series of very plain talks on very practical politics*. Ed. Terrence J. MacDonald. Boston: Bedford Books.
- Rosewater, Victor. 1903. Municipal ownership of electric lighting. *The Independent* 55:93–96.
- Shepsle, Kenneth A. 1992. Bureaucratic drift, coalitional drift, and time consistency: A comment on Macey. *Journal of Law, Economics and Organization* 8: 111–18.
- Stead, William T. 1894. *If Christ came to Chicago!* Chicago: Laird and Lee. Repr., Chicago: Chicago Historical Society, 1992.
- Steffens, Lincoln. 1964. *The shame of the cities*. New York: Hill and Wang.
- Stigler, George J., and Claire Friedland. 1962. What can regulators regulate? The case of electricity. *Journal of Law and Economics* 5:1–16.
- Stotz, Louis P., and Alexander Jamison. 1938. *History of the gas industry*. New York: Stettiner Brothers.

- Telser, Lester G. 1969. On the regulation of industry: A note. *Journal of Political Economy* 77:937–52.
- . 1971. On the regulation of industry: Rejoinder. *Journal of Political Economy* 79:364–65.
- Thompson, Carl D. 1925. *A survey of public enterprises, municipal, state, and federal, in the United States and elsewhere*. New York: Thomas Y. Crowell.
- Troesken, Werner. 1996. *Why regulate utilities? The new institutional economics and the Chicago gas industry, 1849–1924*. Ann Arbor: University of Michigan Press.
- . 1997. The sources of public ownership: Historical evidence from the gas industry. *Journal of Law, Economics, and Organization* 13:1–27.
- . 1999. Patronage and public-sector wages in 1896. *Journal of Economic History* 59:424–46.
- . 2001. Race, disease, and the provision of water in American cities, 1889–1921. *Journal of Economic History* 61:750–76.
- Troesken, Werner, and Rick Geddes. 2003. Municipalizing American waterworks, 1897–1914. *Journal of Law, Economics, and Organization* 19:373–400.
- Twentieth Century Fund. Power Committee. 1948. *Electric power and government policy*. New York: Twentieth Century Fund.
- U.S. Congress. House. 1899. *Fourteenth annual report of the commissioner of labor: Water, gas, and electric light plants under private and public ownership*. 56th Cong., 1st sess. House Document 107, no. 713. Washington, DC: Government Printing Office.
- Vitale, Robert. 2001. Privatizing water systems: A primer. *Fordham International Law Journal* 24:1382–1404.
- White, Matthew W. 1996. Power struggles: Explaining deregulatory reforms in electricity markets. *Brookings Papers on Economic Activity, Microeconomics*: 201–67.
- Wilcox, Delos F. 1910. *Municipal franchises: A description of the terms and conditions upon which private corporations enjoy special privileges in the streets of American cities*. Vol. I. New York: McGraw Hill.
- Williamson, Oliver. 1985. *The economic institutions of capitalism*. New York: Free Press.
- Winston, Clifford. 1993. Economic deregulation: Days of reckoning for microeconomists. *Journal of Economic Literature* 30:1263–89.
- . 1998. U.S. industry adjustment to deregulation. *Journal of Economic Perspectives* 12:89–110.
- Yearly, C. K. 1970. *The money machines: The breakdown and reform of governmental and party finance in the north, 1860–1920*. Albany: State University of New York Press.
- Zueblin, Charles. 1918. *American municipal progress*. New York: MacMillan.

