

THE EFFICIENCY OF FOR-PROFIT WATER COMPANIES VERSUS PUBLIC COMPANIES

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INTRODUCTION

Much apprehension exists as to whether our water supplies will be adequate to meet ever-increasing demands from household, municipal, industrial, agricultural, and recreational users. Few believe that opportunities for new water development are either economically or politically feasible. More attention must be given, therefore, to greater efficiency in water allocation in order to “stretch” existing supplies, and this may require institutional and policy modifications. An important issue is whether private or public companies can distribute water more efficiently to consumers, and this paper will address this question.

Lying behind all discussions of water policy are philosophical beliefs and traditions. To most people water is a “social” resource that is owned by the people, and this view is explicitly stated in the constitutions of most Western states. Water users obtain entitlement to use it through usufructuary rights, created and governed by state agencies. Still, at the retail level both public agencies and private companies are permitted to distribute water to final consumers, much like any other commodity. A water publication in 1980 indicated that at that time approximately 50,000 domestic systems sold water to more than 200,000,000 people in the United States (Water Utility Management, 1980, p. 1). Forty-four percent of these companies were publicly owned and managed and they served about 80 percent of the population.

Are the public or the private water companies more efficient in delivering water to consumers? More empirical studies are needed to more definitively answer this question. And do these private and public companies compete on a level playing field as far as the regulatory environment is concerned? Perhaps the principal point of this paper is that various discriminatory practices and policies have been erected to promote public water companies. At the same time, however, in the United States and in many other countries, much attention has recently been given to

privatization of state-owned and administered agencies because of the alleged greater efficiency of private firms. It is, therefore, timely to ask whether private water companies may be an efficient alternative to public firms. But first I must be explicit about what I mean by “economic efficiency.”

WHAT IS ECONOMIC EFFICIENCY?

Economic efficiency is the term used to describe the allocation of society's resources in a way which maximizes net economic product. At the firm level, this outcome is identical with the maximization of net income (revenues from output sales minus the sum of all costs incurred). Efficiency is also sometimes defined as cost minimization when the best technology is utilized. Usually high per capita net incomes are very closely correlated with high standards of living, so all of us have a large stake in an efficient allocation of resources.

Applied to water, economic efficiency has both spatial and temporal dimensions. In terms of spatial allocation, efficiency requires that water be allocated among current users such that the net value of the water at the margin is equal for every user. For example, if water is valued at \$100 per acre-foot at the margin in use A and at \$110 in use B, and the cost of moving it from A to B is \$10 per acre-foot, then an efficient allocation has been achieved. Moving the last unit of water to B created a net benefit of \$100, exactly the same net benefit as the marginal value in use A. Spatial economic efficiency in water allocation has been achieved as between use A and use B since no reallocation could generate greater economic product.

Optimal temporal allocative efficiency for water that may be stored and used in the future requires that the discounted present marginal values of water for use in the present and in all future time periods be equal. For example, if the marginal value of water (net of

evaporation) in a reservoir has a current use value of \$100 per acre-foot and the expected present value of use five years from now is \$200 per acre-foot after allowances for storage and risk costs, there is temporal misallocation. Use of water in the present should be curtailed and saved for future use when the value is higher.

DIFFERENT INCENTIVES DRIVE PUBLIC AND PRIVATE DECISIONS IN WATER DISTRIBUTION

There are basically two types of private water suppliers: investor-owned and mutually-owned companies. The former may sell stock to the public, but most frequently are the property of a developer or an individual owner. These companies operate for profit just as does any private firm competing for capital, labor, and land. However, like electric utilities, these firms most often operate in what is considered to be a natural monopoly market, and thus are regulated by several state agencies (the most important in most states is a Public Service Commission).

Mutually-owned companies do not operate for profit per se, and are usually not regulated. Instead, because the system users are also the mutual owners, rewards to efficiency are returned to the users in the form of low water rates. Because of their ownership structure, however, mutually-owned companies tend to have management problems that have the potential for decreasing efficiency. Why is this so?

The ownership structure of a company determines the incentives for efficient management. Economists have captured the essence of this issue in the notion of the “residual claimant.” The owners of a for-profit firm have the residual claim on profits, and are therefore motivated strongly to monitor the management of the firm. Because their wealth is at stake, they have an incentive to minimize shirking by the employees of the firm and other practices that reduce efficiency. Unless the owners of the firm earn a competitive rate of return, they will withdraw their capital and place it elsewhere where returns are higher. In short, the survival of the firm is at risk. Competition for resources is a harsh taskmaster and furnishes a tremendously strong incentive for efficiency, cost minimization, and dynamic innovations that are expected to improve the competitive position of the firm.

I do not mean to infer that private firms do not have problems that dissipate efficiency. If the firm is owned by many individuals, such as is the case with most corporations that issue stock to the public, the residual returns are spread across multiple owners, often

numbered in the thousands. Hence, the incentive for each individual owner to get involved in monitoring efficiency is greatly diminished. He will bear the costs of his efforts himself, but will share the benefits with all of the other equity owners. This situation is an example of the “free-rider” problem that exists in all forms of collective action, whether private or public. If the free-rider problem is potentially serious, however, monitoring of efficiency may be transferred by the owners to an agent who will be hired to do the job. But this may lead to another generic difficulty called the “principal-agent” problem, wherein the agent has an incentive to act in his own interest rather than that of the principal and must himself be carefully monitored. Devices such as bonding the agent and limiting his discretion by minute contract specification may be used to reduce the principal-agent problem.

Still, despite these problems in private firms, I would argue that in capitalistic societies private firms have been highly successful in monitoring efficiency and thus have provided goods and services at minimum cost that consumers desire.

Unfortunately, government (public) firms and agencies have no such incentives to produce efficiently. There are many reasons. I do not question the integrity or quality of individuals who serve us in public institutions. They behave rationally as would any of us in a similar environment. But investment and operating capital are not acquired in competitive capital markets. Capital is generally provided through government appropriations as well as revenues from user fees. But almost always prices are set by administrative fiat and become highly politicized. This is why nearly all public firms distributing mail, transportation, electricity, water, and sewerage services are subsidized in one form or another. In addition, there is even a perverse relationship between price and cost. Higher costs are used to justify higher prices. And, unlike a private firm competing for capital, a public firm, at best, has only weak incentives to reduce costs. In fact, in most bureaucracies, the larger the budget of the agency, the greater the political power of the agency and the greater the status of the agency’s administrators.

Over the past two decades the public choice school has contributed greatly to our understanding of the failure of governmental agencies to produce public services efficiently (Anderson, 1983). Three main concerns are: 1) imperfect information and voter ignorance, 2) concentrated benefits and diffused costs, and 3) short-sightedness of political decisions.

For individual citizens, relevant information on public decisions is complex and costly to obtain. And because

an individual voter's "voice" in the voting booth is so very small as a fraction of all votes, voters do not find it rational to acquire the information to make really informed decisions on candidates and issues. In other words, they remain "rationally ignorant." This implies that their votes may not reflect a full cognizance of full societal benefits and costs. To the contrary, when they use their own resources to make purchases in the market they are motivated to acquire the optimal amount of information. In addition, when voters vote for a candidate, they seldom can take a little of this and a little of that —rather, they elect a bundle of programs and policies favored by the candidate. Therefore, citizens may not get from public action exactly what they would opt for if the choice were theirs alone to make, or if they could elect one issue at a time. The result is an inefficient match between the outcomes of political decisions and what an individual citizen may really desire.

Besides, it is well known that small numbers of citizens acting in concert who have large and concentrated benefits at stake in political decisions will expend tremendous effort and expense to "persuade" the politicians to grant the political favors that they desire. This is accomplished by contributions to political campaigns and other forms of "politicking." On the other hand, the majority of taxpayers who must pay for political favors given to the concentrated beneficiaries generally have only a small individual stake in the political action and, therefore, exert little political effort to block the transfer. The ultimate consequence is that the process granting political favors is likely to be skewed and dominated by special and concentrated interests, and hardly efficient from the viewpoint of the electorate as a whole.

Finally, there is the "short-sightedness" effect. Because politicians must face the electorate every few years, they tend to be more concerned with programs and policies that emphasize short-term effects, rather than on long-term consequences. This contrasts with private market decisions where wealth-maximizing entrepreneurs look to the long-term future in making optimal investment decisions.

Terry Anderson (1983) concludes: "Given these characteristics of the political sector, the economics of public choice suggest that the information and incentive structure is likely to generate government failure. Efficiency in government is not apt to occur unless the incentive structure faced by governmental decision makers is altered to conform more closely to that described by the property rights paradigm."

The conclusion of this section is that economic theory strongly suggests that private water companies should have efficiency advantages over public companies. How might this be tested empirically? One approach would be to observe if private firms offer water to similar consumers at lower prices than public firms do. This would imply that private companies have lower costs and are, therefore, more efficient.

SOME EMPIRICAL COMPARISONS OF EFFICIENCY IN PRIVATE AND PUBLIC WATER FIRMS

In 1993 a student at Brigham Young University and I studied the water rates and policies of two private and two public water companies operating in the Salt Lake Valley of Utah (Hawkins, 1993). One of the objectives of the study was to determine if public policy discriminated against the private companies and thus might account for the small number that then existed.

White City Water was an investor-owned company at the time of the study while the Holliday Water Company was the largest mutually-owned private water system in Utah. It is of some relevance that White City Water has since been converted into a public entity — the White City Water Improvement District with all the usual powers of a public district such as power to tax if the taxpayers approve. This action in itself says something about the competitive abilities of purely private investor-owned companies in the water field in Utah.

Holliday Water was established as a mutually-owned company in the late nineteenth century, and in 1990 delivered water to 3,751 consumers in the southern part of Salt Lake City. White City Water obtained water rights and established a water delivery system in the 1940s to assist homebuyers in obtaining Federal Home Administration and Veteran's Administration loans. It operated south of Salt Lake City in the area that is now Sandy City, and in 1990 provided water to over 3,600 connections. At the time of the study about 50 percent of the ownership control was held by one individual. Sandy City Water was and is a municipal public utility that sold water to over 20,000 connections in 1990. In fact, Sandy City now completely surrounds the private Holliday Water system.

Salt Lake City Water incorporated as a public company in 1876 and by 1990 had grown to over 80,000 connections. It sells water to Salt Lake City and a few surrounding communities. It is a typically large and public municipal water delivery company.

Table 1: Tariff Comparisons for Four Utah Water Companies; 1993

Company Name	Minimum Fee (\$)/ Water Allowance (gals.)	Excess Water Cost (\$/1,000 gals.)	Hookup Fee (\$)
Holliday	3.00/5,900	0.40	970.00
White City	8.00/6,000	0.52	950.00
Sandy City			
In city limits	8.85/6,000	0.54	1,170.00
Union/Jordan	11.94/6,000	0.54	1,626.00
County service	16.45/6,000	0.68	2,129.00
Salt Lake City			
In city limits	6.45/7,480	0.58	970.00
County service	8.95/7,480	0.86	1,092.00

Source: Hawkins (1993).

Table 1 gives the 1990 rate structure for these four companies. The data show that the private companies supplied water at lower rates than did the public ones. Holliday had the lowest rates for the first 5,900 gallons used, and thereafter on larger blocks of water. In fact, the marginal rates on the excess water over the minimum allowance were lower for both of the private than for the public companies. These data also indicate that both of the public companies delivered water to their own residents at far cheaper rates than were paid by their customers living outside the city limits. (This is also a characteristic of public companies and raises a host of efficiency and equity questions that are beyond the scope of this paper.)

Of course, the value of water may also be influenced by the reliability of delivery and the quality of water. Are there differences among these companies in these respects? The answer seems to be negative, since no serious complaints in recent years were registered with the Public Service Commission by water users from any of the four systems.

DISCRIMINATORY REGULATION AGAINST THE PRIVATE COMPANIES

No efficiency comparisons between private and public water companies would be meaningful without analysis of the differences that confront them in the regulatory environment. Indeed, it will be shown that the explicit discrimination against the private companies has been so severe in Utah that it is a wonder that even one still exists. Discrimination exists in the following areas: 1) the

Public Service Commission/Department of Public Services (PSC/DPU), 2) the State Engineer's office, 3) state policy providing subsidized financing for public water utilities, and 4) different taxation policies facing private and public water companies.

The Utah State Code allows water utilities operating under the PSC of Utah to recover the cost of investment in depreciable utility plants by changing rates collected from consumers. White City Water, an investor-owned for-profit company, was regulated by the PSC whereas Holliday Water as a mutually-owned company was not. This fact alone may explain why Holliday's rates were far lower than the other three. White City Water had to bear the legal and administrative costs of petitioning the PSC/DUP for rate increases to cover depreciation and other costs. We have no precise estimate of these costs in this case, but all regulated public utilities know that they are significant. There can be little question that a competitive rate of return on the firm's assets could be obtained with lower water rates were it not for this regulatory burden.

The State Engineer (SE), the agency in Utah which supervises water rights and proposals for changes in water diversions, takes a much more restrictive stance against private companies than public companies in allowing water acquisitions and changes of use of water in accordance with projected demands. The problem is that in states where prior appropriation law is used to allocate water, beneficial use must be demonstrated to the state regulatory body. "Public entities can distribute water to a variety of uses at their own

discretion under their corporate right while private companies must provide greater definition and more detailed proof in justification of each kind of use” (Bagley and Haws 1985, p. 10). Moreover, public entities enjoy substantially more latitude in acquiring and holding water rights in expectation of future needs than do private firms. In other words, a public company anticipating increases in water demand can argue that this demand is “beneficial use” more successfully than can a private company. Part of the reasoning for the SE’s rigid standard of beneficial use for private water companies is the underlying bureaucratic conviction that the state should not furnish its resources for purposes that are not strictly “public” in nature. Hence, the public should not be involuntarily committed through the taxing powers of the state to underwrite private ventures that generate private benefits to their owners. The effect of this position is that the SE is actually blocking the transfer of water rights from public to private firms, even when analysis demonstrates that the private users value the water at higher levels.

Another difference in the environments of private and public companies is in the financing of capital projects. The State of Utah has appropriated funds that are loaned to water companies at below market rates of interest. In fact, in some cases of perceived hardship, interest charges may be waived entirely. The authority to grant low-interest loans rests with the Division of Water Resources (DWR). DWR holds to the position that public water companies should be favored in the granting of loans, and that taxpayer money should not be allowed to contribute to a “private” purpose. In fact, no large private water company has been the recipient of a DWR loan in recent history. Therefore, the Cities Water Loan Fund administered by DWR, is designated strictly for public companies. Private companies, on the other hand, must obtain funds from the capital market where risk is an important component of the interest rate that the company is required to pay. Furthermore, obtaining market loans may be difficult for private water companies because only system capital can serve as collateral. Since water companies are capital intensive, like other utilities, this kind of discrimination in favor of the public companies can make a huge difference in whether the private companies can be competitive.

Finally, public and private companies are taxed differently. Investor-owned private water companies are subject to property and income taxes and mutually-owned companies are subject to property taxes, whereas public water companies are not taxed at all. This can be important as illustrated

by the fact that in 1991, White City Water paid \$12,578 in property taxes, \$2,171 in utility regulatory assessment fees, \$59,327 in federal income taxes, and \$10,267 in state income taxes, while none of these taxes were borne by the public water utilities. This amounted to \$23.43 per connection per year, not an inconsiderable financial burden. If a private firm pays these taxes, and its prices to consumers are lower than those of the public firms, and if prices cover costs in the long run, then it follows that other costs of the private firms must be lower than those of the public firms.

CONCLUSIONS

Despite explicit discrimination against private water companies in several ways, our evidence suggests that the rates of the private companies were lower than those of public companies that served the same classes of consumers in similar geographical locations. Public choice theory predicts that private companies will be more efficient than public ones because of incentives that contribute to efficiency. So the theory is supported by the data. But much more empirical testing needs to be done in Utah and elsewhere. What seems to be quite clear is that economic efficiency would be served and lower rates would ensue if public policy ceased discriminating against the private companies in order to allow them to compete on a level playing field. The SE’s office should apply the same standards to private companies obtaining water rights and desiring water transfers as are applied to public companies. State-subsidized financing to public companies should cease. But if this is politically infeasible, then economic efficiency would be enhanced if the same subsidies were offered to private companies. State and federal taxes should be uniformly applied to private and public water companies, and to investor-owned and to mutually-owned firms.

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