

The Privatization of Residential Water Supply and Sanitation Services: Social Equity Issues in the California and International Contexts

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This paper reviews the theoretical and policy debates behind the global wave of infrastructure services privatization, focusing specifically on water and sanitation services. It explores two questions: first, what is the place of social equity considerations in the rapid spread of privatization endeavors in water supply and sanitation services around the world? Second, why has the water services privatization movement been so much slower to catch on in the United States? Equity in water services is defined along three dimensions: physical access to safe drinking water, economic access or affordability, and access to planning and decision-making for the services. The paper briefly reviews cases in France, Great Britain and Argentina, then examines the case of California in more depth, and shows how equity concerns are constructed differently in these various settings. After discussing the pricing and regulatory implications of privatization from an equity standpoint, the paper concludes with some directions for further research.

Introduction

The role of government in the provision of infrastructure goods and services has changed dramatically, in both industrialized and developing countries, over the past two decades. Until the late 1970s, the public sector in most countries was judged to be in the best position to provide water supply and sanitation, electricity, telecommunications and public transport services, because these services were labeled “public goods” addressing “basic needs.” The private sector was deemed unfit for public service provision, since its main goal is usually to achieve profit rather than enhance social well being. In addition, central governments were often better able to mobilize funds for investment and service delivery than the private sector.

Since the late 1970s, however, conventional wisdom has shifted in light of the weak performance of many publicly owned and operated utilities around the world. In many countries, public sector management practices have led to low rates of cost-recovery, low productivity, high debt burdens (usually passed on to the state),

and ultimately low service quality and coverage. These inefficiencies have been more publicized than in the past, and have in turn caused many countries to seek alternative institutional arrangements for the provision of infrastructure goods and services. In parallel, the gradual replacement on a global scale of the Welfare State model with the Free Market Economy model has also contributed to the widespread opinion that central governments should delegate responsibilities that could be better managed by the private sector. Thus, among other policies (such as decentralization, local management, community participation), the policy of privatization of public utilities has gained strong credence around the globe, and has become widely prescribed and applied in both industrialized and developing countries.

The above observations lead me to pose two questions: first, how are long-standing problems of access to service by lower-income households addressed in privatization programs around the world? Second, in the case of residential water supply, various forms of private sector participation have been incorporated into service delivery in countries like France, Britain, Argentina, Chile, and Côte d'Ivoire. By contrast, in the case of the United States, many water supply utilities remain publicly owned and operated. Why is this the case?

The first question arises because empirical research and subsequent policy-making based on this research devotes substantial resources to the question of improved economic efficiency and rational management of infrastructure goods and services resulting from privatization. Comparatively little inquiry focuses on whether privatization can effectively address some of the more traditional problems of infrastructure provision, such as improved access to basic services for the poorest classes of consumers. Still, more extensive, equitable service coverage as well as economic efficiency and better service quality remain in theory major goals of services planning in Asia, Africa and Latin America. It is therefore important to examine the conditions under which privatization — one of the pillars of international development policy today — can bring about social equity for service users as well as efficiency gains.

The fact that the “privatization movement” has been slower to catch on in the United States, although deregulation has occurred for electricity in some states, and telecommunications are uniformly privately run across the country, prompts the second question. The exception of water and sewer is all the more intriguing that the U.S. is usually taken as a model for market-based management policies.

This paper will explore how the answer to this question may be linked to the equity question posed above.

The first section of the paper offers a definition of equity in the context of water supply planning, and discusses the recent shift away from the perception of water supply as a public good and natural monopoly. The arguments against and in favor of privatization programs are then reviewed, followed by a brief illustration of water privatization cases around the world. In the second section I present the case of California. The historical context for water supply management, the institutional arrangements that prevail today and current debates on privatization are discussed. The third and last section of the paper examines pricing and affordability programs in the context of privatization, both in developing country contexts and in the United States. The paper concludes with a summary of findings and suggestions for further research.

I. Equity, Public Goods and Privatization

A. Defining Equity

As discussed above, one of the principal aims of privatization programs in the water sector has been the improvement of efficiency in the delivery of water services. Efficiency is defined in economics as a resource allocation that results in maximized net benefits from the use of the resource.¹ As a theoretical construct that is relatively quantifiable in practice, efficiency has thus been a useful criterion for normative and positive analysis of public services as well as business performance. The concept of equity, on the other hand, is much more difficult to articulate and apply in policy definition and implementation, because it is laden with value judgments that may differ across individuals, groups and societies. Equity may denote ideas of social justice, equality, and fairness across groups. Because it is an inherently subjective ideal — and not an ideal for everyone — it has often remained outside of the scope of economics, which itself remains dominant in the realm of public policy making.

¹Pareto efficiency occurs when no move away from a Pareto efficient point can make someone better off without making someone else worse off. The Kaldor-Hicks cost-benefit criterion takes this further, by stipulating that as long as those who gain from a policy *could* fully compensate those who will lose from it, a policy should be adopted. *Whether* the losers are actually compensated in practice is generally not an element in the decision-making process.

Depending on the context in which it is used, the concept of equity may carry radically different meanings. An important distinction is made between horizontal equity and vertical equity. Vertical equity, also referred to as distributional equity, may be assimilated to the "ability to pay" principle, whereby resource users incur costs that are commensurate with their income level, or simply put, with what they can "afford." Vertical equity considerations prevail in redistribution programs where the affluent may pay more for a given good than the poor, and where some form of cross-subsidization occurs. By contrast, horizontal equity corresponds to the "benefit" principle, whereby different individuals who receive the same amount of benefit from any good or service should pay the same price for it. The ability to pay and benefit principles are defined in the welfare economics literature (Musgrave and Musgrave, 1973), and operationalized in much of fiscal, infrastructure and public service policy today.

Two additional concepts of equity are relevant for a discussion of public services like residential water supply. The first is that of geographical equity, which may in some cases be a corollary of distributional equity. It simply denotes the equitable or even distribution of services across different geographic locations (e.g., urban vs. rural and center vs. periphery). The second is inter-generational equity, whereby consumption by present generations is not at the cost of consumption by future generations. This concept is useful for the evaluation of environmental impact of resources consumption, such as water.

Charles Howe (1996) argues that although efficiency and equity are traditionally considered as trade-offs in public policy, in fact they are inter-dependent and may work in the same direction toward overall improvement of well-being, given appropriate methods of policy design and implementation. He critiques traditional cost-benefit analysis, which weighs all benefits and costs equally, regardless of recipients and their income levels, and with little attention to geographical and temporal considerations. Project analyses are often carried out from a narrow jurisdictional perspective without proper analysis of negative or positive externalities on neighboring areas. Overlooking important equity issues across regions may lead to great inefficiencies once the project is implemented. Moreover, he argues that such analyses also ignore the equity and efficiency impacts experienced in the transition between the old state and the new equilibrium state after project completion, such as population resettlement in a dam construction project. Howe thus rightly points out that issues that

might be labeled as “equity” during project identification may turn out to have heavy efficiency impacts in the long run (ibid.).

In practice, what are the dimensions of equity in the case of residential water supply? For the purposes of this discussion, I offer three dimensions. The first is physical access to service, or service coverage across different communities with different income levels. This aspect of equity in water service is especially important in the context of developing countries, where service coverage is typically low, ranging from 15% to 75% of the population. This dimension also encompasses the idea of quality, (i.e., access to reliable, safe drinking water). The second dimension relates to cost and affordability. Are all residents able to pay for the service? If not, who are those who cannot, and what should be done about it? Here the concepts of horizontal and vertical equity are central. I propose a final dimension that is often overlooked: equity in access to decision-making for the service, (i.e., democratic participation of service users in the decisions that affect them). This paper will show that issues of equity in privatization are constructed quite differently across different contexts, with considerations of access and cost dominating in some cases, while concerns of cost and participation prevail in other cases.

B. Water: a Public Good?

In the past, a traditional argument for the public provision of infrastructure goods and services, and water supply in particular, was that such services are equivalent to public goods.² The non-rivalness of pure public goods means that the cost of extending service to additional users is zero. But it also means that in the absence of exclusion, consumers have an incentive to understate their preference for the good. In other words, consumers may be unwilling to carry the cost that corresponds to the marginal benefit that they derive from that good (Musgrave and Musgrave, 1973). This is the free-rider problem, which arises in cases where the number of consumers is large and market mechanisms for valuation are not available. Certain infrastructure goods such as roads, lighting and air traffic control may exhibit these characteristics. In practice, the free rider problem means that there is little incentive for private markets to provide public goods, for which values —

²Pure public goods are characterized by non-excludability (individuals cannot be excluded from consuming such goods once they are produced) and non-rivalry (consumption by one individual does not prevent or lessen potential consumption by others). In contrast, private goods are excludable and once they have been used up, they cannot be used by others (Samuelson, 1954).

and hence demand — are difficult to define, and costs are difficult to recover. At this juncture it is then logical for the government to step in and provide such goods, especially when, as in the case of infrastructure, they enhance productivity and economic well-being (Jimenez, 1995).

Other related factors also help explain why infrastructure services such as water supply have been traditionally supplied by the public sector. First, the presence of economies of scale, network delivery systems, high sunk costs and barriers to entry lead many infrastructure services, and water services in particular, to be viewed as natural monopolies that are not conducive to competitive conditions for service production and delivery (Kahn, 1988).³ The market power derived from monopoly conditions may lead to abusive pricing and customer relations practices if the monopoly firm operates on pure profit-making motives. Hence, natural monopoly production characteristics in the case of basic necessity goods such as water supply have often led to public sector management and/or ownership, or private operation with strong regulation.

Second, the value of these services to society, and the impact that the absence of such services might have on individual, household and societal well being, may lead the public sector to maintain control over them, in order to avoid the under-provision of services to certain groups or areas where cost-recovery can be low (Rondinelli and Kasarda, 1993). In addition, the government may want certain services to be available free of charge (or at reduced fees) to the population, in the interest of basic needs and of individual rights. It may also consider that it has a crucial role to play in preventing environmental and social externalities such as poor public health and reduced productivity that would stem from the absence of water services (Jacobson and Tarr, 1996). Finally, public services provision may be a vehicle for redistributive policies to alleviate poverty and provide employment within public utilities (Suleiman and Waterbury, 1990). These approaches differ markedly from one country to another depending on the relative strength of pro-welfare state views.

However, a major theoretical shift has modified the way in which academics and policy-makers think about infrastructure

³Baumol et al. (1977:350) posit that "a natural monopoly is an industry whose cost function is such that no combination of several firms can produce an industry output vector as cheaply as it can be provided by a single supplier" (in Spulber and Sabbaghi, 1994).

services. Recent literature has emphasized that many infrastructure goods are actually closer to private goods. For example, water scarcity (e.g., during a dry season, or in an arid climate) may render water service rivalrous: if some consumers pump all of the water out of a network system or of an aquifer, others are left without water (Kessides, 1993). The case of water is of particular interest, because it is the least “public” among infrastructure goods. Indeed, with the widespread use of metering and the increasing awareness about water scarcity in many regions, water is almost always a rivalrous and excludable good.

In addition, the idea has taken hold that industries exhibiting natural monopoly characteristics on the surface may in fact be restructured in order to introduce competition, and hence incentives for high performance and fair treatment of customers. The main thrust of such restructuring is toward vertical unbundling and competitive tendering of isolated functions in the industry⁴ (Guislain, 1997). Short or medium term contracts have the inherent advantage of being rescindable and regularly re-submitted to competitive bidding — allowing for W. Baumol’s (1982) “contestable markets” mechanism to occur.⁵

These arguments have helped to propel the idea of water supply service privatization forward in policy-making arenas everywhere. However, many critics argue that privatization is not a panacea, and may have significant negative social impacts, since private providers — even under pseudo-competitive conditions — may not have incentives to attach some of the social values discussed above to the provision of this service. In the next section, the main arguments in favor of and against privatization are reviewed.

C. Justifications and Critiques of Privatization

Private sector participation in the provision of public services comes under several different forms. Currently the literature broadly refers to “privatization” as encompassing all forms of asset and/or operations transfer from the public sector to the private sector. In fact, full-fledged privatization designates an actual

⁴Vertical unbundling consists of moving away from monopolistic, vertically integrated services (e.g., from water supply production to transmission to treatment, distribution and sanitation management) towards the separation of the various steps inherent in the industry.

⁵A market is contestable when there exists sufficient *potential* competition to induce current suppliers to operate at competitively low prices and high quality levels, even if these suppliers are technically in a quasi-monopolistic situation.

transfer of assets and operational responsibilities to the private sector, while all other variations are more accurately categorized under the name “private sector participation” (PSP). In many cases, different degrees of PSP are adopted rather than actual privatization of public infrastructure assets. A common formula combines the public ownership of assets and the private provision of services, under service or management contracts (which typically last 2 to 5 years), leases (5 to 10 years) or concessions (10 to 30 years). Other variations include BOT (build, operate, and transfer) schemes where local government contracts with a private company to build and operate an infrastructure facility over a pre-negotiated period of time (usually 15 to 20 years), and authorizes the company to recover costs and make a return on investment up to a pre-determined level (Dowall, 1995).

The objectives of privatization differ from country to country, and the impacts of privatization also differ as a result. The reasons for governments to involve the private sector in infrastructure provision and financing are often inter-related, although some may be quite independent of each other. UNCTAD (1995) lists five main reasons for PSP:

1. to improve the efficiency of the utility providing public services, by reducing input costs, increasing billing and collection, and adjusting tariffs to reflect production costs; the private sector, through its ability to operate outside of political or bureaucratic constraints, may have an edge over the public sector in this respect (Hyman, 1995);
2. to reduce the fiscal burden on the State caused by deficit-ridden public utilities;
3. to redirect the role of the State towards the task of governing and providing services only it can provide; hence the government may channel its limited resources into areas where private involvement is not as feasible, such as public health and primary education;
4. to develop a market economy with strong competition, so as to ensure that goods and services are provided at the lowest economic cost; although some regulation of markets may be needed, the cost of regulation may be lower than the cost of actual public provision or than the cost of heavy regulation of parastatal public utilities running on subsidies; and
5. to build capitalism by attracting foreign and domestic capital, and by encouraging broader share ownership. Stimulating inflows of international investment helps the

economy expand, not only with additional capital resources but also with technology and management skills that may be lacking in-country. The retreat of government in the management of public services will generally build confidence among foreign and domestic investors that their activities will face less government interference.

Ostrom, Schroeder and Wynne (1993) offer eloquent critical arguments in response to the above-cited reasons. They remark that the outcomes of privatization may differ according to the political contexts in which they occur. Such contexts may encourage incentive structures that are not advantageous to the public interest. For example, if privatization occurs in a centralized system, the procurement process may lack the transparency necessary to ensure optimal outcomes. Opportunities for corruption or deficient performance are more common in such contexts. Government contracts to private operators may be a source of rent extraction on the part of public officials, ultimately leading to outcomes less efficient and more costly than would have been purely public production of the contracted services. In countries where privatization occurs in the absence of competitive markets, "the sale of public corporations frequently results in neither a wider distribution of control over valuable assets, nor an increase in productive efficiency" (Ostrom, Wynne and Schroeder, *ibid.*). In many cases, previously wealthy or well-connected individuals, or public officials supervising the sale, benefit the most from privatization. In countries where the private sector is not strong, markets are not competitive and capital markets are non-existent, privatization means increased involvement of foreign companies rather than domestic ones. This can be problematic in developing countries striving to assert their independence and sovereignty.⁶

⁶The example of Haiti comes to mind. At present, Haiti is undergoing tremendous pressure from multilateral and bilateral organizations to privatize many of its state-owned enterprises and some of its public utilities. Given that the private sector in Haiti is still quite small, this implies a substantial role for foreign investors and companies as well as for domestic investors who are typically members of Haiti's wealthy elite, formerly supportive of recent dictatorships. Hence, the move toward privatization is generating substantial opposition among Haitian voters (most of whom live in dire poverty) as well as in Parliament. Unless the government finds an acceptable social compromise to alleviate the fears of current workers employed by state-owned enterprises (SOEs), and to diffuse the more general perception on the part of the Haitian population that the government is giving in to foreign pressures, the privatization strategy cannot succeed.

The problem of distributional equity is often overlooked in the process of searching for the most efficient outcomes. Privatization and PSP may be the most popular policy prescription for reforming public utilities in many countries, but they are not always well-regarded by all stakeholders involved. The main stakeholders in a PSP process are: (i) the State; (ii) public employees of utilities and civil servants; (iii) private sector enterprise; (iv) utility service users; (v) domestic and foreign investors; (vi) taxpayers; (vii) the financial sector; and (viii) international agencies and non-governmental organizations that lend or donate funds and/or technical assistance toward PSP development. The strongest voice against privatization of public utilities often comes from the public employees and civil servants that risk losing their jobs or earning lower wages and benefits as a result of privatization/PSP. Because one of the most common inefficiencies of publicly run utilities is over-staffing and low productivity, workers are often a first target of the rationalization of operations and cost-cutting. Labor unions have in turn accused the private sector of using exploitative practices in view of profit-maximizing at the expense of workers, and of stifling their rights by doing all in their power to prevent unionization (Rondinelli and Kasarda, 1993).

Another critique of privatization accuses the State of neglecting one of its mandates. To the extent that the State is still considered responsible for income redistribution and for the basic well-being of its population, some see it as the State's duty to provide basic public services like water, sanitation, electricity and public transportation, even if it must incur financial losses to do so. As seen earlier in the paper, the public employment, tariff subsidies, and price controls that often accompany the public provision of such services can be considered part of the government's role as income redistributor. Under private provision arrangements, the state may lose the ability to leverage subsidies as part of an income-redistribution program. In the context of structural adjustment policies in the 1980s, privatization came to be seen as one more wrench in the adjustment tool box, often used without regard for the harsh social impacts on certain stakeholder groups.

Additional criticism stems from the risk that private firms will provide only those services that are profitable while eliminating those that are not. Rondinelli and Kasarda give the example of Bangkok, where low-density — and thereby undesirable — bus routes have been abandoned by the new private mini-bus lines, thus substantially affecting public transit coverage. The new mini-bus system also provides lower quality services by ignoring traffic and safety regulations (1993:153).

Finally, many critics of current privatization strategies have argued that privatization, while in itself potentially a valuable policy in the long-term, has been prescribed and applied with excessive speed, using a “blue-print” approach not always appropriate to the conditions of the target countries. Citing difficult political environments, the absence of well-functioning capital markets, lack of transparency in the process of PSP development and poor regulatory frameworks, they argue that privatization strategies need to be “adjusted” to the needs and conditions of these countries (Adam, Cavendish and Mistry, 1992).

Hence, although privatization may effectively address problems in the efficiency of funding and operations, it alone does not resolve all of the other issues embedded in infrastructure provision, namely social equity problems faced by service users or employees.

D. Private Sector Participation in the World

France

Private water supply management has been prevalent in France since the nineteenth century, in the form of concessions or management contracts held by large private companies like Compagnie Lyonnaise des Eaux and Compagnie Générale des Eaux (recently re-named Vivendi), who now hold over half of the French market for residential water supply between them.⁷ Before that time, private supply already existed in the city of Paris, where the brothers Perrier distributed water through wooden pipes in the late eighteenth century (Guislain, 1997). The system of franchising or contracting operation and maintenance to the private sector while maintaining asset ownership under public control (usually that of municipalities) has allowed for short and medium-term public-private relationships which imply recurrent bidding in order to obtain contract renewals. In turn, these provide an incentive for private operators to perform well in all aspects of the service (quantity, quality, price, coverage) (Jacobson and Tarr, 1996).

The French franchise system has been much admired and emulated because of the flexibility it offers, and because it allows for private sector efficiency gains while maintaining an important role for the public sector in asset ownership, policy definition and regulation by contract — which ideally allows for protection of the public interest and social objectives. Thus France, a country habitually known for its welfare state orientation and strong defense

⁷*The Economist*, March 16, 1997.

of publicly-owned services and enterprises, has been a pioneer in the involvement of the private sector in water services provision.

Yet the French experience also has known drawbacks. *The Economist* (March 16, 1997) reports high differentials in water prices offered by private versus public utilities (water may be as much as 44% more expensive when delivered by a private operator). There have also been accusations of rigging in bid competitions for contracts, where competing proposals exhibited only a 0.1% differential in the prices they offered. In addition, a portion of the profits made by private operators has in certain cases ended up in the pocketbooks of local politicians who were influential in the awarding of contracts. To be fair, *The Economist* (ibid.) notes, higher prices charged by private entities often correspond to higher rehabilitation investments, better water quality, and better service in general. Still, the potential for unethical dealings in contract awards remains a serious problem, one that has plagued efforts to promote PSP in many other parts of the world.

This example provides an apt illustration how efficiency gains can amount to rents extracted through corrupt business and political dealings rather than being passed on to consumers in the form of lower prices. The equity ramifications are many: not only do certain well-placed business and political elites benefit from private sector involvement at the expense of consumers, but the potential for improved distributional equity in service pricing is entirely lost. A more detailed discussion of pricing issues is presented in a subsequent section.

United Kingdom

In Britain, several reforms have transformed the water sector in the last three decades. In 1973, the multiplicity of public agencies responsible for water supply and sewerage were consolidated into ten regional water authorities corresponding to the boundaries of ten watersheds. These public water authorities were responsible for water supply, wastewater treatment and disposal, flood control and recreational uses of their basin's water bodies. However, several private water supply companies also existed at the time, providing water to approximately 25% of the country's population. These companies were retained under the new regime, and they purchased water supplies from the regional agencies which supervised them (Guislain, 1997; Neal et al. 1996 a). This system worked well and was praised abroad as a model of organizational structure. However, higher drinking water quality standards, as well as environmental considerations soon increased the need for heavy

investments on the part of public utilities, which were too constrained by debt limitations and price caps on their water rates to respond adequately (Neal et al., *ibid.*).

In 1989, the Thatcher administration turned toward privatization as a solution to increase the sector's efficiency while raising capital for the required investments. The government argued that several other advantages would result from privatization, such as: i) private agencies would enjoy freedom from government intervention and political pressures; ii) competition in financial markets among agencies would provide incentives for improved performance; iii) economic regulation would ensure that benefits from greater efficiency would be passed on to service users in the form of lower prices and better service; and iv) private agencies would be better able to attract high quality managers from other parts of the private sector (G.B. Secretary of State for the Environment et al., 1986). The proposed reform was part of a larger privatization program that involved the British telecommunications and airlines industries, and was a cornerstone of the government's Conservative economic platform.

The newly privatized utilities achieved major cost reductions through employment downsizing — which meant significant job-losses — while receiving permission to increase water rates by more than inflation in order to make the necessary large investments for service improvement (McClurg, 1996; Guislain, 1997). This resulted in soaring prices for the first five years after privatization, as well as rocketing profit margins and executive compensation packages (McClurg, *ibid.*). The removal of subsidies made water service increasingly unaffordable for certain classes of consumers, and there were significant differences in the rates charged by different water companies (Neal et al., *ibid.*).

Consumers felt disappointed and tricked, while international observers emitted doubts on the success of the British experience. However, the National Office for Water (OFWAT) imposed tighter price caps in 1996, while authorizing competition among agencies within service areas. This was the first time the monopoly of regional water companies was challenged (Guislain, *ibid.*, p.216). Thus many policy analysts have concluded that the regulatory regime that accompanies a privatization program is crucial to ensure that consumers are protected against the abuses of private monopolies on water and other public services. This has informed the debate on the balance to be achieved between regulation and market competition in the reform of many public utilities around the world.

Argentina

In Argentina, the government opted in 1991 to switch from a national public company to a 30-year concession with a private company for the management of the water supply and sewerage services in greater Buenos Aires. The World Bank was instrumental in facilitating the privatization process, from the initial policy reform formulation to the engineering of the transition. The national public company, Obras Sanitarias de la Nación (OSN), had been plagued with many problems, including overstaffing (8-9 employees per 1,000 connections, where 2 to 3 employees are considered sufficient for a well-functioning water company), and inefficient operations, very high rates of unaccounted-for water (45%), very little metering of water connections, only 70% service coverage of the population, and an emphasis on new investments — generally monumental ones — rather than on maintenance and rehabilitation of existing infrastructure. Through an international competitive bidding process in which five international consortia had been pre-qualified, the consortium led by Lyonnaise des Eaux won the concession. Water tariff levels were an important criteria for selection among the competing companies, and Lyonnaise offered a price that was 27% lower than the rate charged by OSN (Ringskog and Idelovitch, 1995).

In their analysis for the World Bank of the Buenos Aires experience, Ringskog and Idelovitch (*ibid.*) emphasize the efficiency gains intended and achieved after only a year into the concession contract. Forty thousand meters had been installed, water shortages had decreased dramatically, water quality was enhanced, and customer relations had improved. They also claim that “a major achievement was the drastic reduction of staff and increased staff efficiency” (*ibid.* p.45-46). These cutbacks were achieved mainly through early retirement programs, which diminished the overall staff by 3,600 employees, or approximately half of the previous number under public management. However, no mention is made of the labor difficulties that probably arose as well,⁸ or of the current union regime for the employees of the private company, named Aguas Argentinas.

⁸General analyses of the labor impacts of privatization appear in publications such as *Comparative Experiences with Privatization: Policy Insights and Lessons Learned*, United Nations Conference on Trade and Development, United Nations: New York, 1995. See also Martin Brendan, *In the Public Interest? Privatization and Public Sector Reform*, Zed Books in assoc. with Public Services International: London, 1993.

There is also no mention of incremental water connections, although an expanded number of connections figured among the performance objectives of the contract. Historically, low-income residents of Buenos Aires have lacked adequate access to water, with 30% of the urban population without water service as late as 1991. Once in place, the new private firm, Aguas Argentinas, financed new connections by charging a one-time infrastructure fee that proved to be prohibitively high for low-income households. Hence the poorest residents of Buenos Aires were essentially cut out of the newly improved, efficient water service. This problem was identified and corrected upon the recent renegotiation of the contract, and the lessons it brought will hopefully be incorporated into future privatizations projects.

Despite the lack of proven experience with privatization in developing country contexts, there is a major push on the part of multilateral organizations toward the privatization of infrastructure in general and of water services in particular, under the arguments reviewed in section B above. Concession contract schemes have been implemented in Chile and Côte d'Ivoire, while lease and management contracts have been introduced in Bolivia, Mexico, Venezuela and Guinea-Bissau. It is still too early to judge the performance of the newly established private entities. However, as the experience with these countries unravels, it will be key to analyze the balance between efficiency and equity gains made under these reforms. It is also useful to examine how the privatization concept has been revived in the U.S. context, and in California in particular, to understand other facets of the "privatization wave" that has gripped both developing and industrialized countries. I turn to the California experience in the next section.

II. The Case of California

A. History and Context

It is striking that in California, water utilities seem to have moved in the opposite direction from their counterparts in European industrialized countries. Whereas the latter were initially publicly owned and managed, small, private companies supplied California's residential water service in the late 19th and early 20th century. Although water was from the outset a municipal responsibility in legal terms due to the heritage of Spanish Law and colonial policy, cities like San Francisco and Los Angeles chose early on to lease water supply systems to private companies, which might resolve their service quality and reliability problems. In the San Francisco Bay area, for example, the Spring Valley Water

Works company was founded in 1862 as a consolidation of several smaller companies that had been providing water locally from a variety of sources, including imports by barge from Marin county and small local dams. The rapid growth of San Francisco generated accelerated increases in water demand for residential and fire-protection purposes, and by the early twentieth century Spring Valley Water Works was experiencing difficulty in meeting the city's needs (Cooper, 1997).

In Los Angeles, the threat of disease and fire as well as the population explosion made the city's water needs grow exponentially, while the supply system remained quite primitive: open water ditches were subject to pollution from animal crossings, bathing and waste disposal, posing serious public health dangers. The city reluctantly granted small franchises for partial supply in the city, but the heavy rains and floods of 1861 destroyed the ensuing system of wooden pipes built by the franchise operators. By 1868, desperate for a more permanent solution to its water supply problem, the city council granted a 30-year lease to the Los Angeles City Water Company, a private firm (Kahrl, 1982).

Over the next 27 years, the city fought in various courts to uphold its Mexican pueblo right to the water of the Los Angeles river. In 1895, the city finally won against landowners in the surrounding areas, obtaining "all the waters of the river," with the qualification that such a right only extended to the amounts needed by the inhabitants of the city, such that the city could not sell any of the surplus water. This decision was a victory for the city but it also meant that from then on, only city densification and, more importantly, expansion would increase the city's legitimate water demand. Hence, in order to increase its pueblo rights claim, the city simply had to annex surrounding lands. Meanwhile, the Los Angeles City Water Company was making an advantageous profit on its lease by charging high rates to its customers and providing deficient service: low service water pressure and malfunctioning hydrants were common complaints (Hundley, 1992). To compound these problems, relations with the city and the company were strained as a result of various disputes over the preceding 30 years, namely over the fact that the company had illegally diverted amounts of water from the Los Angeles river that were in excess of its authorized allotment for the city's water supply.

This, in combination with the realization that water supply services were a central element of the city's growth potential, resulted in a widely shared consensus among city officials, city residents and the local business community that the service should

revert to municipal management at the end of the lease. The singular situation of Los Angeles as a city almost entirely dependent on a reliable water supply for its future growth, as a city that had fought hard to appropriate local water rights, and as a city that nourished high ambitions for its development and place in the U.S. economy, made the move toward municipal control reach beyond the simple wave of municipal progressivism in vogue at the time (Kahrl, *ibid.*; Hundley, *ibid.*). There was a public interest to be protected against the abusive practices of a private company, and the general opinion emerged that the city was best positioned to carry out that task. To secure this state of affairs, a new clause was incorporated into the city charter "prohibiting the sale, lease or other disposition of any water right without the consent of two thirds of Los Angeles' voters" (Kahrl, *ibid.*:18).

Back in San Francisco, the Spring Valley Water Works (SVWW) company could no longer respond effectively to the high water demands of the growing population. As in Los Angeles, San Francisco residents were greatly dissatisfied with the private utility's performance, characterized by high rates, poor service and insufficient supply. Increasingly, the idea that citizens were paying the company's profits to receive a service so vital to individual and social needs became unacceptable. Taking a proactive approach, the city attempted to compete with the company by establishing a parallel supply system that would employ rival water sources. However, this failed as SVWW succeeded in purchasing those sources before the city. Changing strategies, the city attempted to buy out the company's system itself, but SVWW would not accept the proposed price. Finally, in 1900, the state legislature approved a modified city charter requiring municipal ownership of utilities, a move which allowed the city to take over water supply services indefinitely (Hundley, *ibid.*).

The municipal reform movement may not have been a driving force behind the efforts of L.A. and San Francisco toward municipal ownership, but it was certainly a facilitating backdrop, one that had a substantial impact on the establishment of publicly-run water utilities in smaller cities all across California. The movement formed part of the Progressive Era in the late 1800s and early 1900s favoring activist government, both at the federal and at the local level, to help Americans through the difficult times brought on by the depression of 1893 and the droughts that were hitting the western part of the country very hard. At the time, it was the Republican party that advocated a strong role for government, with strong technical and scientific leadership to aid the country out of its social and economic slump (Hundley, *ibid.*:112).

B. The Role of California's Water Institutions

One of the features that allowed California's public services to evolve as they did is an institution called the "special district," which is characterized by its flexibility and adaptability to local conditions and needs, and by the way it is funded. Special districts were initially introduced for the purpose of irrigation management in California, through the Wright Act of 1887. The Wright Act enabled farmers in a given area to form a public entity for the construction, operation and maintenance of local irrigation works. Newly formed irrigation districts were in fact community responses in the face of attempts by affluent land-owners to develop large land holdings and monopolize water rights in the state. Rather than relying on local taxes, the districts were self-financing through bond issues that covered both investment and recurrent costs. Although the irrigation districts founded under the Wright Act encountered many difficulties and achieved limited success in their goal to promote community values and small size farms, the idea of the special district lived on, and was successfully applied in improved forms for purposes other than agriculture over the following century. In particular, they played a key role in the definition of many residential water supply institutions across the state (California State Legislature, 1991; Hundley, *ibid.*; Henley, 1957).

Following the Wright Act, several other legislative bills marked the evolution of water institutions in California, allowing for various forms of special districts to emerge. The Municipal Water District Act was passed in 1911, for the purpose of creating special districts dedicated to water supply services for residential, rather than agricultural, use. In 1921, the Municipal Utility District Act came into being upon petition by community leaders in the East Bay, who were frustrated by the failure of 18 private water companies to solve local water problems over the preceding 50-year period. The Act allowed for the creation of "a public agency, which could absorb existing public or private utilities and unincorporated areas without reference to city, county or other political boundaries, [...] which derived its powers directly from the legislature, [and which] could provide a number of utility services, singly or in multiplicity" (Plumb, 1974). As a result, the East Bay Municipal Utility District (EBMUD) was founded in 1923 by "public vote to assure a reliable, high quality water supply to the area" (ACWA, 1985). Later, EBMUD also took on responsibilities for hydropower generation, wastewater treatment and public recreation on its watershed lands and reservoirs (Plumb, *ibid.*). EBMUD today is one of the major water agencies in California,

along with Sacramento MUD. Other main agencies are purely municipal ones like the Los Angeles Department of Water and Power, or inter-city agencies like the Metropolitan Water District of Southern California.

Water supply districts are usually classified as “enterprise districts” because they provide services to specific beneficiaries and can hence charge for those services. By contrast, non-enterprise districts deliver services that are difficult to bill to individual beneficiaries, such as fire and police protection, mosquito abatement, and others. The enterprise feature of most water districts reflects the philosophy that water is an economic good rather than a public good, and that water services should be run like a business. As a result, most of an enterprise district’s revenue is derived from user fees or bond issues rather than local property taxes. Another key differentiating feature among special districts is their characterization as dependent or independent. A dependent district is governed by an existing city council or county board of supervisors, whereas an independent district has a separate board that is elected by the voters residing in the district’s geographical boundaries, regardless of existing jurisdictional boundaries (California State Legislature, 1991). One of the extolled virtues of independent special districts is thus their ability to represent voters’ preferences relatively democratically, allowing for local residents’ choice over what kinds of services they prefer. However, an important equity issue is embedded in the rules on access to voting. In some cases, voting eligibility may be based on land ownership. As we will see below, this is a key consideration in the California context.

C. The Privatization Debate in California

Although the reliance on Special Districts as water supply agencies has allowed California’s public water utilities to build, operate and maintain their infrastructure relatively autonomously, in the last decade the deterioration of this infrastructure has imposed heightened investment requirements for rehabilitation as well as replacement works. This, in addition to the continuing need for expanded water infrastructure resulting from California’s booming population, has imposed financial hardship on many utilities across the state. To compound these problems, transfers from the federal government have steadily decreased over the last 20 years as part of the country’s fiscal federalism program, local property taxes have been restricted through legislation like Proposition 13, and many cities and counties are subject to statutory debt limitations which curtail their ability to issue special bonds for

infrastructure financing. Hence, local financing capabilities have weakened considerably, and this has incited cities, counties and special districts to seek new financing mechanisms to make the needed infrastructure investments (Miller, 1987).

Privatization has appeared as a possible solution to these problems. Although in the U.S., private sector participation has long been used for services such as garbage collection and wastewater treatment, it has only resurfaced recently in the context of residential water supply services: nationwide, only 15% of water supply utilities are privately operated, while the corresponding figure for California is 22%, which is still quite low in comparison with the 75% of France and the 100% of Great Britain (McClurg, 1996).

As the privatization of water utilities becomes a more popular solution to the state's infrastructure problems, considerable debate exists among policy-makers, utility managers and the public about the merits and disadvantages of privatization in the case of water. The major pros and cons of privatization in California are similar to the ones cited for the general international debate. Some of the widely cited possible advantages are: (a) quick capital from sources other than public coffers, which in turn (b) liberates funds for other pressing public expenditures such as social and educational programs; (c) potential efficiency gains stemming from streamlined, profit-driven operations and better cost-recovery; and (d) lighter burdens on public funds due to reduced subsidy programs and the elimination of tax exemptions on water utility operation. In addition, privatization advocates argue that water bills are higher for government-owned utilities than for investor-owned companies, and that government is in a better position to regulate an investor-owned company rather than a government-owned one (McClurg, *ibid.*).

Proponents of privatization for California water utilities include conservative think-tanks such as the Reason Foundation, which published a report in 1996 calling for the end of public provision of urban water services in favor of privately managed utilities that would save tax payers money while providing at least as good a service (Neal et al., 1996). The report analyzed the performances of three investor-owned water companies (California Water Service, San Jose Water and Southern California Water Companies) and compared them with public utilities in Alameda and Contra Costa counties. Performance was evaluated in terms of the utilities' contribution or drain on local taxes, the net cost of capital they incurred, the price of water services to customers, operating

expenses (including labor costs), the use of investment income and the relative capital expenditures of public vs. private utilities. The report asserts that public utilities are inefficient, and hence do not act in the best interest of consumers. It allows for the importance of regulation to monitor the operations of privately managed utilities, while advocating a price-cap mechanism rather than a rate-of-return based system to do so. Indeed, under the current system of cost-plus/rate-of-return regulation, private utilities have little incentive to cut costs. This is a crucial consideration if privatization is implemented without changes in the regulatory system. The report also acknowledges that while investor-owned utilities perform better in most of the indicators listed above, the extent of capital expenditures appears smaller in the case of private agencies, which may or may not be a result of efficiency gains. Finally, the principal author notes:

While the results of this study have direct implications for the operation and financing of water systems, they do not necessarily mean that California's water assets should be sold. There are a number of models on which restructuring could be based, including the French franchise model, in which investor-owned water companies do not own the plant and equipment, but only own the right to operate it for a specified amount of time (Neal, *ibid.*, p. 15).

However, many critics are vocal against this study and the concept of privatization more generally. Some argue that the Reason report's comparisons between public and private utilities were flawed, since most of the private utilities examined use groundwater as their main source of supply, while the public utilities in the study use mostly surface water, which is more costly for transportation and treatment (McClurg, *ibid.*). Moreover, as in other places, great concern exists over the water rates that would come into effect under private management: would profit motives encourage increases in tariffs? This is another argument for price-cap regulation. Another key issue that is often cited against privatization is that voters may lose control over decision-making and performance of what remains a natural monopoly. This argument encounters special support among California voters, who have a long tradition of democratic decision-making in public service affairs like water and other utility services.

The case of the Santa Margarita Water District provides a useful illustration of this argument. This independent enterprise district, located in southern Orange county, was established in 1964 to deliver water and wastewater services to approximately 75,000

residents in the cities of Mission Viejo, San Clemente and a number of unincorporated cities. In 1992, the District encountered trouble as its management and elected officials were accused of financial mismanagement as well as unethical practices with some of its contractors. These charges resulted in the dismissal or resignation of the entire management and elected body, and its replacement by 1994 along with the adoption of a strong code of ethics (Morgan and Chapman, 1995).

Despite these internal reforms, a private water company named California-American made a bid in 1995 to take over the bruised public utility. The proposal called for private ownership and operation of water services in the area, with oversight regulation by the Public Utilities Commission (P.U.C.). The private company, which developed a \$300 million offer to buy out the water district, claimed that it would provide water services at a lower cost than the public agency. In their report, Morgan and Chapman argued that there were "no compelling arguments in any current literature for the type of change in organization proposed in the California-American Water Company plan" (ibid. p.7). Their stance hinged on the fact that water service, because of its natural monopoly characteristics, would require strong oversight, and that it was unclear that the P.U.C. would carry out those oversight responsibilities better than the voters of southern Orange county. In addition, they concluded that previous experience with privatized water services management did not present clear evidence of efficiency gains relative to public management.

Hence the issue of democratic representation of service users is a key one in the California context. It is all the more interesting that until recently in Orange county, voter rights in special districts were associated with land-ownership. The principle of land-ownership-based voter rights stems from the idea that water services bestow positive externalities on land values, and that the property tax revenue that is channeled to the special district is disbursed directly by land-owners, rather than by residents at large. In terms of equity, the land-ownership rule presented at least two problems. First, from a vertical equity perspective, this rule was regressive, because land ownership is correlated with income, low-income residents own less land, and hence could not access the vote under this system. Second, from a horizontal equity perspective, all service users — whether land-owner or renter — paid user fees and hence had a claim not only to equally good water services, but also to voter rights within the district. In the face of such equity considerations, the voting rule for the Santa Margarita Water District was modified in 1993, mandating resident elections

beginning with the 1995 election of the board and of management staffing.

The change in voting rules allowed resident voters to express their preferences regarding the privatization proposal under consideration. They now possessed control over local water services and the policies that would maintain or modify their management. Intense lobbying efforts on the part of the residents showed opposition to the proposal, not because of inherent opposition to privatization, but because of a concern that the Public Utilities Commission would not defend their interests and in particular would not keep water rates at acceptable levels. Because PUC officials are not directly accountable to district residents (they cannot be voted out of office, and are located in San Francisco, far from Orange county), there was little confidence in the viability of the privatization proposal in its particular form. Such lobbying, combined with a public hearing in which these views were voiced, resulted in a rejection of the proposal by the Local Agency Formation Commission of the county (McClurg, 1996). Here, the principles of equity and fairness were embodied in the citizen's ability to participate in the decision-making process and to influence the outcome of the privatization bid. Ultimately, concern for fairness hinged on the price-setting and price-control mechanisms that would be implemented under the proposed private ownership and management plan. In section III below, I analyze the issue of pricing in more detail.

III. Equity in Privatization

A. Profit vs. Social Well-being: A Difficult Objective Function:

One of the inherent difficulties in choosing between public and private provision of public services is that the complex objective function of the public provider needs to be somehow translated into the much simpler objective function of the private provider. When the government decides to provide a service, it is addressing factors affecting the well-being of users (such as public health and equal access to the service) and of employees, as well as factors relating to cost, productivity and efficiency. The government potentially has several layers of objectives, because its mandate is most often to work in the public interest to enhance the collective good. For example, the government may seek to: (i) provide potable water to all of the population; (ii) thus improve public health and the health of infants in particular; (iii) thus decrease infant mortality; and (iv) free up time previously spent by women and children fetching water for other activities, such as education and job training. It may also seek to provide employment to a segment of the population,

run an efficient utility, cut costs and avoid redundancies among employees, among other objectives.

In contrast, the objective function of a private operator is far simpler: it is to make a profit. In the choice to privatize, governments may thus opt between three very different routes. They may decide to design contractual arrangements with the private operator to transmit social objectives through the contract, making the attainment of these social objectives a condition for profit. This may be done through performance indicators that include social objectives, upon which part of the contract payment may be based. This requires very careful contract design, to the point that in some cases the administrative burden of contract formulation cannot be overlooked as an additional cost to the public sector doing the contracting. John Donahue writes: "Even when the private sector enjoys an overwhelming technical edge, in short, harnessing private energies to public purposes can be a difficult exercise in contractual architecture" (Donahue, 1989:218). One of the problems that may arise and is little discussed in the literature is that long-term contracts may be difficult to adjust along the way to address deficiencies in the incentive structures and/or performance indicators used in the contract. Another problem is that in order to meet social objectives (e.g., broader coverage of services over the user population), the private operator may need to make significant investments in network expansion and/or rehabilitation, which come at a cost. The private operator may need to reflect these costs in the service tariffs, and costs may vary between low-income and high-income areas. The next section on pricing issues discusses this question.

A second option is privatization with significant regulation on the part of the government to ensure that social objectives are met. This requires a strong regulatory body with adequate enforcement powers, which may reveal itself too heavy to administer well, or may stifle the very flexibility that the private sector was brought in for in the first place. Alternatively, governments may choose to separate the institutional arrangements between regular service provision which is profitable, and special provision that is more laden with social concerns and is therefore treated separately. For example, this is accomplished when a portion of the service coverage is contracted out or outright privatized, while another

portion corresponding to low-income users is either maintained under public management or delegated to the non-profit sector.⁹

The ability to carry over the initial objective function, or a variation thereof, without sacrificing social and equity objectives, therefore seems crucial to the process of involving the private sector in public service provision. The success of privatization must be measured not only against the gains in efficiency, but also against the relative achievement of social objectives. These social objectives are most likely to affect two stakeholder groups in particular: service users and utility employees. The discussion of labor impacts will remain outside the scope of this paper. The following section examines pricing and demand issues in privatization, which are most likely to affect users.

B. Pricing

Preamble: The Manila Case

The example of the recent effort to privatize water supply and sanitation services in Manila, the Philippines, illustrates some of the equity problems posed by privatization (*The Economist*, Feb. 1, 1997: 63). The Filipino government solicited bids to operate two separate concessions in Manila, one covering the eastern part of the city, and the other the western part. The outcome had ironic implications for the prices to be paid by residents of the affluent eastern side on one hand, and by residents of the poorer western side on the other. The winning bid for both sides came from a consortium of American, British and Filipino firms (Bechtel/United Utilities/Ayala). However, according to the terms of the offer, a given company could only operate one of the two concessions. Consequently, the Bechtel group took the eastern side, and the second best bidding consortium (Lyonnaise/Benpres) was awarded the western side. The bids of both consortia featured water prices well beneath the current rate of 8.78 pesos (33 cents) per cubic meter: the Western side would now pay 4.97 pesos, while the Eastern side would pay 2.32 pesos. Simply put, the poor would pay over twice as much as their richer counterparts.

There were several technical reasons behind this ironic twist. The most obvious was that infrastructure in the poorer parts of the city was either severely deficient or non-existent. This infrastructure needed to be built or rehabilitated, which represented a cost to be passed on to users through higher prices. In contrast,

⁹Note that this alternative may in fact increase rather than reduce the fiscal burden of service for the state or public entity in charge, absent the option of cross-subsidization between regular and "social" service provision.

the eastern part of the city, which was occupied by the business district and well-to-do neighborhoods, already enjoyed relatively modern water infrastructure. Hence, the differences in price seemed economically justified. It was mentioned that since many people had to buy water from water vendors at prices much higher than the rates offered by the public utility, a severe price differential already existed between rich and poor in Manila. Some policy-makers in the Filipino government and abroad therefore believed that even if a price differential remained under the privatization arrangement, it would be much smaller (the poor will still be paying much less for water than previously) and would come with much improved facilities and water quality.

This example raises several questions. The first is: is the price differential between the rich and poor halves of the city justified, given the higher level of investment needed in the poorer half? This is difficult to assess without additional information. For example, it would be useful to know whether the more modern state of infrastructure in the affluent part of the city was a result of a longer period of development (whereas the poorer areas are more recently urbanized due to internal immigration, squatting of land, etc.) or simply a result of political pressure on the part of the more affluent classes to invest in those areas rather than marginalized areas. Even this knowledge would not provide a clear answer to the question, since one might argue that recently arrived residents were as much entitled to a basic service at the same price as those residents who have lived in the city for a longer period of time. This leads us to the second question: Should the price of water have been equalized across the city using cross-subsidies, whereby, for example, residents in both the western and the eastern parts of the city would pay 3.65 pesos? This seems like a reasonable proposition, which would still have brought down the price of water considerably relative to its previous level, while avoiding the price differential between rich and poor that was politically explosive. Below, I discuss the pricing mechanisms that relate to horizontal and vertical equity issues.¹⁰

¹⁰General pricing principles. What are the functions of price? Prices may have different roles depending on whether they are attached to private or public goods, or intermediate goods. Three main functions stand out in the case of infrastructure goods and services: a) prices serve to raise revenues to cover costs; b) prices serve to redistribute costs among customers; and c) prices serve to affect behavior, or demand for infrastructure goods or services. Given these functions, a key question concerns the way in which pricing is done. Indeed, we want price to reflect costs, but costs are ambiguous: there are marginal costs, average costs.

Pricing and Horizontal Equity

The rise of the “user pays” principle for many infrastructure services represents a radical shift from the basic needs approach that prevailed in the 1960s and 1970s. It is interesting to note that the concept of distributional equity may also have undergone some transformation since that period. “Equity” no longer simply means fair burdens distributed across income levels so that the poor may pay less and the rich may pay more. It also refers to principles of fair distribution across generations (‘intergenerational equity’) and to the bearing of cost burdens by actual beneficiaries (regardless of income level) rather than by the public at large (this relates to the notion of ‘incidence’ and to the ‘benefit’ principle). Blackburn and Dowall remark that these concepts must still be considered in conjunction with the “ability to pay” principle: financial burdens

short-run and long-run costs, private and social costs, historic vs. replacement costs. These different concepts of cost deserve to be clarified.

Marginal cost is contrasted to average costs in that it reflects the additional cost of producing an incremental unit of the good in question (it is the derivative of the cost function with respect to quantity produced) whereas average cost is simply total cost divided by total quantity produced. Marginal cost pricing is thought to be more efficient than average cost pricing. (Hanemann 1998)

Is marginal cost pricing relevant in cases where falling marginal costs translate to insufficient revenues, or when rising marginal costs lead to revenue surpluses? In such cases, Ramsey pricing, or the inverse elasticity rule, may be called for. Ramsey pricing consists of adjusting price (initially set equal to MC) according to the price elasticity of demand of consumers for the good under consideration, following an inverse relationship. Hence, consumers with a high price elasticity of demand — those expected to be more responsive to changes in price — should be charged less for the good, while those with lower elasticity of demand should be charged more. This practice is sometimes called discriminatory pricing, as it entails differentiation between groups and the charging of different prices to these different groups. On the one hand, it may bring about greater efficiency in the economic sense; on the other hand, it may cause inequitable practices whereby certain groups bear higher burdens than others.

For example, in the case of basic urban services, lower income households may depend more strongly on the availability of such services, and may not have access to alternatives. As a consequence, their price elasticity of demand for these services (assuming these services are paid for through direct user fees, such as transit) may be relatively low. Households with higher incomes may be able to resort to alternatives (e.g., they may choose to take their cars rather than public transit) and may hence have high elasticities of demand for such goods. According to the Ramsey rule, lower-income households would be charged more than higher income households, which clearly poses a problem from a distributional equity standpoint.

should be commensurate with individuals' ability to pay the cost of services they enjoy (Blackburn and Dowall, 1991).

How does willingness to pay relate to ability to pay? Most economists argue that willingness to pay is equivalent to ability to pay. Taking this argument literally, we should then interpret the fact that a poor household that pays up to 25% of its income to obtain potable water from private vendors, for lack of other options such as less expensive municipally supplied water in its neighborhood, is willing and able to pay that amount, since it actually pays it in practice. By extension, such reasoning may result in distorted and unfair pricing decisions. But if the household had cheaper options it probably would be willing to pay less in order to purchase other basic goods. By pushing the willingness to pay reasoning too far, policy makers may find it acceptable to set municipal water prices at levels corresponding to 25% of a poor household's income. While this happens rarely in practice, this example illustrates the limits of pricing based only on willingness to pay observations.

Pricing and Vertical Equity

As mentioned early on in this paper, the affordability dimension of equity is key in the case of water and sewer service. Although the problems of access and affordability are more prevalent in developing countries, they also exist in the United States. Saunders and Quinn (1993) explain that water supply and sewerage costs are increasing due to the higher costs of maintaining aging water supply and sanitation infrastructure and expanding it. In addition, the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA) have further pushed up the cost of providing water to residential users, by obliging many utilities to construct expensive treatment plants. These costs are mostly incurred by ratepayers, and are exacerbated in small communities where there are no economies of scale and costs cannot be spread over a large number of users. Hence, the problems of affordability for low-income and older households is becoming more serious with time in the U.S., where 35.7 million people are classified as poor. Water and sewer bills can be as high as 20% of an AFDC (Aid for Families with Dependent Children) recipient household's benefits. In some cases, as a result, increasing water rates may lead to difficult choices, service cuts and homelessness among poor families.

Saunders and Quinn reviewed bi-annual survey data of water and sewer rates in 142 U.S. cities between 1988 and 1992, examining the changes in water rates over that period, as well as the extent of discount rate programs for low-income and elderly

households. They found that only 28 of 145 cities surveyed have such programs in place. In Seattle, elderly and disabled households with incomes below 70% of the state median income, and low income households with incomes below 125% of the federal poverty level (FPL) can receive a credit on their renter's power bill. Fourteen thousand benefited from this program in 1993. In Los Angeles, households with incomes lower than 175% of the FPL are eligible for a credit on their water bill or, in the case of renters, on their power bill. In Philadelphia, the city assists households that are delinquent on their power bills to eliminate all arrears. No programs exist at the federal level, despite the magnitude of the problem, according to Saunders and Quinn (*ibid.*).

The authors conclude that more funds are needed from the federal government to assist state and local governments with water and sewer related capital investments, and in particular to help them meet the new environmental standards imposed by the CWA and the SDWA. In addition, they argue, such environmental requirements should be developed with the needs of the poor in mind, so that all classes of consumers have access to higher quality service, rather than only those who are able to pay for it. They advocate that the aid from the federal government to local and state entities be conditional on the existence of low-income affordability programs in each recipient locality. Two elements are noteworthy in their conclusions. First, the often overlooked tension between environmental requirements and distributional issues is salient in their analysis. It comes as no surprise that environmental protection may come at a social price, and it is clear that some off-setting is necessary to compensate this. Second, the authors call for affordability programs without broaching the question of how such programs are to be financed in practice. Should cross-subsidies be used, or should direct subsidies come out of local general tax revenues? Are there other possible mechanisms?

In practice, cross-subsidies have been a traditional means of redistributing income or social benefits across different classes of users. However, certain economists argue that cross-subsidy pricing is inappropriate for most public services, because it lacks transparency (i.e., some users are not aware that they pay artificially lower rates as a form of government assistance, and therefore do not value the service at its real cost). As a result, they may incur disincentives to use the good in a parsimonious manner (e.g. water, electricity), which in turn may lead to waste (Ramanadhan, 1995). On the other hand, those consumers who pay a price higher than the actual cost of the service may either not realize this, or realize it and resent it, creating political problems.

The literature now leans more heavily toward direct subsidies to avoid the distortion and transparency problems (Kessides, 1993). However, some scholars argue that cross-subsidies are desirable relative to direct subsidies from local government because they alleviate the potential burden on scarce fiscal resources (Gomez-Ibañez and Meyer, 1993).

Direct subsidies may be better administered through central government redistribution programs, entirely separately from utility or infrastructure prices. In Santiago, Chile, the government implemented a "water stamps" program, through which low-income households could receive special stamps to cover part of their water bill. This allowed the utility to focus on efficient pricing and operations along commercial principles, leaving the business of poverty alleviation to the central government. It also increased its incentives to provide service to the poor, who are now full revenue-generating customers (Briscoe, 1997).

Another means of approaching equity pricing is to use increasing block tariffs or basic entitlements (i.e., "life-line" provision) to achieve a compromise between inter-personal equity and efficiency concerns. In the case of water and sewerage, for example, increasing block tariffs automatically charge more to households which tend to consume more water. Such households are usually at higher income levels (OECD, *ibid.*, p.55). This approach has been used in many developing countries as well as in the U.S. D. Whittington (1992) shows that this approach is not infallible, since it assumes that households have access to individual metered connections when in fact lower income households may live in higher density housing (e.g., apartment building with one macrometer) or may share supply from one tap among neighbors.

If such pricing dilemmas exist to achieve service affordability in the case of public sector utilities, how are privatized utilities to handle this problem? Who ultimately takes responsibility for social protection mechanisms in the case of a basic service such as water? We have already discussed the need for direct regulation or regulation by contract to ensure that certain price-caps are enforced while allowing the company to have an incentive to improve performance. Such price-caps protect the general population of consumers, without necessarily differentiating among classes of consumers according to income levels. In the same way, affordability programs may need to be "regulated into existence" under a private utility regime. Hence, a utility commission may require that a certain portion of revenues above cost-recovery levels

be devoted to affordability programs. This ensures the existence of such programs without diminishing the incentive of the company to increase its profit levels. Advocates for a less interventionist solution might propose that the private company be freed from any redistributive responsibility altogether. They might propose that any poverty alleviation programs relating to service access be financed through general public funds (e.g., local tax revenues) using a direct subsidy program, like the one in Santiago.

Still others — those who are particularly idealistic about the potential of the free market — might suggest that private water companies competing for entry into new water supply markets have an incentive to design good affordability programs. This is especially the case if consumers are also voters who, as in the case of Santa Margarita in California, have strong power to determine whether or not the privatization is implemented. At present, one of the three private water companies operating in California is designing a voluntary subsidy program, whereby consumers are asked on their water bill if they care to contribute to a subsidy fund to assist low-income households in paying their water bills. This would be an interesting experiment if implemented, and the results would presumably vary greatly across the different communities or cities with such a program. Indeed, it presupposes a strong disposition on the part of individual households towards voluntary giving. Such an ethos does not necessarily exist in all societies. Finally, what can we make of the situation *after* a company has entered a market? The “natural incentive” to design and implement an affordability program is much diminished, and regulation is once again necessary to incorporate social objectives into the company’s *modus operandi*.

Conclusion

This paper has reviewed the debate on the privatization of residential water services from several perspectives. I first examined the shift in consensus from water as a public good to water as an economic good, the delivery of which can be carried out under private or semi-private institutional arrangements as well as public ones. I discussed the rationale behind the privatization of water services, as well as some of the problems it may create, namely from a social equity point of view. A brief review of experiences in France, Britain and Argentina illustrated some successes, but also some failures, of different privatization schemes. The case of California provided an example of a debate on privatization couched in different terms. Finally, a discussion about pricing strategies in the context of privatization showed how

some of the dilemmas faced by public agencies can be exacerbated under private management arrangements. As a result of these discussions, three sets of conclusions deserve to be highlighted.

A first set of conclusions concerns the role of regulation in the privatization movement. As the examples of Britain, France and California and the above discussion on pricing issues demonstrate, it is crucial to recognize the importance of maintaining some degree of government regulation to protect consumer interests and, in particular, to incorporate equity considerations into the planning of water supply services. Although the ideal of the market's self-regulating mechanisms may be appealing to some, in practice there *are* negative social externalities to be incurred if all aspects of water supply services are left to the private sector. Indeed, the latter has few natural incentives to protect the interests of the poor and ensure that they are adequately served, as long as there exists a substantive tranche of middle-class and wealthy consumers able to pay water bills at cost-recovery plus profit margin levels. The fundamental problem therefore lies in finding the correct balance of public-private partnerships that will enhance both efficiency and equity at the same time rather than as trade-offs. The right balance must be struck between regulation and competition, so that the former does not stifle the latter, yet achieves the social objectives that remain the government's mandate. This issue deserves much more attention both in research and in the design of future privatization schemes for water supply services whether in developing or in industrialized countries.

A second set of conclusions concerns the manner in which equity issues are constructed in the privatization debate. Indeed, the dimensions of equity in privatization vary among countries. In developing countries, equity concerns will focus mostly on the coverage of service in low-income areas, the ability to pay of low-income households — who make up the majority of the population — and the creation of more unemployment. A major consideration in such contexts is that benefits might accrue to the private sector and local elites rather than the poor. By contrast, in a high-income, industrialized region such as California, equity will relate to the geographical distribution of benefits, employment losses, the treatment of minority groups (e.g., migrant laborers) and public voice in decision-making. The latter dimension is particularly important in the California context, where a strong democratic tradition of voter control over resources and services seems to guide the outcome of privatization bids such as that of the Santa Margarita Water District.

This brings us to a third set of conclusions, regarding the advance of privatization programs in places such as California relative to other parts of the world. As shown in section II, institutional arrangements for water supply and sanitation services in the U.S. are a key factor in this comparison. Indeed, the advent of special districts has greatly facilitated local utilities' capacity to raise funds through bonds and user fees, leading them to depend less on local taxes. By contrast, in many countries local utilities depend on transfers from the central government for their operations and investment, and recourse to bonds or user fees is usually weak or non-existent.¹¹ In that sense, U.S. public utilities may have been able to achieve greater self-sufficiency than their foreign counterparts, and the special district model might gain to be explored abroad. Another differentiating factor in California is that conservative groups often acting for business interests are the main champions of the privatization movement there. As a result, voter resistance in California is strong, and compounded by a fundamental distrust of the Public Utilities Commission's ability to protect the public interest. Again, the issue of who controls the local natural resources, and who makes decisions on public services, is central.

¹¹ Personal communication with W. M. Hanemann, May 1998.

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