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Author(s): Karen J. Bakker

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Paying for water: water pricing and equity in England and Wales

Karen J Bakker

Over the past three decades, the business of water supply in England and Wales has been gradually transforming from the supply of a service to citizens, to the sale of a commodity to customers. The paper provides a genealogy of concepts of efficiency and equity in water regulation over the past thirty years, prior to evaluating the implications for water consumers of one aspect of this process – the shift away from policies prioritizing inter- and intra-regional equalization (implying a principle of social equity) towards policies prioritizing economic efficiency (implying a principle of economic equity) in water charging. In closing, alternatives to the current arrangements for domestic consumers are proposed.

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Jesus College, Oxford OX1 3DW and Environmental Change Institute, School of Geography, University of Oxford

email: karen.bakker@geog.ox.ac.uk

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Introduction

Over the past three decades, a change in the dominant discourse of national economic development and of the role of the state in redistribution has transformed consumers' entitlements to utility services in England and Wales. The business of domestic water supply, like other utilities, has been gradually evolving from the supply of a service to citizens at subsidized rates, towards the sale of a commodity to consumers on a full cost-recovery basis. This paper analyses the implications of this ongoing process for domestic water users.

The first section of the paper details a genealogy of concepts of efficiency in legislation and as applied in water regulation, from the nationalization of the water industry in 1974 to the present. The second section of the paper contrasts concepts of economic and social equity, details the inter- and intra-regional equalization that was characteristic of the early phase of nationalized management of

the water industry, and traces the evolution of policy and regulatory priorities in water charges to domestic consumers over the same time period. Two specific developments are considered: the shift from policies promoting geographical equalization to those resulting in differentiation of water rates; and the trend away from rateable values (intended as a proxy, however poor, for wealth) and towards metering (i.e. charges related to consumption). The analysis does not measure relative efficiency, but rather focuses on the implications for consumers of the substitution of the yardstick of economic efficiency for the goal of equalization.¹ The political implications of the associated displacement of a principle of social equity by a principle of economic equity in water charging are considered in the third section. In the fourth section, the concepts of justice implicit in the recent re-regulation of the water industry are analysed, and alternatives to the current arrangements for domestic consumers proposed.

A genealogy of efficiency

National ownership (1974–89)

Neither technical nor economic efficiency were paramount performance criteria for the water industry before its nationalization in 1974.² Rather, the security of water supply systems and public health were prioritized. The principle that public ownership of and subsidies to the water supply system were necessary – because of the multiple market failures to which water supply is subject (most importantly, monopoly and both negative and positive externalities associated with water and sanitation services) – had been widely adopted at the turn of the century (Hassan 1998). Charges for water were not determined by the necessity of cost-recovery, but set in light of the goals of universal provision and equitable access (Sleeman 1953), implying a concept of social equity according to which consumers paid relative to their means rather than relative to the costs they imposed on the system.

During this period, the water industry was regulated in a manner broadly consistent with the aims of other nationalized industries. Water was regarded as a strategic resource, and water-charging policy was administered in light of Keynesian regional policies aimed at supporting full productive employment of spare regional capacity (Swyngedouw 1989; Graham and Marvin 1995). In common with practice in other utilities, water pricing policy was based on price discrimination and promotion of sales in markets where demand was elastic, in order to spread fixed costs over output. The goal was to promote the fullest use of existing capacity, whilst attempting to avoid incurring the additional costs imposed by capacity constructed for peak load, particularly difficult in the water sector where a large proportion of capital expenditure goes to meet peak load capacity.

Technical efficiency – efficiency in water production – received greater emphasis in the period following the creation of the Regional Water Authorities in 1974, reflecting then-dominant trends in administrative reform, and growing concern over water *quality* rather than the previous focus on quantity (Hassan 1998; Jordan *et al* 1977; Penning-Rowsell and Parker 1983). After 1974, the rate support grant, through which water bills were subsidized by the state, was removed. Faced with the costs of renewing deteriorating Victorian-era infrastructure, but operating under strict

monetarist constraints, the Government was left with two options: either devolve the costs of water quality improvement onto consumers through large increases in water bills; or continue to allow water quality to deteriorate. The Government held to its decision to prioritize the PSBR over water quality improvements. Whilst allowing increases in water bills – sometimes higher than the inflation indicator Retail Price Index (RPI) but often lower than required to meet investment requirements – it encouraged greater efficiency in the water sector as a means of offsetting capital shortfalls (Simon 1986).

Subsequent legislation initiated and formalized the transformation of the water industry in Britain ‘from a public service to a business organization’ (Penning-Rowsell and Parker 1983, 170). The Water Act of 1983, for example, was predicated on the assumption that consumers were best served ‘by an efficiently run operation, providing the requisite service at least cost’ (MMC 1981, 264). Cost-benefit analysis was introduced to the industry, and attempts were made to introduce long run marginal cost pricing (Synnott 1985, 70). Efficiency measures were introduced; for example, job shedding in the industry dates from the early 1980s with employment levels peaking in the early 1980s and reducing substantially before privatization in 1989 (Figure 1) (O’Connell-Davidson 1993). By the late 1980s, the nationalized industries were best characterized as ‘publicly regulated private monopolies operating on modified market principles’ (Hay 1996, 53). Privatization consolidated this transformation, and effected the important step of opening up avenues for the water utilities to access private capital markets.

During the nationalized era, water became a highly networked, industrial product; with privatization, its provision to consumers became a capital-intensive, and also highly profitable business. This high profitability was not always characteristic of the water industry. In the 1970s, ‘profits’ were never mentioned in reference to water production; the term ‘surplus’, where one existed, was considered more appropriate for an industry supplying such a basic resource (Curwen 1994). Water was considered to be a service, supplied at subsidized rates to citizens. It was also a strategic resource, and as with other such resources (e.g. coal), security of supply and planning for growth were the primary goals of managers. Water managers enjoyed the ‘quiet life’ of the monopolist

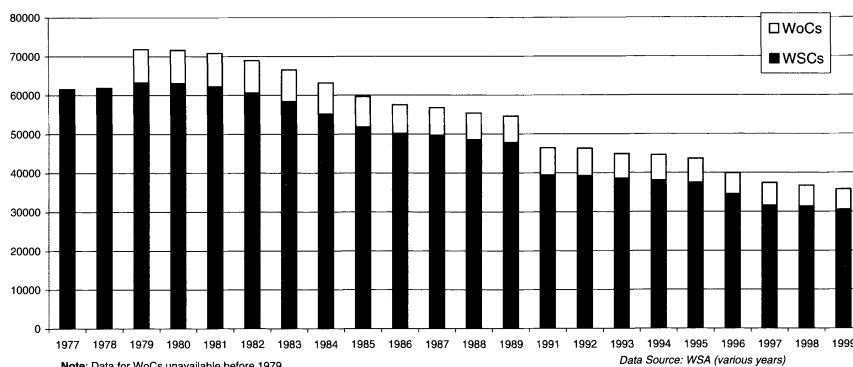


Figure 1 Employment levels, English and Welsh water industry (1977–99)

in a nationalized industry; throughout much of the twentieth century, water was an 'invisible' resource in England, and a 'flush and forget' attitude characterized the public's attitude (Kinnersley 1988).

Privatization (1989–present)

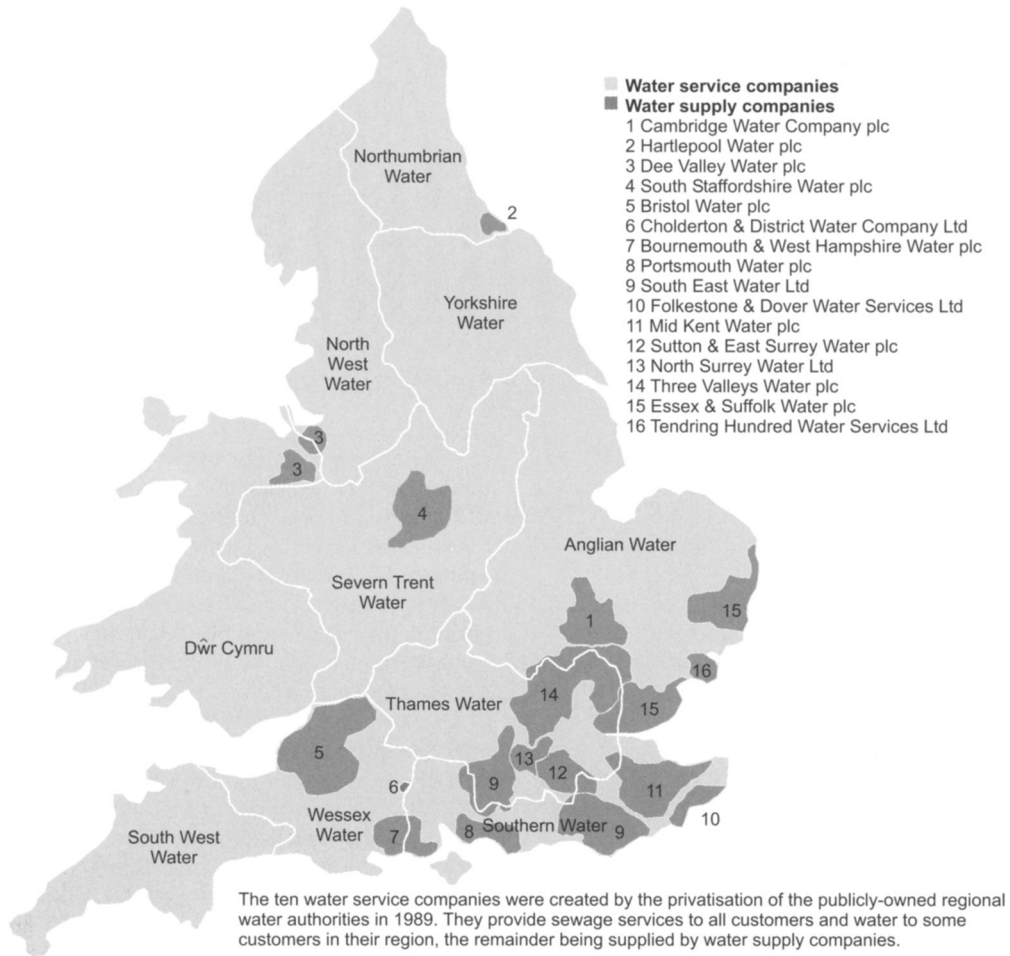
The transfer of the English and Welsh regional water authorities³ to the private sector in 1989 was the third in a series of network utility privatization sales,⁴ and one of the largest; in 1989, its 29 companies⁵ employed over 50,000 people and controlled assets valued (on a current replacement cost basis) at over £28 billion. No other country has completely privatized its water supply and sewerage systems through asset sales, floating previously publicly owned utilities on the stock exchange with infrastructure, property, and water supply and sanitation networks intact. The result is a unique industry: large, private monopolies, organized at the scale of watersheds (Figure 2), operating water and sewerage networks with some of the highest connection rates in the world.

The regulatory framework created at the time of privatization further extended and entrenched the prioritization of efficiency in the water sector. An underlying justification for privatization (political imperatives aside) is the assumption that the costs of 'state failure' are greater than that of market failure. The state, it is argued, is a less efficient provider of public services than the market. Companies are assumed to operate more efficiently in a market environment, albeit, in the case of water, where market forces are simulated, and market failures corrected by regulation. Within the water sector, as in other utility sectors, the political and regulatory emphasis on the superior ability of

private companies to supply water efficiently, and the market to regulate water management has underlain regulation since 1989 (see, for example, Martin and Parker 1997; Rees 1992; Vickers and Yarrow 1988). Cost-benefit analyses, efficiency yardsticks, environmental economic indicators, limited competition, and proposals for establishing a market in abstraction licences (see DOE 1992, 1995) are some examples of the introduction of market-simulating and efficiency-prioritizing techniques that have been introduced into the industry.

The 'state failure' view is a direct descendent of eighteenth century Enlightenment thought, premised on the assumptions that nature is comprised of scarce resources, that individuals seek to maximize utility, and that markets are the most efficient institutions through which money (as a mode of measurement) should be used to determine the rational allocation of resources. In practice, this implies the assumption that capital markets are better assessors of water company performance than the Treasury. It is assumed that 'City' scrutiny, backed up by share price movements as measures of performance, will ensure efficiency, effectively substituting competition in the performance of water managers for competition in the product market (Littlechild 1988).

Technical efficiency, the minimization of waste and loss from the water supply system, has been increasingly scrutinized by regulators since privatization. After public outcry over high leakage rates in the mid-1990s, companies have been given leakage targets, monitored by the economic regulator of the water industry, the Office of Water Services (Ofwat). Since 1996, companies have had a duty to promote the efficient use of water by both



source: adapted from *Waterfacts* (2000)

Figure 2 Water Service and Supply Companies, England and Wales, 2000

domestic and non-domestic customers, and report to the economic regulator on 'water efficiency' indicators of customers' water conservation measures.⁶ Companies also have a statutory duty to conserve water in carrying out their functions. The EA scrutinizes and encourages these technical efficiency measures before granting new abstraction licences, as supported by enabling legislation⁷ (DOE 1996; EA 1996).

The commercialization of the water business has further encouraged the introduction concepts of *economic* (as opposed to technical) efficiency. As one water company manager noted:

Until privatization, most of the water companies didn't think economics had anything to do with them. The

employees were mostly engineers who were unsympathetic to economics, because economics is about uncertainty, but engineering is about certainty, that 'the bridge must not fall down.'⁸

The importance of economic efficiency is legislatively embedded in the regulatory framework,⁹ and expressed through the economic regulator's reliance on efficiency measures in his comparative assessments of company performance when determining 'price caps'¹⁰ (Ofwat 1998a). In this framework of 'comparative competition' (in which companies compete *for* rather than *in* the market), efficiency targets serve as a 'proxy for a competitive market' (Ofwat 1998b, 49), allowing the regulator to guide the industry closer to the optimal path of

development for the water industry, maximizing efficiency while responding to changes in demand in such a way that consumer prices are minimized. In the language of welfare economics, the optimal path is that in which the marginal benefit of the next increment of water supplied would equal the marginal cost of supplying that increment. Optimal water management, from this perspective, entails the allocation of water to its highest value uses, thus increasing economic equity and maximizing society's welfare.

Economic equity versus equalization

On the one hand some people say that water is so important that it should be free. On the other hand others say that it is so important that it is worth paying for . . .

We have a duty to collect charges from all those receiving our services . . . we cannot reduce or abate charges on grounds of age, ill-health, low income or on any other such socio-economic criteria

Jeffrey Phillips, Welsh Water (cited in AMA 1993)

From equalization to economic equity

The current regulatory prioritization of economic equity stands in distinct contrast to the principles of social equity underpinning water charging policy early in the nationalized era. Since privatization, water pricing policy has been gradually moving towards 'economic equity' – the principle that users of a utility service should pay, as near as possible, the costs they individually impose on the system (the 'benefit principle'). In contrast, the principle of social equity underpinning earlier water policy implied that users should be charged according to their ability to pay (the 'ability-to-pay principle'). Throughout much of the twentieth century, charges were made and water networks extended on the principle of universal provision, with resulting cross-subsidization between 'lucrative urban areas and trunk networks and those groups that were relatively expensive to serve: rural areas and socially disadvantaged communities' (Graham and Marvin 1994, 114). From 1974 onwards, sewage (and also water, if this was not already the case) bills were charged separately to the consumer, rather than through local taxes, as had been the case for the majority of consumers. The rateable value of property was the base

employed to calculate these water and sewerage charges, as domestic properties were not metered. The employment of rateable property values as the base for water charges implied *intra*-regional rate equalization (implying cross-subsidization between different classes of consumers within the RWA area); the existence of cross-subsidies was tolerated as 'water supply was regarded as an essential public health service and it was considered equitable for the costs to be borne according to ability to pay. The assumption was made that the value of a family's property was a good proxy for its wealth, despite the fact (as was recognized at the time) that property values are very imperfectly related to family income and to costs imposed on the water supply system (Whiteley 1977; Lingard 1974).

A concept of social equity similarly underpinned inter-regional equalization measures, which were initiated soon after the creation of the RWAs in 1974. Underlying *inter*-regional equalization – active cross-subsidization between regions and/or classes of consumers – was the principle that users in different regions should pay, as near as possible, equal bills regardless of the cost they impose on the system, thus 'extending to the national level the process of the equalization of charges which [had] been . . . occurring within the areas of individual water authorities' (Frankham and Webb 1977, 197). Following the creation of the RWAs, two regions – Southern and Wales – had completely equalized prices, and the others had implemented varying degrees of equalization. Concerned about the disparities in average water supply charges *between* RWA regions (from 17% below to 44% above the national average (Porter 1978)) the Labour Government initiated a review of the water industry in England and Wales (DOE 1976), which recommended equalization of charges between regions via direct transfers between water authorities and companies.

Following the review, the Water Charges Equalization Act was passed in 1977.¹¹ Under its provisions, the Secretary of State was empowered to order those water undertakers whose financing costs (depreciation plus interest of assets in use for water supply purposes) were less than the weighted industry average to pay an 'equalization levy' to the National Water Council, and to order the National Water Council to pay 'equalization payments' to undertakers whose financing costs were greater than average. This implied rate rises

Table I Equalization payments/(levies), for selected water authorities/companies (1978/79)

| Water authority/company | Equalization payment/(levy) (£) | Equivalent income/(expenditure) per m ³ of water supplied |
|---------------------------------------|---------------------------------|--|
| Eastbourne Water Company | 307,000 | 1.32 |
| Newcastle and Gateshead Water Company | (524,000) | (0.62) |
| Welsh WA | 3,486,000 | 0.89 |
| Yorkshire WA | (375,000) | (0.08) |

Sources: S.I. 1977/2165 and CIPFA (1979)

in regions where domestic water bills were cheaper, and rate reductions in regions where bills were more expensive.¹² As the Director of Finance of the administering body, the National Water Council (created by the Water Act of 1973 which also created the RWAs) noted ‘the objective of the [equalization] scheme is to reduce (but not eliminate) the disparity between average household bills for water supply in the areas of the ten water authorities . . . and rural areas . . . receive a subsidy at the expense of dense urban areas’ (Porter 1978, 3). The equalization payment/levy was applied to all 29 of the private statutory water supply companies, as well as the RWAs, from 1978 to 1981. In 1978/79, the equalization payment/levy was just under £9,583,000; in 1979/80, £9,405,000; and in 1980/81, £9,832,000.¹³ The amounts were relatively small – on the order of 2% of the industry’s income from unmeasured water, but had in some cases a significant impact on water bills (Tables I and II).

The Equalization Act did not provide for the payment of direct subsidies (via central Government grants) to RWAs with above average charges,

as the Government was committed to phasing out subsidies for nationalized industries. The Labour Government was nonetheless determined to address regional disparities and ‘unreasonably’ high costs in some RWA areas in accordance with ‘equity and fairness’ – implying a concept of *horizontal* social equity, in which all consumers should pay, as near as reasonably possible, the same charges for water services, despite the different costs they impose on the system (Frankham and Webb 1977, 198). Direct transfers between water companies and the resulting ‘rebalancing’ of water charges were thus employed as an instrument for the achievement of income distribution objectives, despite evidence that rateable value-based charges were a poor proxy for income.¹⁴

In opposition, the Conservatives objected to the equalization scheme, arguing in favour of economic equity:

there may be, arguably, a case for once and for all equalization of the historic costs that each of the water authorities are carrying in various degrees. But the best principle is that those who use each water authority’s services should pay the true cost of providing them. Raising costs in one area in an attempt to keep them down in others is the road to financial irresponsibility. Cross-subsidizing one WA from another would also involve Treasury oversight and political interference by Department of the Environment Ministers. Worst of all, it would destroy the direct accountability, of the RWAs to their own consumers for the true costs they incur.

(Griffiths 1976, 4)

Following the election of the Conservative Government in 1979, the equalization scheme was suspended. Critics of the scheme had argued that the pursuit of social equity, via equalization, was occurring to the detriment of efficiency, as equalization payments decoupled revenue and prices from costs, encouraging over-provision and over-consumption. Whilst attempting to equalize costs

Table II Water authority average domestic bills, 1977/78–1978/79

| Water authority areas | Average domestic bill | | |
|-----------------------|-----------------------|--------------|----------|
| | 1977/78 (£)* | 1978/79 (£)* | % change |
| South West | 23.12 | 24.11 | 4.3 |
| Welsh | 25.40 | 22.76 | -10.4 |
| Anglian | 19.96 | 18.80 | -5.8 |
| Wessex | 19.28 | 23.63 | 22.6 |
| Southern | 17.40 | 19.00 | 9.2 |
| Yorkshire | 17.66 | 20.64 | 16.9 |
| Northumbrian | 17.56 | 17.67 | 0.6 |
| North West | 16.90 | 18.94 | 12.1 |
| Severn Trent | 15.71 | 16.17 | 2.9 |
| Thames | 15.02 | 17.85 | 18.8 |

*Not corrected for inflation
Source: DOE (1979)

for consumers, in other words, the equalization policy was seen to discriminate against the RWAs that controlled their costs, and to benefit those that did not control their costs, removing incentives to contain costs and leading to higher than necessary prices overall (OECD 1987). Equalization with respect to capital charges, it was argued, penalized those companies with low capital charges in favour of those with high capital charges (due to a combination of lower population densities, more difficult terrain and, in some cases, heavier debt burdens).

The cessation of equalization payments was one of many reforms to the water regulatory framework throughout the 1980s. Beginning in 1981, the Government employed powers available to it under the Water Act of 1973 to require the RWAs to achieve individualized rates of return on assets on a yearly basis, independent of their financing needs.¹⁵ The justification, according to the Minister then responsible for the industry, was that 'investment in the public sector must earn a return comparable to investment in the private sector' (King 1980). Instances of high increases in the required rate of return (particularly from 1985 to 1987) effectively decoupled charges related to capital assets from capital expenditure. This 'had the effect, according to authority declarations largely accepted by Government, of increasing charges at double the rate otherwise necessary' (CIPFA 1987, 7); by the late 1980s, water bills were increasing above the rate of inflation in several RWA areas. The Government controls continued through to 1989, constituting not only a tool of fiscal discipline of the water companies, but also, as some water authority chairmen argued, an instrument of soft taxation in the case of profitable RWAs.

The regulatory framework created at privatization consolidated and formalized the move away from intra-regional equalization of charges. Ofwat is charged with the duty of ensuring that 'there is no undue discrimination' (Water Industry Act (1999), section 2.3.a.ii) in the setting of charges for water and sewerage services; the regulator 'interprets this to mean that, where possible, there should be no cross-subsidy between classes of consumer' (Ofwat 2000a, 23). In other words, cross-subsidies between services provided to recognized classes of consumers (e.g. from water to sewerage customers, or from industrial to domestic), as well as between individual consumers, should be eliminated. In contrast to the early phase of the nationalized era, when discrimination was understood to

occur when customers were charged a different price for a technically similar product (i.e. a unit volume of water), discrimination is implicitly understood to occur when customers are charged the same price for a product that has different supply costs in different regions. In practice, balanced by the duty to ensure 'that the interests of customers . . . in rural areas are protected' (Water Industry Act 1999), this duty has been interpreted to mean that each customer should pay, as near as is practicable, the *actual* costs they impose on the water and sewerage systems. Ofwat therefore supports widespread (although not full) penetration of meters into domestic properties, whilst arguing that any regressive burden of water charges should be met through the social security system, not through corrective measures applied via water charging mechanisms.¹⁶

Implications for consumers

The application of the principle of economic equity counters a practice common in most industrialized countries throughout much of the twentieth century, in which water regulation explicitly incorporated various social policy goals such as income redistribution, employment generation, and regional equalization (OECD 1999). The consequences of a shift from a policy goal of equalization (underpinned by a notion of social equity) towards one of efficiency maximization, and its corollary, neo-classically defined economic equity, are illustrated in Figure 3. Consumers in different regions have experienced significantly different rates of increase in charges for both water supply and sewerage services, in both relative and absolute terms (see the Appendix for a detailed analysis). Those regions with large lengths of polluted coastline have experienced increases in sewerage charges well above average, to meet increasingly stringent EU beaches and bathing water quality legislation. On both a relative and absolute basis, bills have increased much more quickly for consumers in these areas. The average unmeasured domestic water and sewerage bill in the South West region in 1999/2000, for example, stood at £390 per year, as compared with a weighted industry average of £277 and the lowest average regional charge of £208 for those served by Thames Water. In two regions charges have also been 'de-averaged' regionally, by dividing the region into several zones where charges may differ by up to

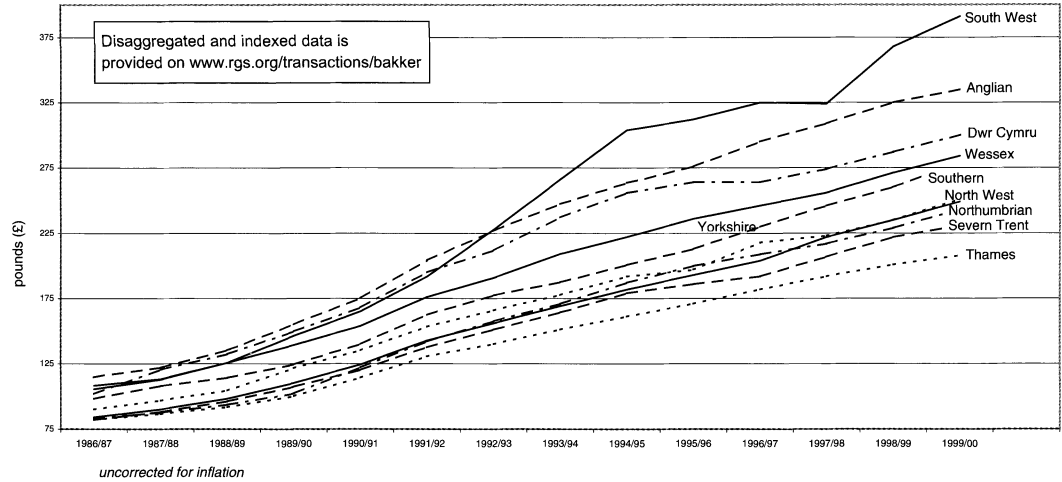


Figure 3a Water and sewerage charges (1989–00)

Source: Waterfacts (various years)

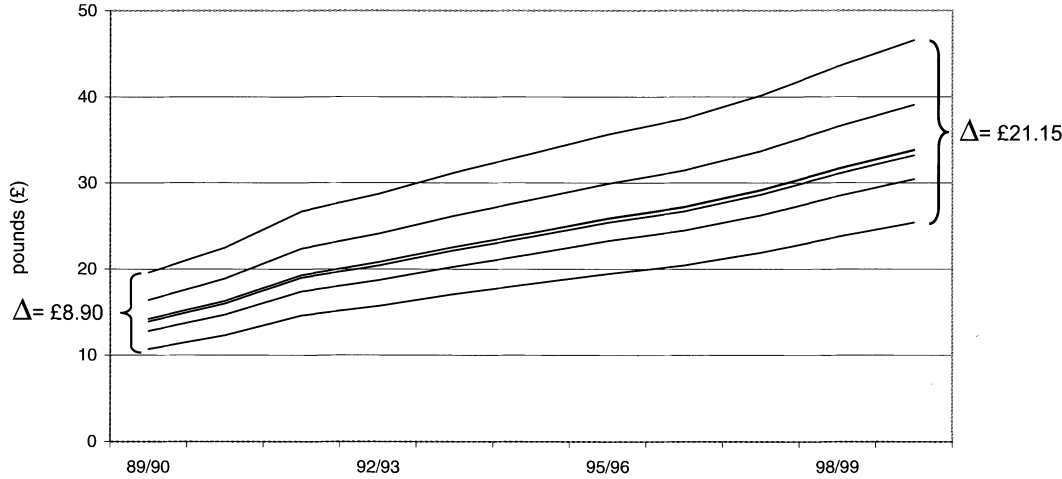


Figure 3b Example of sub-regional zonal differentiation in water charges (1989–00)

Source: OfWat (1998) Report on tariff structure and charges (Table C1)

10 per cent of customers' bills.¹⁷ This has resulted in higher absolute intra-regional differences in zone charges (Figure 3b). Other water companies have not moved to regionally de-averaged charging in part because of the complexity involved in billing, but also because of the implications for rural consumers (i.e. higher prices); de-averaged charging schemes would likely conflict with Ofwat's duty to protect rural customers (Ofwat 1999b).

A key driver of the increase in water charges above RPI across the industry has been increased capital expenditure in the industry. Higher drink-

ing water quality and lower environmental impact of water production have been two important resulting improvements. The distributional implications of the rapid increase in water charges have been widely debated (see for example NCC 1993; Thackray 1995; Which 1996). Some consumers have experienced dramatic rises in water and sewerage bills. In one study, low-income families were found to spend an average of about 4 per cent of their weekly budget to pay for water (SCF 1996) significantly higher than the national average of just over 1 per cent. As bills have risen above the rate of inflation throughout the 1990s (Figure 4), the

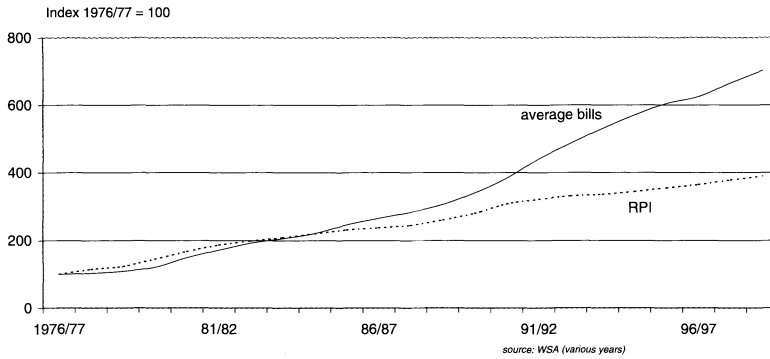


Figure 4 Average domestic water and sewerage services bills, 1976–99

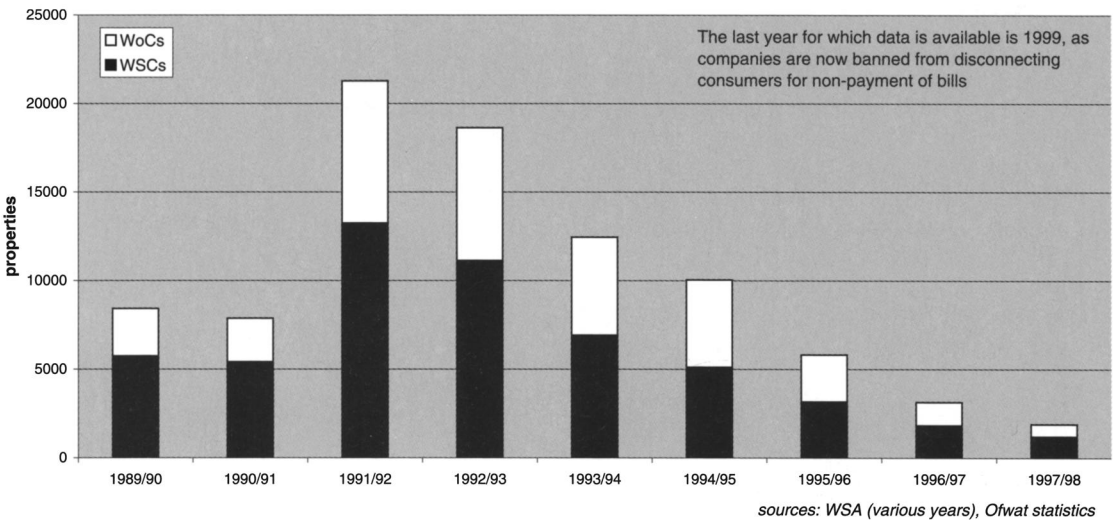


Figure 5 Disconnections for non-payment of charges, domestic properties (1986–98)

proportion of income of lower-income families spent on water and sewerage has risen faster than that of higher-income families (Drakeford 1997). While bills were rising quickly in the early 1990s, Ofwat suggested that the proportion of a single pensioner's income required to cover the cost of combined water and sewerage bills could be as high as 14 per cent in some regions by 2004/5 (Ofwat 1993).

Rapid price increases have occurred in other European countries, such as France, where large expenditure was required to meet increasingly stringent European water quality legislation (OECD 1999); insofar as price rises in England were necessitated by quality improvements, they should be regarded as independent of privatization. However, in England and Wales, rapidly increasing water charges were in some cases

exacerbated by the price differential between non-metered and metered domestic customers, the proportion of metered properties having increased significantly with the metering programmes initiated post-privatization (Table III). Some consumers – for example those with low consumption in a high-value property – will see their bills drop when a meter is introduced. Others – for example, large families in low rateable value properties – will likely see rises in bills. This differential was slightly exacerbated in some areas by the fact that by the mid-1990s, some domestic consumers with metered supplies were paying in some cases significantly more per unit volume of water than consumers with non-metered supplies (SCF 1996; Which 1996).

Partially in response to NGO campaigns such as that of Save the Children, following a

Table III Measured vs unmeasured water supply, households (1989–99)

| | Unmeasured (000) | Measured (000) | % measured |
|---------|------------------|----------------|------------|
| 1989/90 | 18,771 | 147 | 0.78 |
| 1990/91 | 19,012 | 358 | 1.88 |
| 1991/92 | 18,934 | 523 | 2.76 |
| 1992/93 | 18,742 | 637 | 3.40 |
| 1993/94 | 18,871 | 890 | 4.72 |
| 1994/95 | 18,771 | 1,087 | 5.79 |
| 1995/96 | 18,711 | 1,330 | 7.11 |
| 1996/97 | 18,517 | 1,640 | 8.86 |
| 1997/98 | 18,087 | 2,268 | 12.54 |
| 1998/99 | 17,607 | 2,992 | 16.9 |

Source: Waterfacts (1990–98)

well-publicized study of the often health-endangering measures taken by low-income families to conserve water (SCF 1996), Ofwat has required companies to equalize the rates charged to metered and non-metered customers. The regulator now requires companies to maintain a differential of no more than £30 between measured and unmeasured domestic consumers (Ofwat 1999a). This step was also encouraged by research carried out by the British Medical Association, examining the links between household water disconnections and the sharp rise in reported dysentery rates in the early 1990s (Figure 6 and Table IV) (BMA 1994).

The correlation between disconnections of domestic properties for non-payment of bills and the sharp rise in dysentery rates is not a simple one, as

there are many confounding variables. Nor was the rise in disconnection rates simply attributable to water companies' more draconian policies. The cessation of payment of water bills via local authority rates, and lack of allowance for the rapid increases in water bills during the 1990s in Income Support due to changes in the benefits system, were factors in increased consumer water debt in the 1990s (Herbert and Kempson 1995). During 1994 alone, almost 2 million households in Britain defaulted on water bills, and by the end of the year more than 1 million (5%) were behind with their payments (Herbert and Kempson 1995). Another survey found that 75% of those on Income Support have difficulty paying water bills, and that water debt is rising faster than any other component of debt for low-income families (Marvin *et al* 1996). Herbert and Kempson (1995) found that low income (as opposed to increases in water bills) was a significant factor in explaining water debt, with more than half of all households in water debt living in either local authority or housing association accommodation, and water debt being more common in the North and Midlands than elsewhere.

During the 1990s, disconnection rates and 'water poverty' became the source of much negative publicity for the water industry (Graham 1997; Harrison 1996; Huby 1995; Huby and Anthony 1997). The alleged shortcomings of the water industry were a focus of consumers groups' campaigns, as well as the Labour opposition, in particular through the campaigns of then-shadow

Table IV Disconnections of domestic properties for non-payment of charges, 1984–98

| | 84/85 | 85/86 | 86/87 | 87/88 | 88/89 | 89/90 | 90/91 | 91/92 | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Anglian | 218 | 774 | 2268 | 1586 | 1880 | 380 | 461 | 1306 | 214 | 978 | 403 | 204 | 72 | 57 |
| Dwr Cymru | 90 | 350 | 950 | 2067 | 1117 | 1342 | 1397 | 2938 | 2316 | 527 | 84 | 81 | 81 | 160 |
| Northumbrian | 70 | 59 | 300 | 480 | 870 | 558 | 618 | 705 | 709 | 363 | 183 | 149 | 56 | 17 |
| North West | 110 | 238 | 858 | 775 | 779 | 969 | 1018 | 2074 | 495 | 363 | 451 | 490 | 410 | 93 |
| Severn Trent | 650 | 1074 | 1000 | 932 | 1101 | 1079 | 409 | 1303 | 1222 | 590 | 553 | 462 | 457 | 323 |
| Southern | 115 | 1249 | 1152 | 1164 | 1354 | 813 | 538 | 2043 | 3158 | 1600 | 1330 | 360 | 34 | 0 |
| South West | 76 | 404 | 404 | 324 | 100 | 245 | 219 | 381 | 300 | 149 | 274 | 0 | 128 | 0 |
| Thames | 76 | 225 | 576 | 1594 | 935 | 14 | 16 | 61 | 852 | 1195 | 1130 | 1075 | 213 | 209 |
| Wessex | 0 | 0 | 0 | 32 | 83 | 14 | 2 | 39 | 154 | 2 | 7 | 0 | 0 | 0 |
| Yorkshire | 25 | 198 | 293 | 560 | 999 | 1068 | 1633 | 2384 | 1721 | 1149 | 700 | 348 | 382 | 346 |
| Water-only companies | 0 | | 0 | 0 | 6037 | 3531 | 2913 | 8048 | 7495 | 5536 | 4932 | 2657 | 1315 | 702 |
| Total, England and Wales* | 1430 | 4571 | 7801 | 9514 | 15255 | 10013 | 9224 | 21282 | 18636 | 12452 | 10047 | 5826 | 3148 | 1907 |

Sources: WSA (1991, 1995), Ofwat (personal communication)

Note: Disconnection of domestic consumers is now prohibited under the Water Industry Act (1999)

Labour health secretary Frank Dobson (Dobson 1995a 1995b). In response, water companies were directed by Ofwat to find alternative payment strategies for consumers, and to reduce disconnection rates, which have fallen since peaking at over 20,000 properties disconnected in 1992 (representing 1 disconnection for every 1000 households billed (Graham and Marvin 1994).

The reduction in disconnection rates is also partially attributable to the introduction of 'Budget Payment Units' (BPUs) (Marvin and Guy 1997; Marvin *et al* 1998). These payment systems, consisting of a meter, together with an electronic 'smart' card, are installed inside individual customer's homes; 33,000 households had water BPUs installed by 1998 (Bannister 1998). The consumer recharges the card (most charging outlets are in post offices), and credits are transferred to the control box once the card is inserted. Each payment purchases a volume of water, or an amount of time during which the consumer can use the water service. When the credit runs out, an emergency period allows for additional use, at the end of which the water supply is stopped. As 'Ofwat does not believe that the customer's operation of the unit in this way amounts to action by the water company to cut off the customer's supply' (Ofwat 1996b, 2), these 'self-disconnections' are not calculated in the statistics of disconnection rates. National water disconnections fell from 10,047 to 5,826 in 1995/96, whilst the number of installed BPUs grew from a few hundred to 15,077 (Harrison 1996). Two thirds of households using water pre-payment meters incurred 'self-disconnection' in the first year of use¹⁸ (*Utility Week*, 9 September 1996, 6). Many of the units were installed as an option offered to low-income households with a history of non-payment of bills as a means of managing their outstanding debts to their water company (Graham 1997). Debt repayments are, in these cases, facilitated by the automatic deduction from the smart card towards the cost of debt repayment, as well as standard charges for the water service. Simultaneously, the administrative costs posed by these low-profit marginal consumers (due to a combination of low consumption and high debt) are minimized by the water companies.

This strategic 'cherry-picking' is aided by telematics technology, newly introduced to the water industry, enabling water companies to satisfy profitable customers while minimizing the

costs imposed by unprofitable customers (Guy *et al* 1997). These developments within the water sector parallel broader trends in the utility sector, within which 'essential infrastructure resources are [being] commodified and ... differentiated in terms of cost, availability and quality over space and time' (Marvin and Guy 1997, 1). Generally, utility services post-privatization have experienced a social and spatial polarization of access and cost between low- and high-income groups (Graham and Marvin 1995). The 'rebalancing' of tariff structures, also referred to as 'cost-reflective pricing' has also occurred in gas and electricity industries, in which BPUs are much more widespread than in the water industry (Drakeford 1995, 1997). Within the energy supply sector, distinct spatial patterns in consumption of, and access to energy supply services have emerged post-privatization; however, these are less evident in the water industry. Cherry-picking and social-dumping are constrained by the universal service obligation¹⁹ placed upon water companies and, as competition amongst water companies for domestic consumers is not widespread, this further reduces the imperative to access the most profitable, and minimize service obligations to the least profitable classes of consumers.

The politics of equity

The rapid rise of water and sewerage charges since 1989 has occurred largely to pay for 'dirty' rather than 'clean' water services; water quality (of both treated water and surface and sea waters to which effluent is discharged) has as a result improved over the past decade. The majority of expenditure has been directed towards improving drinking water quality and minimizing environmental impacts, rather than towards resource development. In contrast to the energy sector, where the UK's global warming obligations are not enforced by legislation, environmental expenditure in the water industry is driven by EU environmental legislation, in which water is among the issues most comprehensively addressed.

In privatizing the industry, Government ministers believed that they had divested themselves of political responsibility for the rapid price increases associated with the high projected capital expenditures (estimated at £28 billion in 1989 prices), necessitated by the increases in standards imposed

through new European Union Directives.²⁰ After the setting of variable price caps in 1989, regional differentiation in prices increased rapidly in the early 1990s (Figure 3; see the Appendix for a detailed analysis). In the South West region, which experienced the highest overall rate of increase, a higher original price cap was exacerbated by a mid-period increase. Within the 'basket' of tariffs, the rise in domestic prices was additionally increased by the economic regulator's decision to 'rebalance' domestic and non-domestic, and metered and non-metered customers, thereby reducing cross-subsidies. Price increases of up to 20 per cent per year (up to twice that of other regions in the country) coincided with the boom and bust period of 1989–91 and falling incomes for the politically influential retired middle class residents of the region.

The Liberal Democrats (for whom the South West was a key region of support) successfully tapped the ensuing discontent in the run-up to the 1992 election, causing considerable political anxiety for the incumbent Conservative Government. Water was regarded as one of the most serious political issues facing the Government after its re-election. With new legislative burdens forthcoming at the EU level, the geographical variation of water prices drew the personal attention of the Secretary of State and the Prime Minister. An ad hoc Water Group was assembled as a Cabinet Office official sub-committee, examining water prices and their relationship to EU obligations, lobbying other member states to support the delay in implementation of the Urban Waste Water Treatment Directive, and proposing measures to mitigate the regional differentiation in water prices.

Ironically, these efforts were frustrated by the Government's commitment to retaining intact the structure of the post-privatization regulatory framework. Direct subsidies to private companies were unthinkable. Pressure on water companies to provide substantial rebates to customers in affected regions would affect company profitability, shareholder and City confidence, and undermine the Government's ongoing privatization initiatives. Equalization of water charges within water company regions was excluded by the regulatory imperative of fewer cross-subsidies and greater cost-reflectivity of prices. Greater support for low-income consumers through the social security system was precluded by the method by which the Department of Social Services calculated benefit payments, as the notional value of utility costs

embedded in benefit payments is set nationally (although housing benefit varies geographically). In spite of searching for responses, the Government was unable to act.

As water price rises levelled off in the mid-1990s, and the economy recovered, the issue died down but was then re-ignited by the Labour Party, whose critique of the water industry formed a major plank of its election platform in the run-up to the 1997 election. Following the election, one of the Labour Government's first initiatives was to call a water 'Summit', bringing together water companies and regulators in May of 1997 to announce a ten point plan²¹ intended to reduce some of what it viewed as the privatized industry's worst excesses. Announcing the 'Windfall Tax'²² on the privatized utilities later that year fulfilled another key Labour election promise, to claw back what it viewed as 'excessive' profits made in the first years after privatization due to lax regulatory regimes. The promised reviews of water charging and abstraction licensing were initiated under the auspices of the Department of the Environment, Transport and Regions (DETR 1998a 1998b 1998c 1999a 1999b), as was a broader review of utility regulation headed by the Department of Trade and Industry (DTI 1998a 1998b). Due in part to the changed political climate, Ofwat has hardened its stance considerably; significant price limit reductions were announced at the most recent Periodic Review (Ofwat 2000a).

The result of these reviews of water policy has been a set of significant changes to water regulation and the entitlements of domestic consumers. The Labour Government's stance on social justice issues within the water sector differs distinctly from that of its predecessor. Bound by their political commitment to privatization and to the perception of its success, successive Conservative Governments did not implement significant changes to the regulatory system. With no commitment to the nature of the privatized system as it stood, the Labour Government has been far freer to innovate than its predecessor. The Government has also explicitly repoliticized water policy-making, noting in its guidance on water charging that: 'ministers are better placed than an independent economic regulator to consider the acceptability of social impacts on consumers' (DETR 2000, para 2.18), and in its guidance on the designation of 'water scarcity' areas where metering can be more aggressively pursued that: 'this is finally a political

judgement, best reserved for the Secretary of State, though acting with the advice of the [Environment] Agency and the Director [of Water Services]' (DETR 2000, para 5.15).

The changes are significant. Under the provisions of the Water Industry Act (1999), disconnection of domestic water consumers, and other non-private sector users (schools, children's and residential care homes, hospitals) is prohibited, as is the use of limiting devices (e.g. trickle valves) in the case of non-payment. Company charging schemes will now have to be approved by the regulators, and Ministers will be able to give statutory guidance to the economic regulator on charging, and to make provisions for protection for vulnerable groups.²³ Households on low incomes or from vulnerable groups will have alternative charging options made available (DETR 2000; Ofwat 2000a). Consumers have the right to optional metering, provided free of charge, and the right to revert to an unmeasured tariff if they so choose.²⁴ Only 'non-essential' uses such as the use of garden sprinklers or filling of swimming pools are subject to mandatory metering. Rateable values, although outdated, will continue to be used as the basis of water charges for those consumers who choose not to have a meter, although all new homes will be metered.

The retreat from the principle of economic equity

During the late 1990s, an active debate was initiated about the social policy implications of water charging; the Government's ensuing decision to address unacceptable distributive outcomes *within* the system of water regulation rather than through the benefits system stands in distinct contrast to the policies of the first half of the decade. The debate over optional metering deepened the rift between consumer advocates (who favoured low prices), and environmental groups (who argued for higher prices in order to allow for an increase in environmental expenditure). The latter favoured metering, arguing that meters, when implemented with specific (seasonally, temporally or volumetrically variable) tariffs, would encourage conservation; the former argued that metering would impact negatively, and most severely, on low-income consumers and vulnerable groups. The economic regulator sided with the environmental regulator, supporting metering, as he argued a meter provides customers with information enabling them to control bill levels, and thus greater choice.

Despite the support for metering, and the underlying principle of economic equity, from both the environmental and economic regulators of the industry, the Secretary of State has introduced regulations designed to protect consumers who face severe hardship 'when they are using large amounts of water for essential purposes and pay on a measured basis' (DETR 2000, para 1.5); these customers can opt for a fixed charge equal to the average household charge in their region. This may represent significant savings for some consumers, much greater than the average reduction of £3.67 for the yearly average metered household water and sewerage bill now available to water service company customers through 'social tariffs' (calculated from Ofwat 2000a, Table 3). DETR calculated the average cost to non-vulnerable consumers of its provisions at less than £1 per household per year across the industry, arguing that this level would be acceptable as it is not a 'disproportionate' increase in charges (DETR 2000), the cross-subsidy being limited by the tight definition of vulnerable groups and limited number of households which may have access.

In revising water pricing policy, the Government's support for intra-regional equalization, and an underlying principle of social equity was made explicit: 'costs should be allocated between different groups of consumers on an equitable basis. Charges . . . should take account of customer's ability to pay, and address the needs of all those on low incomes' (DETR 2000, para 2.8). The guidance from the Secretary of State for the Environment to Ofwat (DETR 2000) stated that 'changes to individual bills should not depart significantly from the average of each company, and . . . phasing-in of any large changes should be considered' (Ofwat 2000a, 15). Post-privatization, a degree of intra-regional equalization had continued given the persistence of rateable value as a charging mechanism, and the unwillingness to de-average regional charges given Ofwat's duty to protect rural consumers. The Government expressed its opposition to the full application of the principle of 'economic equity' in water charging in arguing that the 'link between water use and cost [established by a meter] is precisely [what] creates the possibility of hardship for customers most in need' (DETR 2000, para 4.3.1).

In response to water industry and regulatory arguments in favour of extending protection to vulnerable groups through the social security

system, or by central financial provisions (such as the cold-weather payments to pensioners to offset fuel costs), the Government argued that: 'water is unique: a supply of clean running water is essential to individual hygiene and to public health. The Government wishes to ensure that vulnerable customers do not have to cut down on essential water use, potentially compromising their health or the health of others, because of problems affording charges' (DETR 2000, para 4.4). The change in Government policy has accordingly entailed a return to deliberate, selective cross-subsidies within the water supply system, despite the fact that the industry is now privately rather than publicly owned. These cross-subsidies, as noted above, are however far more limited in size, and target far more tightly defined groups than those of the 1970s.

Water poverty and the socialization of the firm: distributive justice reconsidered

Britain must leave behind the century-long conflict between enterprise and fairness – between the left, which promoted the good society at the expense of the good economy, and the right, which promoted the good economy at the expense of the good society, and too often achieved neither

Gordon Brown, UK Chancellor, 10 November 1999

Benevolence begins where justice ends

H. Sidgwick (1907) *The Methods of Ethics*

Labour's transformation of the water industry is strikingly limited when compared with its calls to re-nationalize the industry as late as 1992. The Government's policy interventions in the water sector since 1997 provide an example of the 'Third Way' in practice. Labour's approach to the water sector has been characterized by: a continued commitment to privatization, increased competition, and greater consumer choice; higher but less steeply increasing prices mitigated by alternative charging schemes for vulnerable groups; and more stringent regulation of companies, particularly with respect to profits, performance, and water conservation. Labour's guidance to the water regulators and highly public interventions in the industry have advanced the 'regulatory creep' initiated during the early 1990s.

The motivations for this approach differ less significantly than one might assume from those of the architects of privatization. Water remains classed in a category with other utility network commodities, for which the efficiencies generated by private ownership and exposure to the discipline of competition must be balanced by a restricted sphere of regulation applied by quasi-autonomous government agencies. The abandonment of the categorization of water as a strategic resource by the Conservatives appears to hold true for New Labour. Consistent with the ideology underlying the privatization of the utility industries, individuals are treated as customers buying a commodity, rather than as citizens entitled to a service, although Labour has introduced greater controls on company behaviour, higher service standards, and greater protection for vulnerable groups and low-income consumers.

Labour's justification for these alterations to the form, if not the substance, or water regulation stems from a moral duty:

Water is essential for life and health. Access to a sufficient supply of clean drinking water is fundamental to the well-being of citizens. The water charging system can and should make a major contribution to tackling social exclusion, supporting those in greatest need. (DETR 1999b, 11)

This terminology of basic needs, rather than of rights or entitlements, displays significant continuities with the approach to water poverty in the years following privatization. Individual water companies responded to the plight of low-income families or those with special needs by creating water charities, to which those requiring exemptions or special treatment were required to prove their eligibility. Labour's water charging proposals formally integrate this charity function into charging mechanisms, rather than in voluntary company-administered rebates or discounts for consumers. However, the government has not sought to redress or restrain inter-regional price differentiation. Nor have the more regressive elements of the water charging systems, such as the payment of environmental improvements through water charges (which impacts most highly on low income households, as opposed to more fiscally-progressive taxation), been addressed.

Labour's approach is an archetypal liberal solution, which 'recognizes inequity but seeks to

cure that inequity within an existing set of social mechanisms' (Harvey 1973, 136). It implies a distributive theory of justice, which focuses on access to material goods as a means of need-fulfilment. This contrasts with the nationalized era, during which access to a water service was regarded as a pre-condition of participation in collective social activity; an entitlement, extended to all. Water was considered to be a merit good, not one which could be sold like a commodity, or from which profits should be made. Privatization formalized an important transformation in the underlying conceptions of justice in the welfare state, through dismantling what Walzer (1983) would term the separate 'sphere of justice' for utility network services and re-classifying their products as commodities. Our collective commitment to social justice has been fundamentally altered as a result (Smith 1994 1995 1997). The Labour Government has not contested this; its innovation within this paradigm is better characterized as a task of moral resuscitation.

Widening the debate

How might more socially equitable water charging policy frameworks be developed? If inter-regional equalization were to return to the agenda because of renewed concern about regional differentiation of water and sewerage bills, one policy response might be to regionally (rather than nationally) index the notional value of water in income support payments, as is already done for housing. More broadly, the implications of alterations to the structure of ownership, and management of demand for water in distinction from the supply of water might be considered. Two issues will be addressed here: the distribution of performance gains under a regime of private, monopolistic supply of essential services; and the apparent paradox between equity and efficiency in water regulation.

First, questions of the mechanisms governing production in relation to distribution have been overlooked in the current debate. In their core business, water companies, unlike companies within the energy and telecommunications sectors, retain monopolies over the domestic market.²⁵ Prices have risen well above inflation since privatization, and are projected to continue rising in line with inflation over the next regulatory period. Over the first decade following privatization,

companies made profits well in excess of predictions, significantly outperformed the market, and paid dividends to their shareholders well above the average paid to stock market investors (Ofwat 1996a). However, there is no explicit mechanism in place for sharing performance gains with consumers. This is the primary source of the legitimacy crisis of the privatized water industry. As the analysis presented above indicated, however, the privatized regime is in many respects better for consumers than its nationalized predecessor. A constructive alternative to monopoly, I suggest, is not nationalization, but rather socialization of the firm. Re-regulation might incorporate recognition of the extent to which customers' bills are directed towards asset maintenance, and a corresponding consideration of their implicit status as shareholders.²⁶ In the case of the water industry, this might entail what Kay (1996) has termed the 'customer corporation', in which dividends paid to customer-shareholders would be linked to consumer charges, and incentive structures would differ from the present model (for example the goal of managers could be cost minimization rather than profit-maximization for a given quality level, with sharing of out-performance between managers and customers). Following the recent Periodic Review, boards of several companies announced that they were examining various strategies of 'mutualization' (mutual trusts, non-profit companies, friendly societies) that would allow the separation of asset ownership (and liability) from operational management of the water supply system (Ofwat 2000b 2000c). These proposals were withdrawn in response to regulators' opinions that they were not beneficial to consumers (Ofwat 2000d), but may be reintroduced now that a new economic regulator has been appointed.

Second, the false paradox between efficiency and equity requires deconstruction. As Harvey noted with respect to social justice and urbanization, 'production is distribution and efficiency is equity in distribution' (Harvey 1973, 15). Water, like energy, is an unusual commodity because it has a derived demand. Water is used directly for drinking, but it is also converted in appliances (dishwashers, washing machines, radiators, toilets) into the desired service (e.g. clean clothes, clean dishes, sewage disposal). Whenever water is used, the conversion efficiency of appliances will vary, so issues of capital and running cost are involved. Raising water prices to encourage more efficient

water use may also have the effect of cutting consumption of water services, as greater water efficiency requires capital expenditure that lower-income families may not be able to afford. The immediate effect of a water price rise will be a drop in consumption, particularly by the poorest families, unless accompanied by the necessary capital expenditure in the home. Politically, the division between consumer advocates and environmentalist groups might be transcended through a more comprehensive consideration of a plan of capital investment to enable greater conversion efficiency for derived demands in the water sector. This relationship has already been recognized in the energy sector, where policies of providing capital investment in energy-efficient appliances in the home – advocated as simultaneously sustainable and equitable – have been implemented to address ‘fuel poverty’ (Boardman 1991 1999). Similarly, ‘water poverty’ policies might provide subsidies to increase water efficiency in homes, targeted in particular at groups for whom water expenditure is above a threshold percentage of income.

Finally, one might critique Labour’s water policies by drawing on current critiques of the distributive paradigm that advocate enablement (Gleeson 1997), or an equalization of capabilities to function rather than mere access to material goods (Sen 1999). This echoes the presupposition of the nationalized era, supplying a service rather than a commodity, focusing on the derived demand (e.g. public health benefits, hygiene) rather than the material good. Labour’s moral stance, it should be noted, is consistent with the distributive paradigm and inconsistent with the alternative notions of justice referred to above. It resuscitates a notion of justice-as-virtue, rather than the narrower Thatcherite conception of justice-as-freedom. But both conceptions of justice as enacted through the welfare state ‘construct citizens as client-consumers, discouraging their active participation in public life . . . [and] the distributive paradigm of justice functions ideologically to reinforce this depoliticization’ (Young 1990, 66). Interest-group pluralism, rather than a broader-based democratization of water policy (which might take the form of a reinclusion of local government and greater consumer representation on water company boards), has generally characterized the post-privatization policy process. As Young (1990) notes, this well-meaning ‘ethic of care’ functions to

restrict public conflict to issues of distribution, not equally important issues of exclusion, at odds with Labour’s stated concern over social exclusion in Britain.

Conclusion

The evolution of water charging policies in England and Wales over the past three decades has been underpinned by a shift in the prioritization of equity from social towards economic equity, and from the ability to pay principle towards the benefit principle. Given the incomplete application of policies of equalization, and the incomplete penetration of metering and application of marginal cost pricing, neither principle of equity has been fully applied in practice. The current consensus – that universal metering is theoretically desirable but impractical and expensive – implies that temporal and spatial cross-subsidies will continue in the water sector. The emphasis on economic equity has shifted the balance of these cross-subsidies. Increasingly stringent regulation, and the direct intervention of the government on numerous occasions in the late 1990s have sought to mitigate some of the most politically unacceptable effects. If the government’s stated goal remains tackling social exclusion, this paper recommends that the debate move beyond the moral-distributive paradigm, that policy-makers move away from the false paradox between equity and efficiency and implement water policies which simultaneously promote sustainability and equity, and that the government re-examine the questions of selective equalization via the social security system and alternative ownership structures in the water industry.

Postscript

The negative price limits for the year 2000–2001 announced in the most recent Periodic Review will reduce bills by an average of 12.4 per cent in real terms, with broadly stable prices until 2005 (Ofwat 2000a). This amounts to an average reduction in bills for household customers of £30 (DETR 2000). Share prices fell roughly 50 per cent across the industry following the announcement of the new price limits.

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Appendix: Assessment of some distributive aspects of water charging

This analysis of increases in inter-regional variation of water charges since 1989 was conducted using

Table A1 Average unmeasured water and sewerage charges, per household, 1999/2000

| Region | (£) |
|------------------|-----|
| South West | 390 |
| Anglian | 335 |
| Dwr Cymru | 300 |
| Wessex | 284 |
| Southern | 279 |
| Yorkshire | 251 |
| North West | 249 |
| Northumbrian | 243 |
| Severn Trent | 231 |
| Thames | 208 |
| Weighted average | 277 |

Source: WSA (2000)

data published by the water industry's trade body, 'Water UK' in its annual *Waterfacts* ((2000); the water service companies' trade body, known as the 'Water Services Association' published the 1989–1998 issues). The data selected were for unmeasured (i.e. unmetered) household charges; 80 per cent of households were charged on an unmeasured basis in 2000 (Ofwat 2000a).

Average water and sewerage charges per household have risen significantly since 1989 (Tables A1 and A2). As indicated by Figure 3 (above) some regions have experienced much higher rates of increase than others (Table A3). South West region – with the highest average unmeasured charge in 1999/00 – has the highest ratio of the current charge to that at the time of privatization, and Dwr Cymru – with the third highest average

Table A2 Ratio of 1999/2000 price to 1989/90 price

| Water and sewerage company | Ratio |
|----------------------------|-------|
| South West | 2.67 |
| Northumbrian | 2.38 |
| North West | 2.26 |
| Southern | 2.24 |
| Severn Trent | 2.15 |
| Anglian | 2.13 |
| Thames | 2.08 |
| Yorkshire | 2.06 |
| Wessex | 2.04 |
| Dwr Cymru | 2.00 |

Not corrected for inflation

Table A3 Percentage rate of increase in average household unmeasured water and sewerage charges, per region, per year*

| | 89/90 | 90/91 | 91/92 | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 | 98/99 | 99/00 | average |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Anglian | 13 | 13 | 17 | 11 | 9 | 7 | 5 | 7 | 5 | 5 | 2 | 8 |
| Dwr Cymru | 11 | 12 | 16 | 9 | 12 | 8 | 3 | 0 | 4 | 5 | 5 | 8 |
| Northumbrian | 8 | 20 | 16 | 11 | 8 | 10 | 7 | 5 | 4 | 6 | 6 | 9 |
| North West | 11 | 13 | 15 | 9 | 8 | 8 | 6 | 6 | 9 | 6 | 6 | 9 |
| Severn Trent | 10 | 12 | 15 | 10 | 9 | 9 | 4 | 3 | 8 | 7 | 4 | 8 |
| Southern | 8 | 13 | 16 | 9 | 6 | 7 | 6 | 8 | 7 | 6 | 7 | 8 |
| South West | 14 | 13 | 16 | 19 | 17 | 14 | 3 | 4 | 0 | 14 | 6 | 11 |
| Thames | 8 | 14 | 14 | 7 | 8 | 7 | 6 | 6 | 5 | 5 | 3 | 8 |
| Wessex | 9 | 10 | 15 | 8 | 10 | 6 | 6 | 4 | 4 | 6 | 5 | 8 |
| Yorkshire | 15 | 11 | 13 | 8 | 7 | 8 | 3 | 11 | 2 | 5 | 7 | 8 |

*Uncorrected for inflation

Note the rapid increase over the period 90/91–94/95, due to higher K values, and higher inflation (see Figures 3 and 4)

Table A4 Ratio of highest to lowest average regional unmeasured water and sewerage charges, per household, per year

| Year | 88/89 | 89/90 | 90/91 | 91/92 | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 | 98/99 | 99/00 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | 1.45 | 1.56 | 1.57 | 1.58 | 1.63 | 1.76 | 1.89 | 1.82 | 1.79 | 1.69 | 1.83 | 1.88 |

Table A5 Highest and lowest average regional household water/sewerage bill, 1988–2000

| | Highest (£) | Lowest (£) | Weighted average | Highest, % difference from average | Lowest, % difference from average |
|-----------|----------------|---------------|---------------------|--|---|
| 1988/89 | 135 | 93 | 107 | 15 | 13 |
| 1989/90 | 156 | 100 | 119 | 18 | 16 |
| 1990/91 | 177 | 113 | 134 | 16 | 16 |
| 1991/92 | 204 | 129 | 155 | 22 | 17 |
| 1992/93 | 228 | 140 | 170 | 25 | 18 |
| 1993/94 | 266 | 151 | 185 | 37 | 18 |
| 1994/95 | 304 | 161 | 198 | 48 | 19 |
| 1995/96 | 312 | 171 | 208 | 44 | 18 |
| 1996/97 | 325 | 182 | 220 | 35 | 17 |
| 1997/98 | 324 | 192 | 247 | 25 | 22 |
| 1998/99 | 368 | 201 | 263 | 35 | 24 |
| 1999/2000 | 390 | 208 | 277 | 141 | 25 |

The table is based on charges made by the ten water service companies and the water bill is calculated on an unmeasured basis, rather than measured. If the smaller water supply companies were included, variations would be even more pronounced.

Table A6 Coefficient of variation between average unmeasured regional household charges for water and sewerage, per year

| 1989/90 | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/2000 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|
| 0.156 | 0.149 | 0.154 | 0.169 | 0.190 | 0.201 | 0.193 | 0.186 | 0.168 | 0.185 | 0.184 |

unmeasured charge in 1999/00 – the lowest (Table A2). The absolute difference between average regional prices has also increased; the ratio of highest to lowest average regional price for combined water and sewerage bills has risen from 1.55 to 1.88 (Table A4). But this measure does not capture the degree of inter-regional variation. Table A5 presents a common method of assessing increases or decreases in regional variation; this only permits comparison of the highest and lowest average regional charges. The yearly change in the coefficient of variation of regional charges (Table A6) provides a more accurate method of assessing the change in inter-regional variation across all regions.

Notes

- 1 See O'Connell-Davidson (1993) and Saunders and Harris (1994) for analysis of the implications of water privatization for employees and shareholders.
- 2 The majority of water suppliers were already publicly owned in 1974. Nationalization entailed the consolidation of the largely municipally controlled industry and introduction of central government control.
- 3 Water management in Northern Ireland and Scotland is administratively distinct from that in England and Wales. The Northern Irish and Scottish water industries were never privatized.
- 4 British Telecom was privatized in 1984 and British Gas in 1986.
- 5 Ten of these companies were newly privatized regional water authorities; responsible for water and

- sewerage services, they are conventionally known as 'water services companies'. Nineteen smaller companies, responsible solely for water supply, are referred to as 'water supply companies'; these tended to operate in urban areas (reflecting their origins as Victorian-era water companies), and were usually much smaller, both in terms of numbers of customers and turnover, than the regional water authorities. The water supply companies were private, but their statutory provisions usually included a dividend cap; at privatization, their legal status and regulatory framework was harmonized with that of the water service companies.
- 6 The reporting requirements include indicators (e.g. numbers of (water saving) cistern devices), and companies are asked to provide a figure on the total volume and total costs of the water efficiency savings.
 - 7 Environment Act 1995.
 - 8 Anonymous source, interview with author, September 1997.
 - 9 Promoting efficiency is one of the primary duties of the economic regulator of the water industry, as specified in the Water Industry Act.
 - 10 Under the UK system of price cap regulation of utilities, a price cap is the maximum price increase a utility company is allowed to charge its customer base. The generic price cap determination formula for privatized utilities is: $RPI-X=K$, where RPI is the retail price index and X is an efficiency factor; prices will normally rise slower than the rate of inflation. Ofwat uses a variant of this formula, where charges are controlled by the price limit formula $RPI+K+U$, where U is any price limit not taken up in previous years, and K incorporates the cost of expenditure on water quality improvements minus an efficiency factor: $K=Q-X$. During the first two reviews of the industry by the regulator, $|Q|>|X|$ due to high capital expenditure required to meet increasingly stringent EU water quality legislation. Thus $RPI+Q-X>0$, with prices rising above the rate of inflation, unlike other privatized utilities.
 - 11 The 'Water Charges Equalization Act', Public General Acts & Measures, 1977, c. 41, came into force on 20 October 1977. The Act was 'to provide for the payment of equalization levies and payments by and to statutory water undertakers in England and Wales'. (s.1(1)). A statutory instrument was required each year levies and payments were to be made.
 - 12 Section 4(2) (a) and (b) of the Water Charges Equalization Act specify that 'the amount of any equalization levy and . . . any equalization payment which a statutory water company is entitled to receive in respect of any year shall be passed on in full, in the form of increased or reduced charges, to the persons to whom water is supplied by the company on an unmeasured basis in the corresponding accounting period'.
 - 13 S.I. 1977/2165; S.I. 1978/1921; S.I. 1979/1754.
 - 14 The Layfield report, for example, argued that rateable values were an imperfect measure of household income (Report of the Committee of Enquiry into Local Government Finance. HMSO Cmnd 6453, 1976).
 - 15 Under S.I. 1981/826.
 - 16 Ofwat commissioned an extensive study on the distributional aspects of various methods of charging households for water in the early 1990s. See Rajah and Smith (1993).
 - 17 Seven-Trent and Thames Water charge on a zonal basis, and other companies have different charging areas as a result of company mergers (e.g. South East Water, Sutton and East Surrey water supply companies) (Ofwat 1990, 121).
 - 18 BPU's were declared unlawful by the High Court in March 1998. Accordingly, no new BPU's will be installed, but 'companies will allow existing customers with units to continue to use them as a way of paying their bills' (Ofwat, News Release, 12 March 1998). The number of BPU's in commission has been steadily reducing since 1998 (Ofwat personal communication).
 - 19 Under the provision of the Water Industry Act (1991), and unlike other utilities, water undertakers have a duty of universal provision within their area of operation; they must 'provide supplies of water to premises in [their] area and . . . make such supplies available to persons who demand them' (Water Act, s. 37 (1)).
 - 20 The key Directives were 80/778/EEC (Water Quality), 91/271/EEC (Beaches and Bathing Water Quality), and the then-forthcoming 91/676/EEC (Urban Waste Water Treatment).
 - 21 The points included: mandatory leakage targets; placing water companies under a statutory duty to conserve water in carrying out their functions; legally-binding amendments to water company licences requiring compensation to customers affected by drought-related restrictions; and announcements that the Government would conduct a broad review of water charging and metering policies and the abstraction licensing system.
 - 22 The proceeds of the one-off tax were used to finance the Government's 'Welfare-to-Work' programme. The amount paid per utility company was based on the profits made by in the first four years in the private sector. The tax raised approximately £5 billion in total, of which 30% was paid by the water sector.
 - 23 A person is a member of a vulnerable group if s/he 'receives one of a range of six specific benefits and either is entitled to receive child benefit for three or more dependent children who reside in the premises; or is diagnosed, or has a child who is diagnosed as suffering from one of five specified medical conditions, for which they are receiving treatment, and

which causes them to use a significant additional volume of water' (Ofwat 2000a, 20).

- 24 Ofwat released optional metering guidelines in 1992, under which customers could opt to have a meter (Ofwat 1992) Labour's 'optional metering' referred to the possibility that consumers, once having had a meter installed, could choose to revert back to rateable value. 'Free' metering (i.e. the company paying the cost of the installation) is required under the Water Industry Act 1999 and was not official Ofwat policy before this time (Ofwat, personal communication). For new homes, and those substantially altered since 1990, metering is automatic as there are no rateable values.
- 25 Limited competition for large-scale, industrial consumers has been introduced through inset appointments.
- 26 For example, under current accounting protocols, repairs to pipes – asset maintenance – count as operating expenditure. Customers' bills are thus directed in part towards asset maintenance, as well as to operating expenditure. In an ideal-type model of the firm, all asset maintenance should be counted as capital expenditure, and funded through equity or debt. Where customers are contributing to the asset base, their funds are being used in a manner analogous to that of shareholders, who expect a rate of return for their investment.

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