

Agenda

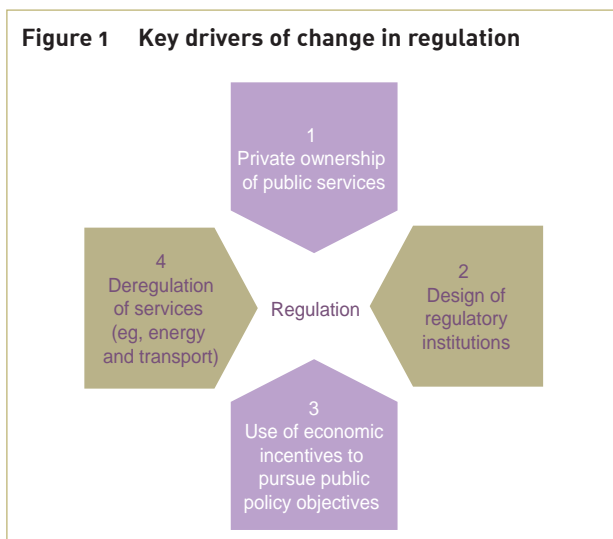
Advancing economics in business

25 years in regulation: a revolution in pipes, cables and tracks

As part of the series commemorating 25 years since the founding of Oxera, Derek Holt, Principal, looks back at the key events and ideas that have shaped today’s regulatory landscape, and considers what might lie ahead

For today’s financiers, utility managers and consumers, it is perhaps hard to imagine the way infrastructure provision and funding was undertaken in the UK and around most of the developed world only 25 years ago. In the UK in 1982, water, electricity and gas services were provided by publicly owned, regional boards. The concept of choice of utility services for consumers was alien—as indeed was the prospect of foreign ownership of infrastructure critical to a nation’s economic well-being. The public debate on the performance of the sector has grown inexorably as the issues confronting the utility sectors, such as security of supply, capacity constraints, and environmental challenges, have grown in importance.

With so many changes in evidence, and with such diversity in the sector-specific issues, identifying the defining moments is difficult, if not impossible. Nevertheless, this article sets out four fundamental changes that have taken place, both in the UK and elsewhere (see Figure 1), and describes some of the far-reaching effects that these have had.



Ownership of critical public infrastructure



Derek Holt, Oxera Principal

In 1982 virtually all key infrastructure in the UK, from electricity, gas, water, airports and ports, to telecoms and postal services, was publicly owned. The same holds true in virtually all the developed world, with various exceptions such as the operation of private water concessions in France, and the presence of Investor Owned Utilities providing energy services in the USA. By and large, core utility services were deemed ‘too strategic’ to be held by private, profit-motivated investors, and government was thought to have a direct and legitimate interest in retaining control over the planning and funding of these assets.

Over the course of less than a decade, what had not so long ago been unthinkable happened as the Conservative government of the time privatised most of the state’s holdings in core infrastructure, all through public offerings. British Telecommunications (BT) was first in 1984, followed closely by British Gas (1986), BAA (1987), the water and sewerage companies (1989), and the regional electricity companies (RECs) (1990). Over £30 billion of assets were transferred to private and institutional shareholders in the decade to 1990.¹

The process was slower in the rest of Europe, and in some areas is still occurring. Nevertheless, the assumption that public utility services must remain in state hands is now the exception rather than the rule.

There were many reasons for the privatisation wave: a desire to obtain key injections of funds to the Treasury; to develop a generation of private shareholders, known in Britain as ‘Sids’ after the British Gas marketing

The views expressed in this article are those of the author.

promotion; and to avoid public liability for the significant investment burdens coming due in the sectors, to name but a few. Equally, there were detractors: those who considered the process as a 'selling-off of the family silver', and who considered the steep discount of the share values to the underlying replacement cost of the assets sold as evidence of a short-sighted dash for cash.

The effects of this ownership change were wide-ranging. New sources of capital were available, ultimately leading to an increase in the potential for the industries to invest. Shareholders, particularly in the early years following privatisation, made high returns, driven by outperformance of regulatory contracts, which were generally initially set by government with an interest in ensuring that the companies proved to be successful.

A critical issue, and one which was often difficult to address, was the public (and often political) mistrust of the new privately owned utilities. This reached a peak in the mid-to-late 1990s, when the sector appeared to be mired in a public relations minefield—lambasted for excessive profits on the one hand and, on the other, for what was perceived as poor management of the business when challenging circumstances arose such as droughts or power outages. The term 'fat cats' was applied to those utility executives, who, having toiled for modest salaries when under public ownership, were now earning substantial bonuses in response to strong share-price performance post-privatisation. Dissatisfaction with the high level of profits generated by the privatised utilities, and the corresponding earnings of their shareholders, ultimately led to more aggressive regulatory intervention, as well as the introduction of the Windfall Tax in 1997.

Privatisation also opened the door to a new game in town as utilities became actively pursued in the mergers and acquisitions arena. Once government golden shares were removed, usually within a few years of each privatisation, it was not long before the prospects for efficiencies, cash flows and synergies encouraged a wide range of bidders. Within the course of just two years, 13 of the 14 independent RECs were bought—by each other, by US and, later, European energy companies, and by their fellow privatised water companies. This bidding frenzy paved the way for a number of ownership models.

- **The multi-utility**—pioneered in the UK by United Utilities, formed when North West Water purchased Norweb to create a water and electricity distribution business in the north-west of England. Others were also formed, but most have since disbanded, having failed to generate the synergies anticipated. United Utilities subsequently acquired a gas distribution business, although it is now selling its electricity distribution business while intending to retain an operations role.

- **Vertically integrated utilities**—large generating businesses sought to hedge their upstream exposure by purchasing network businesses (and their associated supply businesses).
- **Diversified utilities**—many utilities began to look for sources of earnings growth beyond those available within geographically constrained regulated markets. Waste management, construction and outsourcing solutions firms, and concession contracts in developing countries were common targets for expansion, although they led to mixed financial results.
- **Core utilities**—the concept of the pure utility, with relatively stable cash flows, gained favour as financial innovators radically overhauled the capital structure. Many of the privatised businesses began life with little debt, in part to provide breathing space for new investment. While balance sheets did change incrementally as a result of net capital investment (usually funded by debt), and healthy dividend returns to shareholders were common, the greatest changes emerged as a result of capital restructurings, including share buybacks, as well as debt-funded acquisitions, leading to gearing levels rising in some cases to 80% or more of the regulated value.

Each of these trends sparked concerns. Would too much power over public services be exerted in regions if multi-utilities proliferated? Could the highly leveraged structures withstand shocks to the financial environment without causing large cutbacks to investment or even disruption of services?

Perhaps one of the ongoing politically sensitive issues has been the question of who owns the assets. While at the outset pension funds and insurance companies were key investors, the trend for foreign companies to acquire 'British' assets soon developed. Would this not weaken the fabric of British life, or undermine the ability to preserve security of supply of these critical services?

While US investor-owned utilities launched the first wave of utility acquisitions in the mid-1990s, French, German and Spanish energy, water and construction firms soon followed. With some exceptions, the response has been relatively muted—perhaps because possible courses of action for the UK government are limited, unless it risks jeopardising its 'open market' mantra in Europe. Regulators, for their part, have focused on the implications of ownership and financing specifically for the firms' ability to withstand financial shocks. While licences have certainly been tightened to increase ring-fencing, nationality has been less of an issue.

In summary, the ownership revolution of the 1980s paved the way for new sources of capital, management approaches, incentives schemes, and a focus on

efficiency. It also led to experiments in market structure, with variations in the scale and scope of operators, as well as the injection of expertise from new owners. Less positively, it has often given rise to concerns about 'legitimacy': what right do private shareholders, or managers, have to secure fortunes from providing basic public services? This leads closely to the next key event—the development of regulatory institutions.

Back at the office

Perhaps only slightly less in the public eye, the offices of the regulators charged with overseeing the newly privatised utilities have also undergone profound change. The original idea was simple: if private owners were going to operate what had been (and in most cases were still to be, at least at the beginning) public monopolies, clear rules of behaviour would need to be developed to ensure that the whole process worked well. Operators were required to hold detailed licences, ensuring that prices were controlled, and that both safety and security of supply were maintained.

The first critical point regarding the new regulatory authorities was that they were 'independent' of government (albeit appointed by ministers). This meant separate funding, direct from the industry, as opposed to reliance on annual treasury budget handouts; freedom from political interference; and a clear set of duties enshrined in legislation.

In most cases, foremost among these duties has been the protection of consumers, reflecting the market power that monopoly owners of pipelines, cables or distribution networks would be able to exercise in the absence of stringent regulatory oversight. However, two other important duties of regulators within the standard model have been to promote competition (see below) and to enable firms to finance their functions.

Independence of regulation is a relative term. Regulators were still accountable to Parliament for their performance, and many Select Committee inquiries have been launched to investigate whether the regulators have performed adequately.²

There have of course been occasions where independence has been threatened—eg, when the government withdrew Railtrack's funding in 2002, contributing to the bankruptcy of the firm despite the then regulator's belief that a regulatory solution could have been achieved.³ A more explicit example was the government's decision to disregard the recommendations of the Monopolies and Mergers Commission in 1993 regarding the break-up of British Gas in light of questions about the slow pace of growth in new entry into the liberalised gas market,⁴ due to political concerns regarding the need to preserve a strong national gas company.

While governments have a clear remit for introducing policy in areas where market failures abound (eg, to help confront environmental challenges), pricing and market functioning has been clearly 'outside' this remit since the development of the regulatory offices. Regulators themselves face the twin pressures of pulling back, allowing emerging markets to develop (at least outside of the natural monopoly areas), and calls from interested parties to intervene when the market outcome is not to their liking. One example relates to the rise in energy bills facing consumers between 2003 and 2006. When various factors, from international trends in oil markets, to constraints in import capacity on gas interconnectors, led to rapidly increasing retail prices, there were calls for the regulator to step in to help protect consumers. Government and regulators alike resisted on the basis that to intervene would send the wrong signal to investors and prospective entrants, which would be more detrimental to consumer interests in the longer term. It may not have been popular, but it received support from the economists!

While the notion of independence has remained an overriding factor, a number of key changes have nevertheless taken place within regulatory bodies over the past 25 years.

- **The cult of personality has been reduced**—the powers of regulation were originally vested in individual Directors-General. While these had offices to provide supporting analysis, the individuals were ultimately solely accountable and sometimes became the focal point of public disputes with the companies they were regulating. The Utilities Act 2000 changed this, leading to the concept of regulatory boards. This promotes a degree of stability in the decision-making process, even if the 'fireworks' have been toned down.
- **The approach to regulation**—an observer of the early price control reviews would be amazed at the changes in the process. There were two consultation documents published in the 1994 distribution review—this had increased to 21 by the 2004 review. The level of detail has been driven by the development of new techniques for benchmarking; a greater understanding of the key issues across all stakeholders, making for much more intensive debate; and the need to develop a highly credible evidence base to support decisions reached, the absence of which could lead to a potentially embarrassing dressing-down by the appeals body, the Competition Commission. Alongside the increase in analysis, information requirements have also tended to grow. While Ofwat was an early innovator in developing (as far as possible, at least) a systematic, consistent set of cost, asset and investment data across companies, others have followed. This can lead to improved capability for

benchmarking, particularly where the combination of cross-sectoral and time-series data provides a rich panel of data. Nevertheless, as discussed below, the complexity of regulation is now far removed from the original concept of incentive regulation.

RPI – X and incentives

It is nearly 25 years since Stephen Littlechild's now-famous report commissioned by the government on how to regulate BT once it was privatised.⁵ The RPI – X price cap design set out in the report was adopted, and has become the basis for regulating infrastructure investment around the world, from Latin America to Australia. The idea is simple: by setting prices in advance, the regulator incentivises the company to increase profits through becoming more cost-efficient. These reductions in costs are revealed to the regulator, and made available for passing on as savings to consumers at the next regulatory review. The basic principle has withstood the test of time, having been maintained since the first infrastructure privatisation in 1984.

Of course, the detailed application of the idea has been very different to the original conception. It was originally considered to be a temporary measure, requiring only high-level cost assessments. This put less weight on 'getting the right answer' than ensuring that the profile of prices broadly reflected investment requirements. In reality, a number of factors have meant that this simple conception of regulation was not sustainable.

First, political pressures meant that regulators could not merely stand by in cases where firms were systematically earning returns far above the cost of capital. This led to calls for the reform of 'lax' regulation, and a need to delve into the company's costs and business planning to a much greater extent than had originally been considered reasonable.

Second, the availability of new tools and techniques of cost-benefit analysis has encouraged much more systematic analysis of regulatory and policy decisions. While this can clearly add value by ensuring that regulators clarify the rationale for policy, it may also provide scope for overly precise estimates of developments which are actually uncertain.

Finally, the growing complexity of regulation reflects the fact that the early characterisation of 'price control' was only one aspect of what consumers and other stakeholders cared about. For example, early versions of price controls for BT failed to include incentives for timely connections or maintenance of (expensive) public telephone boxes. Naturally, performance in these areas deteriorated. Regulators have now developed an array of tools to address such concerns, from the publication of 'league tables', to benchmarking targets with penalty/reward rates for every unit of under- or overperformance.

The development of the incentive framework has even extended beyond cost reductions and quality improvements to the area of 'information provision'. A key theme of the regulatory economics literature is that regulators face an information deficit, at least relative to the firms they oversee. Tools to encourage companies to reveal accurate expectations about the future, rather than to 'game' the system, have been developed in the literature and adopted in practice.⁶

Despite concerns about the growth in complexity of regulation, the performance of incentive tools in delivering cost reductions and quality improvements has been dramatic.⁷ Nevertheless, the debate on the impacts of the regime for the longer-term sustainability of networks has persisted, despite the significant growth in investment in the energy, water and airports sectors since privatisation.

Liberalisation

The fourth key driver of the regulatory landscape has been the development of competition in sectors where many thought it would never prevail. The market structure at privatisation was in many cases a vertically integrated monopoly, sometimes regional and sometimes national in scope. Often, this simply reflected the organisational structure of the publicly held organisation. Selling it 'whole' was perceived as being easier, and likely to raise more money for the Treasury.

Competition was, in many cases, an afterthought. It was sometimes introduced gradually, starting with large industrial customers, and extending later to smaller ones. The early record on competition was poor: Mercury failed for many years to develop as a strong competitor to BT, and in the gas sector British Gas retained a dominant share of upstream gas, which made it difficult for entrants to gain a foothold in the market for supply to downstream users, even in a notionally liberalised environment.

These challenges led to a number of innovations in the way in which regulatory policy evolved in the infrastructure industries, including the following.

- **Ring-fencing and structural separation.** With deregulation of retail services in communications, energy and even water being a common theme, a range of tools has been developed to encourage fair access to incumbent networks. Regulatory options for focusing on equivalence of access to the wholesale networks have ranged from information disclosure and accounting separation to the much more 'severe' ownership split. While there is perhaps little question that the economic incentives for non-discrimination are more clear-cut when ownership is split, there is also a question of the underlying efficiency of the market structure. Ofcom's review of BT, leading to the

establishment of a separate wholesale business (Openreach), exemplifies the trend towards 'equivalence' wholesale access regulation.⁸

- **Access rights and charging principles.** Where bottleneck facilities exist, ongoing price regulation is likely. The debate on the appropriate basis for access, from the 'efficient component pricing rule', based on the opportunity costs of incumbents, to long-run incremental costing, is still going strong, as evidenced by the recent cases in the water sector.⁹ As always, regulators found that they faced difficult trade-offs when reaching decisions. Setting an excessive access price could stifle competition, since the resulting thin margin would squeeze out any profitable opportunities. However, there is also a risk that setting the charge too low could undermine the scope for new 'facilities-based' competition.

Ultimately, the development of the regulatory debate has demonstrated that regulation and competition are two sides of the same coin, often with similar objectives. While there will remain core areas of 'natural monopolies' where in-the-market competition is not likely to be viable, tools and concepts such as profitability analysis, margin squeeze and cost-reflectivity are increasingly common to both strands of economic thinking.

What next for regulation?

If the past 25 years have heralded a wave of new market structures, institutions and regulatory techniques, what might the next 25 bring? Will a similarly radical approach to the delivery of services be developed? Will market convergence develop to the point where supra-national regulators take over from national authorities? Or, if the localised delivery of services develops, would the concepts of natural monopoly still be relevant, and would market definition need to be considered at local levels of geography? Will new ownership models, perhaps based around consumer representation, take over from PLCs and private equity?

The development of incentive regulation is here to stay, but just as the introduction of sound financial incentives has made rapid progress in the utility sector, a growing literature on the failure of the standard model to account for consumer behaviour has emerged in recent years.¹⁰ Will new techniques based on this 'behavioural economics' literature be one of the defining aspects of the next wave of developments in the regulatory world? We look forward to thinking hard about the key questions—and the answers—for the next 25 years.

Derek Holt

¹ The replacement cost of the assets was far greater than the amount raised by the privatisation sales, reflecting historical cross-subsidies of utility prices through general taxation. Source: Datastream.

² See, for example, Trade and Industry Select Committee (2000), The Office of Telecommunications, Evidence taken 7 December 1999, Printed 25 January 2000, HC 93-i.

³ See articles in *FT Comment & Analysis*, available at <http://search.ft.com/searchResults?page=1&queryText=%22Tom+Winsor%22&activeTab=ftComment>.

⁴ Mergers and Monopolies Commission (1993), 'Gas: Volume 1 of Reports under the Fair Trading Act 1973 on the Supply within Great Britain of Gas through Pipes to Tariff and Non-tariff Customers, and the Supply within Great Britain of the Conveyance or Storage of Gas by Public Gas Supplies'.

⁵ Littlechild, S.C. (1983), 'Regulation of British Telecommunications' Profitability', HM Stationery Office.

⁶ Laffont, J. and Tirole, J. (1993), *A Theory of Incentives in Procurement and Regulation*, Cambridge, MA: MIT Press.

⁷ See, for example, *Agenda* (2005), 'Financing Investment: Can regulation Adapt to New Challenges?', April. Available at www.oxera.com.

⁸ Ofcom (2005), 'Final statements on the Strategic Review of Telecommunications, and Undertakings in Lieu of a Reference under the Enterprise Act 2002', September.

⁹ Competition Appeal Tribunal (2006), *Albion Water Limited v Water Services Regulation Authority*.

¹⁰ See, for example, *Agenda* (2007), 'When Economics Met Psychology: Rethinking Incentives', March. Available at www.oxera.com.

If you have any questions regarding the issues raised in this article, please contact Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

Other articles in the November issue of *Agenda* include:

- **a new route for predation? the High Court ruling in the *CCT v Arriva* bus case**
- **setting the auditors free: liberalising the ownership rules of audit firms**
- **the new breed of patent infringement plaintiff: are they a good thing?**
Peter Langley and David Bottomley, Origin

For details of how to subscribe to *Agenda*, please email agenda@oxera.com, or visit our website

www.oxera.com