

NETWORKING SKILLS

THE ECONOMICS OF PUBLIC INFRASTRUCTURE

In 1999, the UK public sector had just undergone two decades of revolutionary change. Competition had been introduced into the delivery of public services, through contracting-out and private finance. But change had been greatest in public infrastructure, through years of privatisation. And to some degree, many other countries followed suit. Governments had to learn the skills of regulating privately owned utilities fast, and the science of regulation was perhaps the fastest-growing application of economics. Throughout Europe, Frontier worked extensively on the economic issues that arose in the energy, telecoms, transport and water sectors, and it is still an extremely important part of our work. The following chapters explore the evolution of these industries and their regulation, and in particular the relative importance of ownership, regulation and (where it is feasible) competition to their performance.

Public utilities, for whose services users pay at the point of use rather than through taxation, were easiest to “privatise” – and 40 or 50 years after many of their forerunners had been nationalised in the UK, several major state-owned enterprises had been floated on the stock market in the 1980s and 1990s. Energy, communications, water, air and rail transport – all were transformed into publicly quoted companies, with government substituting arm’s length regulation for hands-on management and ownership. Of all the networks underpinning the economy, only roads (bar a few new toll motorways) remained in state hands – and the Post Office, which was not privatised until 2013.

The early wins from privatisation, such as an end to months of waiting for a telephone line, seemed thoroughly positive. In general, the change increased efficiency, and successful privatised businesses expanded into new markets. Substantial sale proceeds also boosted public finances. And although the change was most spectacular in the UK, other countries began both to privatise state enterprises in competitive sectors (e.g. banks such as Société Générale and Le Crédit Lyonnais) and to move some of their infrastructure further out of direct government control too.

CHANGE WAS

Privatisation created the need for a rash of new sector-specific regulators, such as Ofcom, Ofwat and Ofgem in the UK, and Arafer (road and rail) and ASI (airports) in France (soon to merge into a single regulator). Key to the regulatory approach to each sector was the degree of competition – the economist’s first weapon of choice, since the days of Adam Smith and his “invisible hand” – that was seen as feasible. Economics, in short, provided the framework of questions for regulators to ask.

Were there still natural monopolies requiring hands-on regulation? Or dominant incumbents? How easy was market entry? If there was vertical integration between network and services, did competitor access to networks need to be enforced? Where direct competition was not possible, could it be simulated by other techniques (such as benchmarking) to drive greater efficiency? And even if there were plenty of competing entities in the market, did information asymmetries or a reluctance of consumers to change suppliers mean competition wasn’t really working?

Meanwhile, even if the market was open to a reasonable level of competition, there were still other questions for policy-makers to address, relating to issues from national security to social inclusion. What kind of government intervention might be needed to ensure universal service, to protect vulnerable customers or correct information asymmetries?

All these, and more, questions had to be tackled as the science of regulation evolved. The answers would differ by sector, and by country, but the broad assumption was, and remained, relatively simple: that detailed regulation of prices and returns would be needed where competition was weak or non-existent, and could be lightened if or when there was sufficient competition.

SPECTACULAR

“PRIVATISATION CREATED THE NEED FOR A RASH OF NEW SECTOR-SPECIFIC REGULATORS”

GETTING ON THE CASE

Regulatory models of course vary by sector. Financial services present such a complex set of consumer protection and systemic maintenance issues that the job has, since the financial crisis, been split in two. While market liberalisation has brought much competition in theory, the regulators have become more sceptical of the market's ability to resolve all threats of consumer detriment. So though there are some comparisons (and overlaps) with other sectors, financial services remain a problem apart. The model below therefore describes the standard regulatory approach to “pipes and wires”.

The usual model of *ex ante* economic regulation (as opposed to *ex post* competition reviews) for utilities has been to begin by developing a detailed licence. This sets out the activities and services that the utility must provide, along with a wider set of requirements (e.g. technical standards, codes of practice, secure access to necessary resources). So far, so (relatively) straightforward. The real challenge comes with the exercises, or reviews, that the regulator periodically undertakes in order to forecast the level of revenues that an efficient firm undertaking the service would require to make an acceptable return.

To do this, the regulator needs to take a view on:

- the expected efficient operating costs of the business
- any new investments that may need to be undertaken
- the return on historical investments, as assets depreciate
- the fair return on capital employed in the business.

This results in a “regulatory determination”, which prescribes the level of revenue (or alternatively the level of prices) that the company will be permitted to receive (or charge) until the next periodic reset. Thus most utilities are subject to regulatory cycles, with much at stake for the companies (and reputation at risk for the regulator) in each periodic review.

Such interventions are, of course, not without their downsides. Two notable kinds of problems serve as examples of the range confronting regulators, on which a massive economic literature (some of it Nobel prize-winning) has appeared since the 1980s.

There are, to begin with, a whole series of “principal-agent problems”. The principal (in this case the regulator) is seeking to encourage efficient behaviour in an agent (the regulated firm) when the firm may know more about what can be achieved, and where monitoring of how hard it is striving for efficiency may be imperfect. Regulatory contracts have to be designed to minimise so-called information rents and achieve socially optimal levels of innovation and productivity. Efficient outcomes have to be incentivised through well-designed regulatory arrangements that align the interests of consumers and infrastructure owners.

Another set of issues relates to what is called the “hold-up problem”. Investors in infrastructure sink large sums of capital into very long-lived assets. Future returns are dependent on many future price control decisions. The risk that the regulator may act capriciously results in the addition of a risk premium to the required return. Regulation is therefore a “repeated game”, in which observed consistency, transparency and adherence to evidence are the only way to drive the risk premium down.

These two examples out of many help to explain why competition is, where possible, to be preferred to direct regulation. It is for this reason that we commonly see regulators given competition as a primary objective, an emphasis only recently increased by legislation in the UK. But of course, with infrastructure based on pipelines, rails, fixed lines of copper wires or other networks with high fixed costs that it would be expensive and inefficient to duplicate, competition between networks is not always possible.

Even as the advantages of incumbency began to fade, after market liberalisation, there have continued to be natural monopolies in parts of the public infrastructure. All the same, through vertical separation it became possible to introduce competition for sub-services, or to open up access to networks for new entrants to the retail market: access-based competition as opposed to infrastructure-based. Other techniques could be employed to introduce competition “for the market” where it was not possible to introduce it “in the market”, by auctioning leases, franchises and spectrum. So regulators increasingly found themselves dealing with markets containing a mix of monopoly and competitive services, and trying to develop regulatory frameworks appropriate to both.

HOW PUBLIC, HOW PRIVATE?

They also found themselves faced with a mixed economy of ownership. As national restrictions to competition were dismantled in Europe, (part) state-owned enterprises bid for franchises in the UK or bought into privatised utilities, while in many continental countries private companies competed with those in which the state still retained a stake. The ownership of public infrastructure took a number of different forms, each with their own advantages and problems.

Publicly quoted companies

This is the standard British model for its mega-privatisations, such as British Gas (1986), British Airways (1987) or British Telecom (1984–93). These are subject to shareholder disciplines and have governance structures that make it easy for regulators to hold management to account; however, capital markets may rapidly remake the entity first created by a privatising government. For example, British Gas (sold in 1986) was demerged between 1997 and 2000 into BG (international gas exploration), Centrica (gas supply to businesses and households) and Transco (gas distribution). In 2002 Lattice, the owner of Transco, merged with National Grid, which in 2017 sold most of its gas distribution business (renamed Cadent Gas) to infrastructure investors. Centrica had meanwhile broadened into electricity generation, while BG was taken over by Royal Dutch Shell in 2016.

HOW PUBLIC

HOW

Part state-owned utilities

Although full privatisations (particularly in banking, energy and air transport) have taken place in continental Europe too, governments (including in the UK) have often started down the route to privatisation by floating a proportion of the shares in state enterprises, while retaining a stake (or possibly only a “golden share”) permitting them to veto unwelcome takeovers. Government entities still retain about a third of the shares in Deutsche Telekom, and the French government retains small shares in many privatised utilities. Part-privatisations may suffer from uncertainty about the government’s current and future role, blunting the disciplines provided by capital markets and confusing lines of accountability. So in the 1990s even “golden shares” went out of favour in the UK right across the political spectrum (it was a Labour government which dropped them from BT’s structure). However, recently anxieties about national security have surfaced in some countries with respect to Chinese investment, and takeover barriers are being re-erected.

Privately owned companies

As the BG example shows, a number of state enterprises floated on the stock market have been “taken private” by investors. Infrastructure has become a prime target of private equity, with (by the consultancy BCG’s estimate) \$177 billion of funds chasing opportunities by the autumn of 2018. Privately owned utilities ought to have the advantage of longer time-horizons, being free from the day-to-day pressures of equity markets; but the role of private equity in infrastructure has come into question. While the size of funds hunting for opportunities offers plenty of low-cost investment capital, from the regulatory point of view accountability is harder to pin down than in quoted companies. Macquarie’s custodianship of Thames Water was subject to considerable criticism, and regulators have pushed for the appointment of independent directors at a number of private equity-owned utilities.

Mutuals/member-owned companies

While not a common model for infrastructure, there are examples even in the UK. Dwr Cymru (Welsh Water) was floated on the stock market in 1989, became a multi-utility (renaming itself Hyder in 1996), got into financial difficulty and was sold for £1 to Glas Cymru, a public benefit company limited to the water sector, becoming a not-for-profit (without shareholders) in 2001. In Northern Ireland, Mutual Energy was set up on a similar model. This might seem to offer the perfect public interest vehicle, but the lack of shareholder discipline (as well as the ability to raise equity capital) may be a source of weakness. In particular, poor management may go unchallenged (as it did at the UK Co-op Bank) unless governance is strong.

Corporatised state utilities

Increasingly, in continental Europe, state-owned infrastructure is being pushed out to arm’s length from government, with company structures designed to limit political interference and create the same incentives and accountabilities as in the private sector. TenneT, the Dutch electricity transmission grid company, is wholly owned by the Dutch Government but managed (and regulated) as a private company. SNCF, the French rail operator, is similarly placed. These corporatised entities may be able to create confidence that they are free from political interference in day-to-day management, but state controls on their capital-raising may still act as a drag on innovation, as politicians trade off their needs against other public service priorities.

Municipal utilities

Ownership by regional governments or municipalities is common in continental Europe, particularly in sectors where the assets are local. This model is used in, for example, Belgium and Germany for electricity and gas distribution networks. It is not unknown in the UK (e.g. Manchester Airport is majority owned by the ten local authorities of Greater Manchester). The finances of municipal utilities may be constrained by their importance to local government, so that while for some this model has proved a satisfactory way of providing and maintaining infrastructure, there may be a tendency to under-invest.

PRIVATE?

Private companies operating franchises or under leases, or winning auctions for public assets

Some privatisations have taken the form of granting permission, for a fee, to operate public utility franchises for a defined period of time (the model used for rail operating companies in the UK). Another example of techniques to introduce competition “for the market” has been spectrum auctions. These are all models used where natural monopoly works against ordinary market competition. As a model for (say) airport operation, leasing has its attractions; but the collapse of several rail franchises in the UK has tarnished the appeal of the franchise model. Handing the franchise (or spectrum) to the highest bidder has more than once proved disastrous when the winners’ appraisal optimism has caught up with them.

Contracting-out

Governments at all levels award contracts of varying lengths to private sector suppliers of services, ranging from rubbish collection to prison management. However, this approach too has been tarnished by contractor failures and/or poor performance (as in the UK with Carillion, or in private provision of probation services). While there have undoubtedly been examples of poor management and financial imprudence, questions have also been raised as to whether one cause of failure has been the determination of government to squeeze out the last drop of efficiency, by letting franchises at too big a price to be viable, and setting contracts at a price too low to be sustainable.

Private finance

This provides a different model by which public service infrastructure, such as new schools or hospitals, can be funded. Public services are delivered by the state in the same way as in publicly financed buildings, in return for long-term contractual payments. The private finance initiative in the UK, launched in the early 1990s, provided a way of releasing constraints on public investment, but has subsequently been argued to have resulted in government signing long-term payment schedules whose over-generosity resulted in a bad deal for future taxpayers.

Unsurprisingly, therefore, no public or private model of infrastructure ownership is without its failures and its critics. But privatisation has not come to a halt: the French Government announced in April 2019 its intention to sell its remaining (majority) stake in the airport operator, ADP. However, the political consensus in the birthplace of privatisation has broken down, with the opposition abandoning its faith in competition and urging renationalisation.

It would be impossible, not just foolish, to try to unpick the landmark privatisations of 30 years ago. And if “public” utilities being run for “private” profit has never had much popular appeal, there would also be little public joy in a return to the sclerosis, trade union power and political interference that characterised UK utilities pre-privatisation. Moreover, whatever is said in opposition, no government is really likely to try to bring all the services provided by contractors back in house. But the transformation of the privatised Railtrack into the publicly owned Network Rail has shown acceptance even by the government of the fact that one size really does not fit all.

The political questions about ownership are, thankfully, beyond the scope of the following chapters. Rather, we have tried to draw out the big lessons of regulatory experience. And one of these is, or should be, highly relevant to the debate: that the extent and effectiveness of competition, where feasible, tends to be a better driver of performance than the degree of public or private ownership – a message that comes clearly from our chapter on airports. None of this is to deny the positive dynamic effects that privatisation has had on many industries – as our chapter on the water industry illustrates. Nor is it to underestimate the complexities involved in fostering access-based competition – as our chapter on telecoms explains. It is simply to make the point that it is the basics of market economics that matter most. This is the common theme we have attempted to illuminate in the four chapters that follow.