

# Regulating utilities

**In the past, network utilities, like railways, telecommunications, gas, water and electricity supply, were normally state owned and run. The idea of a private company having control of the country's water supply, for example, was seldom considered. How would a private company raise the necessary capital for investing in a national infrastructure? What incentive would it have to expand the supply network into impoverished and difficult to reach areas? How would the government prevent it suddenly raising its prices if there was no alternative supplier?**

But from the 1980s, driven by the UK experience of privatisation, opinions changed. It was argued that the public delivery of services was inherently wasteful and inefficient and that only private ownership could provide enough incentive for good management. Also, technological advances made it possible to imagine 'unbundling' network utilities and introducing competitive pressures to perform. Developing countries were encouraged to follow the UK example, which, in large numbers, they did.

However, privatising public services has not always delivered the expected benefits through improvements in financial performance and efficiency. To succeed, the process of privatisation has to be fair, transparent and efficient – this requires competent and honest administration. Furthermore, if privatisation is to improve performance over the long term, policies to promote competition and the ability to regulate non-competitive utilities are needed.

In developing countries the government's objectives include reducing poverty and achieving

sustainable development, as well as increasing productivity. The resources available for this are usually far from adequate – as well as little money there is often a severe shortage of suitably skilled people. Regulatory systems need to be both effective (i.e. achieve their goals) and efficient (i.e. do this as cheaply as possible). The costs of regulation include not only the costs of running the regulatory agency but also the costs to business and consumers of complying with the regulations. This is not easy to calculate, but can be appreciable.

## **Problems of regulation**

If vital infrastructure is to be owned, part-owned or managed by the private sector then the government must establish regulatory structures which will ensure that its welfare goals are achieved. Advocates of privatisation do not explain how the 'inefficient, self-serving' public sector is supposed to manage this process. All regulation should influence human behaviour in ways which are considered socially desirable. But if public administration is corrupt, courts are not independent and jobs and opportunities are given to family and friends, then establishing a good regulatory structure will be difficult.

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# Electricity privatisation

**In theory privatisation, competition and good regulation should lead to better economic performance. But what actually happens in practice? We investigated the effects of electricity privatisation in 51 developing countries in Asia, Africa and Latin America.**

The details of how privatisation is achieved vary. Introducing competition to the electricity sector may involve breaking it up into separate generation, transmission, distribution and supply providers. The generators and suppliers are then privatised and a new regulatory framework established. Alternatively, independent power producers may be encouraged to set-up and compete against the existing state-owned generators. Previous research suggests that the effects of privatisation, competition and regulation should be considered both separately and together. This is what we tried to do.

However, because of lack of data we had to simply categorise countries according to whether they had *any* private sector involvement in the electricity sector. Obviously this meant we could not identify how the *extent* of privatisation affected the outcome. For the same reason we could only distinguish crudely between the presence and absence of competition. Similarly, we categorised countries according to whether or not there was a separate electricity regulator that was not directly under ministerial control. Future research needs to find better ways to measure the *degree* of privatisation and competition in developing countries and to calculate the *effectiveness* of regulatory systems.

We tried to answer the following questions.

**Does privatisation lead to higher operating efficiency?**

Privatisation is expected to improve economic efficiency by providing better incentives for management, by exposing enterprises to the disciplines of the private capital market, by introducing more precise objectives and by removing political interference. In fact, we found that

Good regulation seems to be more likely when governments are willing and able to establish the rules and then allow the regulators considerable freedom to operate within them. A reasonably stable economic environment helps avoid sudden policy changes. So do checks and balances in the political system and a critical media, ready to embarrass the government if it tries to back out of its commitments. It helps if there is a history of establishing effective independent agencies and a pool of suitably skilled regulatory staff to draw on. If these conditions are absent (as they often are in developing countries) then it may be particularly difficult to separate regulation from day-to-day politics.

## Information asymmetry

Regulators have to deal with the problem of 'information asymmetry'. The enterprises which they are trying to control know better than them what are the assets, costs and profits of their businesses and often have an interest in concealing some of this information. The regulator has to try to force or cajole it from them but will probably never get a completely accurate picture. It will help if the investors have confidence that the regulation will achieve the goals agreed before the investment is made. It will also help if investors trust the regulatory office not to go back on its commitments – therefore it should be made difficult for the regulator to do this.

## Hold up

There is a danger that either side will try to take unfair advantage of the other after the contract is signed. Network utilities involve large scale investments which cannot be easily retrieved. This makes it possible for the regulator to hold the investor to ransom by, for example, forcing regulated firms to reduce prices. When investors fear this, they will demand state guarantees or "take or pay" contracts; both of which reduce efficiency incentives, thus undermining one of the important reasons for privatisation. Alternatively, after the deal is done, investors may demand price adjustments in their favour, knowing that government has no alternative supplier to which it can turn.

## Regulatory and political capture

Regulators have to balance the interests of consumers, competing enterprises and investors while promoting a broader 'public interest'

agenda. Low prices and better quality service that benefit consumers are highly desirable. At the same time, profits must be sufficient to finance investment. New enterprises must be able to enter the industry, therefore anti-competitive behaviour must be discouraged. Social and environmental issues have to be considered. This difficult balancing act has to be carried out in public, inevitably in the face of criticism.

Moreover, it is likely that producers will lobby the regulator to obtain concessions – especially when consumers are not well organised. This can result in 'regulatory capture' i.e. the regulator becomes biased in favour of the regulated enterprise. 'Political capture' may be an even greater danger. This occurs when regulatory goals become distorted to serve political ends (such as the re-election of the government). Regulation then becomes a tool of the government or ruling elite. This is why independent regulators are usually recommended, with no right of appeal to the minister (although it should be possible to appeal to the courts or an independent tribunal such as a competition authority, to prevent regulatory offices from acting in a deliberately obstructive way).

To help protect regulatory independence from political intervention, regulators should be given security of contract. It should not be possible for ministers to casually dismiss the regulators. In the UK they are usually appointed on five year fixed term contracts during which time they cannot be removed unless they behave improperly (as defined by law). Appointments to regulatory agencies should be based on ability, not political patronage. And staff must be given time to learn about the markets they are regulating.

Countries with weak governments and judicial systems and with a poor history of establishing trust are likely to face higher regulatory costs. If decisions are made behind closed doors, subject to political influence and corruption, then regulatory and political capture will be a constant danger. Indeed in such circumstances, regulation is unlikely either to be legitimate or to command the widespread public support it needs to be sustained.



privatisation on its own did not improve efficiency, as measured by labour productivity. Ownership change was not enough – indeed neither regulation nor privatisation on its own seemed to deliver benefit. But taken together they did, underlining the importance of regulatory reform accompanying privatisation.

#### **Does privatisation lead to higher prices to residential consumers?**

Often state-owned electricity companies aim to provide affordable basic services to as many people as possible even if this means costs are not fully recovered. Private owners, on the other hand, are not likely to do so. Therefore the common practice of overcharging industrial users in order to subsidise domestic users is unlikely to continue, at least to the same extent, once the enterprise is in private hands. Our results confirmed that some tariff rebalancing did occur following privatisation, although the effect on absolute prices to domestic consumers was less clear.

#### **Does competition lead to larger capacity, higher output and greater labour productivity?**

Competition is considered a reliable way of improving efficiency so higher electricity generation per employee is expected. This did indeed seem to be the case.

#### **Does competition lead to lower prices to industry and either higher or lower prices to residential users?**

Lower prices and therefore greater demand may occur as a result of increased efficiency. However, while industrial users may be expected to benefit as explained above, residential users may or may not. This will depend which has the greater effect – lower costs of production or the removal of cross-subsidies from industrial users. We found that competition did seem to lower industrial prices, as predicted, but when it co-existed with regulation it tended to raise them, suggesting that regulation may slow down tariff rebalancing in favour of large electricity users.

#### **Does regulation improve productive efficiency?**

Effective regulation of electricity production is essential both to encourage investors and protect consumers. If regulation is too heavy handed it will reduce investment and production. But if the rules are clear and the framework well defined, investors should feel more confident. (This is the main reason for



establishing independent regulators.) We found the effect of regulation was unclear, supporting the idea that it can have either positive or negative impacts on efficiency.

#### **Does regulation raise prices to residential users?**

Regulation's effect on prices is harder to predict. But the first big task for new regulators in developing countries is often to raise residential prices to match costs of supply. Nevertheless, the study found that regulation, even when linked with privatisation or competition, had no obvious effect on the level of domestic prices.

#### **Conclusion**

In summary, only competition demonstrated all the expected results. Privatisation and regulation, especially on their own, had disappointing effects on output, productivity and prices. Previous research in OECD countries has indicated more positive results for privatisation. This might be due to better management of privatisation in such countries with their more developed governmental, capital market and regulatory institutions. Given the demonstrated benefits of competition, reformers in developing countries should actively try to encourage it. Sometimes investors are granted exclusivity periods or long-term purchase contracts – our results suggest that removing competition in this way may be unwise.

# Controlling prices and profits

**The regulator must protect the interests of consumers. Where there is little or no competition this will include preventing excessive prices being charged. There are two common ways of doing this – rate of return regulation and price caps. But little is known about where and how these are used in developing countries and even less about how successful the regulators have been or the problems they have experienced. Much of the relevant theory comes from the experience of industrialised nations and much of the practice in less developed countries has involved policy transfer – sometimes under pressure from donor agencies. How well do these methods actually work in a developing country context?**

*Rate of return regulation* has a long history. It involves calculating the enterprise's operating and capital costs. Then a 'satisfactory' rate of return is added. This defines the total amount of revenue needed to carry on making a reasonable profit. From this figure the prices that should be charged are calculated and agreed with the regulator.

*Price caps* are different. They limit the amount prices can be increased every year to the rate of inflation minus a specific amount which the regulator thinks the enterprise should be able to save by becoming more efficient.

Although both methods have their advantages and disadvantages, price caps have been strongly recommended to developing economy regulators. This is despite the fact that little is known about how well the method transfers in practice. Given that the UK has had difficulties in operating price caps, it might be expected that developing economies, with less regulatory experience, would also have problems.

#### **Which method works better?**

Whatever method is used some difficulties can be expected.

'Information asymmetry' is bound to cause problems. To regulate prices and profits efficiently the regulator needs to be able to forecast costs and revenues accurately. But enterprises can be expected to exaggerate their costs and their need for capital investment and deflate their expected revenues. Adequately resourced regulatory offices to gather the necessary information may be lacking. Studies confirm that regulatory offices in developing countries tend to be small, under-staffed for the task they face and possibly more expensive to run in relation to GDP than in developed economies. Finally, regulatory and political capture is always a risk.

A disadvantage of rate of return regulation is that it may encourage over-investment and management may have little incentive to cut costs. Nevertheless, rate of return also has advantages. It is relatively easy to understand and quite similar to the way prices were controlled under state ownership when they were determined by costs. Therefore using this method can involve a smaller regulatory change when privatisation occurs, which could be particularly important where regulatory skills are in short supply. Also, rate of return regulation more or less guarantees a profit and so offers a more secure environment for investors.

Price caps control prices but not necessarily profits. If an enterprise manages either to expand its market or become more efficient than predicted, its profits will rise. This is why price caps are often thought to be better at promoting efficiency. But they too have their problems. Although they do allow greater profits to be earned than was forecast at the time of setting

the cap, this effect will not last. The next regulatory review can be expected to reset prices to bring profits back down. This reduces the incentive to strive for greater efficiency, especially when price reviews are frequent.

Similarly, investors may worry that governments will not be able to commit themselves to a price cap over the longer run. In developing economies conditions are uncertain. The more unpredictable are future profits, the harder it is for a price cap to retain the necessary political support.

Also, working out the 'right' amount to deduct for future efficiency gains is hard. If cost data provided by the enterprise are used then this can be expected to reduce the incentive for managers to cut costs. Also there may be few competitors, making it much harder to decide on a reasonable efficiency level by benchmarking performance, as occurs in many of the industrialised economies.

### Results

We sent out 397 questionnaires to developing country regulators and received replies from 60 in 36 countries. Most were involved in regulating network utilities; 23 were from the energy sector and 22 from telecommunications.

### How are prices set?

Most countries (24) were using price caps, 17 were using rate of return regulation. Sliding scale regulation (a combination of the two) was used in seven countries while the government set prices in 13. Some countries used more than one method. The telecommunications sector was the most likely to be regulated by a price cap, possibly because it was the one most likely to have been privatised.

### Have regulators received adequate training?

In 35 of the 36 countries regulators claimed to have had training. Nevertheless, 44% of them did not think they had a good understanding of regulatory methods and their advantages and disadvantages.

### What difficulties have regulators faced when using either price caps or rate of return regulation?

The difficulty most commonly reported was 'information asymmetry', especially for those using price caps (71% of respondents compared to 47% of respondents using rate of return regulation). Similarly, maintaining service quality was more often associated with price caps. Rate of return regulation was considered to distort employment (both up and down) and to lead to over-investment.

Price caps also seemed to be linked with employment distortion and they tended to lead to under-investment. This may be particularly unwelcome in developing countries where extension of provision is a high priority. This may be partly due to increased fear of the existence of political pressure on regulators to manipulate price caps.

Price caps offer higher profits now in return for lower profits in the future when the price cap is re-set. Or do they? How strongly can developing countries really commit themselves to not interfering in prices before the scheduled review? We need to go on to look at the political and social context of regulatory initiatives in low-income countries. It may be that the advantages of price caps have been over-promoted in developing countries.

#### This CRC Policy Brief draws heavily on the CRC Working Papers below:

No 6 Parker, D. *Economic Regulation: A Preliminary Literature Review and Summary of Research Questions Arising*. 2001

No 34 Parker, D. and Kirkpatrick, C. *Researching Economic Regulation in Developing Countries: Developing a Methodology for Critical Analysis*. 2002

No 55 Parker, D. and Kirkpatrick, C. *Privatisation in Developing Countries: A Review of the Evidence and Policy Lessons*. 2003

No 31 Zhang, Y. and Kirkpatrick, C. *Electricity Sector Reform in Developing Countries: An Econometric Assessment of the Effects of Privatisation, Competition and Regulation*. 2002

No 88 Kirkpatrick, C., Parker, D. and Zhang, Y. *Price and Profit Regulation in Developing and Transition Economies, Methods Used and Problems Faced: A Survey of the Regulators* 2004

Which are all available on the CRC web site at:  
<http://idpm.man.ac.uk/crc/publications.htm>

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