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PRICE AND PROFIT REGULATION IN DEVELOPING AND TRANSITION ECONOMIES, METHODS USED AND PROBLEMS FACED: A SURVEY OF THE REGULATORS

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Abstract

Rate of return or cost of service regulation was the traditional means by which governments, especially in the USA, regulated profitability and prices in privately-owned public utility businesses. However, rate of return regulation was associated with efficiency disincentives. Hence, in 1983 Professor Stephen Littlechild recommended the use of a price cap to regulate British Telecom when it was privatised. Price caps were later introduced for other privatised utilities in the UK, namely gas, airports, water, electricity and the railways. Similarly, other countries that privatised their utility sectors in the 1980s and 1990s often introduced price cap regimes. This paper reports the results of a questionnaire survey of the methods used to regulate profits and prices in privatised utility sectors in a sample of developing and transition economies. In addition to providing an insight into the different methods used in these economies, the questionnaire focuses on the difficulties that their regulators perceive in operating profit and price regulation regimes.

Key words: developing economies, transition economies, regulation, rate of return, price cap.

INTRODUCTION

When Professor Stephen Littlechild was asked by the British Government to recommend a method for regulating the about to be privatised British Telecom, he recommended the introduction of a price cap (Littlechild, 1983). A price cap limits the annual increase in price or prices that can be charged to customers to the inflation rate minus an X efficiency factor, which broadly reflects the scope for lower real unit costs in the business (Beesley and Littlechild, 1983). Sometimes the formula is extended to allow for 'cost pass throughs', for example, to reflect the cost of fuel inputs which are outside the control of the firm's management. An alternative method of regulation involves rate of return or cost of service regulation, as used extensively in the USA (Bös, 1994; Crew and Kleindorfer, 1996). Under rate of return regulation, annual operating costs and capital costs are calculated and to this is added a 'satisfactory' rate of return to reflect the enterprise's cost of capital. This gives the total revenue required each year to enable the business to finance the proper carrying out of its functions. From this revenue requirement, the price or prices charged are agreed between the regulator and the business.

The price cap differs from rate of return regulation in providing a cap on the price level but not necessarily the revenues earned; if the firm is successful in extending its market by providing a good service to customers its profits will rise. Equally, if the management is successful in driving down costs by more than inferred by the X efficiency factor, profitability will also increase (Laffont and Tirole, 1993). Therefore, a price cap is generally viewed as superior to rate of return regulation in providing 'high powered' incentives for management to produce output more efficiently. In particular, rate of return regulation has been associated with incentives to 'pad the rate base' and 'over-invest'. At the same time, however, experience in the UK has shown that setting price caps is controversial and that in resetting the cap at 'periodic reviews', a number of the disincentives associated with rate of return regulation may be introduced (Vass, 1997; Parker, 1999).

Nevertheless, legions of management consultants, particularly from the UK and backed by international agencies such as the World Bank, have tempted other countries to experiment with price cap regimes, especially when privatising their utility industries – telecommunications, water, airports, electricity, gas and transport. A recent study by Guasch (2001) for the World Bank found that the price cap method for regulating prices and profits is well established in Latin America and seemingly preferred to rate of return regulation. It is known that a number of developing and transition economies in other parts of the world

have also adopted price cap regulation. However, the actual experiences of these countries in operating a price cap regime remain largely uninvestigated (Parker and Kirkpatrick, 2003a). If the UK has experienced difficulties, which it has (Baldwin and Cave, 1999), would we not expect developing and transition economies, usually with less well-developed regulatory laws, government institutions and regulatory experience, to suffer from even greater problems?

In this paper we report the results of a questionnaire survey to regulators in developing and transition economies. The survey was concerned with measuring the relative use of price caps, rate of return and other forms of price or profit regulation in these countries. It also asked a series of questions about the difficulties that had been faced when operating price caps and rate of return regulation. The survey discovered that while price cap regimes may predominate, rate of return and other forms of regulation such as 'sliding scales' (which combine features from both price cap and rate of return regulation) and direct government setting of prices are still widely used. The survey also confirms that considerable difficulties have been experienced in operating both price and profit regulation. The next section of the paper briefly reviews the literature on price caps and rate of return regulation in developing countries, from which the questionnaire was constructed. The questionnaire is then summarised, along with details of the percentage of questionnaires returned and for which countries. The questionnaire results are then discussed in detail and conclusions are drawn.

Price Caps and Rate of Return Regulation

There are broadly four main methods of setting prices and determining profits that can be adopted by regulators, namely the use of a price cap, rate of return regulation (cost of service regulation), a sliding-scale regime (which is a hybrid of the first two) and direct state setting of prices. The last may be based on costs of production, equating to rate of return regulation, but is likely to be associated with more arbitrary rules for price setting reflecting each government's political, social as well as economic priorities. Whatever precise method is used, the economics of regulation literature suggests that regulators, whether in dedicated regulatory offices or government departments, are likely to face on-going difficulties arising from the inherent information asymmetries that exist in a regulated environment (Newbery, 1999; Parker, 2002). If prices and profits are to be regulated effectively, the regulator needs access to accurate information on the forecast revenues and efficient costs of the regulated firm, the cost of raising capital and the economic value of the firm's asset base (Laffont and Tirole, 1993; Parker, 2002, p.502). But firms can be expected

to raise costs and inflate capital investment needs (the Averch-Johnson effect) and their cost of capital during regulatory reviews, leading to a form of 'regulatory gaming' (Armstrong *et al.*, 1994). Alexander and Harris (2001) confirm such behaviour in the Indian electricity distribution sector. Moreover, effective regulatory incentives and regulatory governance regimes need to be in place (Levy and Spiller, 1994) and both may be underdeveloped or even absent in low-income economies. There may also be a continuous threat from 'regulatory capture' (Stigler, 1971; Peltzman, 1976).

In practice, it is the firms not the regulators that have direct access to the values of costs, revenues and assets and know their true cost of capital. In effect, the job of the regulator is to provide the incentives for managers in regulated companies to maximise effort and reduce costs, while protecting consumers, and to minimise the information rent that the company achieves by failing to reveal its efficient costs of production to the regulator. As is now well understood, price caps are intended to provide efficiency incentives under which firms will reveal their efficient costs of production over time (Armstrong *et al.*, 1994). However, many developing countries seem to lack strong regulatory capability in terms of trained personnel and sound laws to sustain regulatory commitment and credibility. Study confirms that regulatory offices in developing countries tend to be small, under-manned for the job they face, and possibly more expensive to run in relation to GDP than in developed economies (Domah, *et al.*, 2003). The other main difficulties found in developing countries relate to governance problems (Stern and Holder, 1999; Minogue, 2002) or the legal powers and responsibilities of regulators, including their effective independence from regulatory (including political) capture. There is case study evidence that suggests regulatory bodies may function poorly in a number of lower-income economies due to inadequate skills, governance problems and the prevalence of capture (e.g. Aryeetey, 2002, p.16; Cariño, 2002, p.25; Knight-John *et al.*, 2003; TERI, 2003; also see World Bank, 2003 for a statistical overview). In consequence, leaving aside the form of price and/or profit regulation selected, prima facie, the regulatory environment in many low-income economies appears to be much less conducive to effective utility regulation than is the case in Western Europe, the USA and Australia, from which the models of sector regulation came (Parker, 2002).

In the economics of regulation literature there is a well-developed understanding of the weaknesses inherent in rate of return regulation (for a review, see Parker and Kirkpatrick, 2003a). These relate to both information and incentives. In general, rate of return regulation introduces a number of potential economic inefficiencies; hence why, when the

UK began to privatise its utilities, it opted instead for the use of a price cap (Littlechild, 1983). However, the inefficiencies of rate of return regulation, while real, should not be exaggerated. Management does have incentives to reduce costs under rate of return regulation because of 'regulatory lag'. In the USA the firm and therefore its investors retain supernormal profits earned from cost reductions until such time as prices are reset, which may be after a number of years (Stelzer, 1996). Also, the nature of the regulation should be comparatively easy for the public to understand. Indeed, it is close to the form of price setting usually found in state-owned industries, where prices are determined by costs. Therefore, upon privatisation there is some continuity in the form of regulation, leading to less need for new regulatory learning and skills within the company and the government – potentially an important consideration in a developing or transition economy lacking regulatory expertise. In addition, all other things being equal, rate of return regulation more or less guarantees a profit stream, leaving aside any regulatory lag. It may therefore provide a more secure environment for investors than exists under a price cap regime, where profits may fluctuate significantly, as discussed further below. The more stable and secure the environment for investors, the lower the cost of capital and the greater should be the level of investment funds from both domestic and foreign investors attracted into the industry.

It is the case that rate of return regulation may also lead to some uncertainty about whether new investments will be allowed in the regulatory asset base, and price cap regulation, at least when it operates well, should avoid the cost padding and over-expansion of the asset base associated with rate of return regulation. It should not affect decisions about the selection of production methods as firms can be expected to adopt profit maximising behaviour within the cap. But the operation of a price cap regime has proved to be far from problem free in developed economies (Crew and Kleindorfer, 2002). In particular, a price cap allows profits to be earned in excess of those anticipated at the time the cap was set until such time as the cap is reset. But when the probability of a regulatory review to reset prices to achieve a normal profit level is taken into consideration, the perceived benefits of a price cap over regulating the rate of return are reduced (Bawa and Sibley, 1980). There may be a lack of credibility on the part of investors that a country can commit to more than a transitory price cap (Spiller, 1993). Schmalensee (1989) demonstrates that under conditions of uncertainty – which are likely to be found in many lower-income countries – regimes in which price depends in part on the actual costs of production generally substantially outperform pure price caps, particularly in terms of maximising consumer surplus. This is so because the more uncertain the environment, the higher will the price cap need to be set at

the outset to ensure that the regulated firm is willing to invest. This can lead to a higher price-cost margin than where prices are set based on actual costs.

Also, the operation of a price cap requires the determination of an X-efficiency factor, to provide the right incentive for management to pursue efficiency gains and without risking bankrupting the industry. If the price cap is set according to the firm's own costs then incentives for management to reduce costs are decreased. The firm's performance might be 'benchmarked' against the performance of other firms in the same industry, other (comparable) firms in the domestic economy or other firms internationally (Bernstein and Sappington, 1999). In developing and transition countries determining an appropriate benchmark may be problematic. There may be no or very few comparator firms in the domestic economy against which to benchmark performance; while international comparisons are complicated by different operating environments and exchange rate movements. Also, the regulators may lack skilled economists and auditing staff to challenge the firm's operating and capital costs to identify efficiency trends in the absence of sound benchmarking opportunities.

A price cap does not guarantee a net revenue stream in the same way as under rate of return regulation, therefore it is to be expected that the cost of capital will be higher under a price cap than rate of return regulation (Alexander *et al.*, 1996, 2001). In a recent research paper for the World Bank looking at price caps and infrastructure contracts in Latin America, Estache et al. (2003) concluded that 'the adoption of price caps implied higher costs of capital and hence, tariffs, and brought down levels of investment'. This finding is consistent with the view that price caps can lead to a more uncertain environment for international investors than rate of return regulation.

High profits earned through efficiency increases are welfare enhancing (Iossa and Stroffolini, 2002), but this may not be well understood amongst the populace or for that matter in political circles. This will tend to lead to complaints about 'high prices' and pressure on the regulator to 'intervene' outside of the scheduled price cap reviews. If the regulator refuses to intervene, the government may act directly and usurp the powers of the regulator. Certainly, the more volatile are profits the more difficult it becomes to maintain regulatory credibility under a price cap. In such circumstances, regulatory regimes, such as rate of return regulation that link revenues more closely to costs, may be less prone to regulatory opportunism (Newbery, 1999, p.72). Finally, because of the incentives under a price cap for

cost reductions, it is essential that the firm does not achieve higher profits by reducing the quality of service. As part and parcel of price cap regulation, therefore, there needs to be continual monitoring of service quality by regulators.

The Questionnaire Study

Based on the arguments from the economics of regulation literature briefly reviewed above, a questionnaire was prepared with the objective of assembling an information resource on the current status and use of different forms of price and profit regulation in developing and transition countries. The questions asked formed part of a larger questionnaire distributed in mid-2003 to survey regulatory practices in developing and transition economies, we focus here only on the questions relating to price and profit regulation. The questionnaire was distributed by post to 99 developing and transition countries for which contact details could be obtained from public sources. The majority of respondents were staff members of a regulatory agency or government ministry. Where possible, the questionnaire was sent to more than one informant in each country, as a potential cross-check on the accuracy of the information received. Therefore, in total 397 questionnaires were issued. The main questions asked were as follows:

> 1 How are prices set in the regulated industries in your country?
>
> 2 Have you attended workshops, conferences or training courses where the differences between rate of return regulation and price cap regulation have been explained?
>
> 3 Do you consider yourself to have a good understanding of the different ways in which profits and prices can be regulated by governments, including the use of price caps?
>
> 4 If your country has used a price cap form of regulation, what are the main difficulties you have faced in operating it effectively?
>
> 5 If your country has used rate of return regulation, what are the main difficulties you have faced in operating it effectively?

In all cases respondents were given a choice of answers but with the opportunity to select and justify a different response to one of those on offer. Details of the precise questions asked, possible answers and the definition of regulatory terms provided are included in the Appendix to the paper.

In total 60 completed questionnaires were received from regulators in 36 countries, a response rate of 14.9 per cent in terms of respondents and 36.4 per cent in terms of

countries. The majority of the responses were from regulators of the network utilities, with 23 replies from the energy (electricity, gas, oil and alternative energy) sector, and a further 22 replies from the telecommunications sector. Fourteen replies came from other government bodies. Among the 60 respondents, 23 held the position of director-general or equivalent, 18 were at senior administrative level, nine came from middle management, and ten served as advisors or consultants to senior management in regulatory bodies. Where multiple responses were received from a country (for example, four responses were received from Mexico), these were compared but no inconsistencies were noted. Some countries reported the use of both price and profit regulation in different industry sectors. There was no obvious difference in the pattern of results from those countries reporting the use of only on one of these methods of regulation and those that reported the use of multiple methods.

Completed questionnaires were received from the following countries: Albania, Algeria, Barbados, Bissau, Botswana, Colombia, Estonia, Georgia, Gabon, Guinea Bissau, Jamaica, Jordan, Korea, Lithuania, Malawi, Mexico, Morocco, Nicaragua, Oman, Pakistan, the Philippines, Romania, South Africa, Tanzania, Thailand, Uganda, Uruguay, Venezuela and Zambia. Table 1 reports the regional distribution of replies to question 1 in the questionnaire on how prices or profits are regulated. It should be born in mind that the questionnaires returned may have been mainly from countries where regulatory practices are well established, introducing some sample bias. Those countries from which replies were not received may have been those in which no formal price cap or rate of return regulation operated and where prices are still a matter for political action. In which case, the 'government pricing' column in Table 1 will under-estimate the degree of direct government involvement in pricing.

Table 1: Methods of Regulation Used

Region	Price caps	Rate of return regulation	Sliding scale	Government setting prices	Other
Asia (no. of countries)	7	4	1	2	
Africa (no. of countries)	7	7	1	5	1
Latin America (no. of countries	5	2	3	4	1
Transition Economies (no. of countries)	5	4	2	2	
Total number of countries	24	17	7	13	

The results reported in Table 1 reveal that some form of price cap is currently being applied in the majority (24 out of 36) of the countries, although this figure tells us nothing about *how* the price cap is used or the *form* it takes. By contrast, rate of return regulation is used in 17 countries, sliding-scale regulation in seven countries, and direct government setting of prices in 13. In some of the 36 countries more than one method is used, reflecting different approaches adopted for different regulated industries within the same country (sometimes this applies to even different segments of the same sector, e.g. mobile and fixed line telecommunications). Other methods of pricing mentioned by respondents were 'adjustment of prices proposed by industrial operators' (negotiation), and 'benchmarking'. It is interesting to note that African countries are just as likely to use rate of return regulation as price caps and, along with Latin America, have a higher propensity than the other regions to rely on direct government setting of prices.

Looking at the answers from regulators in different industrial sectors, in telecommunications rate of return regulation was used in five countries and price caps in 16. In electricity rate of return regulation was used in 11 countries and price caps in seven. By contrast, in the water sector, there was a reported equal use of rate of return regulation and price caps. It does seem that price caps are used more frequently in telecommunications regulation than elsewhere and the telecommunications sector is the most likely sector to have experienced partial or total privatisation. Therefore, the regulators' comments on price caps, reviewed below, may in part reflect their experiences of regulating privatised enterprises; while rate of return regulation may be more used to regulate state-owned businesses. At the same time, the greater reported use of price caps could simply reflect the fact that we received more replies from telecoms regulators than the regulators of other industries.

Turning to question 2 on training, of the 60 respondents within countries, a high proportion, 35, claimed to have attended workshops, conferences or training courses where the differences between price caps and rate of return regulation had been explained. In answer to question 3, 34 respondents considered that they had a good understanding of the different ways of regulating prices. However, this still leaves 26 respondents (or 44 per cent) conceding that they do not have a good understanding. This is a disappointingly large number bearing in mind that the respondents are regulators within regulatory offices and government departments! Lack of training seems to be at the heart of the problem. Of the 34 respondents who claimed a good understanding, 29 had attended relevant workshops, conferences or training programmes. In other words, this result suggests the need for

continued training initiatives in developing and transition economies to improve regulatory knowledge.

Question 4 was concerned with the difficulties faced when a price cap form of regulation is used. The difficulty most often cited in answers concerned 'information asymmetries', a problem highlighted in the theoretical literature on economic regulation. Respondents in twenty-three countries mentioned information asymmetry as a serious problem. Other difficulties cited were 'serious levels of customer complaints about rising prices' (17 countries), 'political pressures' (15 countries), 'enterprises providing misleading information' (14 countries, and a further manifestation of information asymmetry in regulation), 'problems related to 'quality of service' (12 countries) and 'enterprises under-investing in capital equipment' (10 countries). The latter two problems feature in the literature on price caps. Less often cited were difficulties relating to 'inability to recruit skilled staff' (4 countries), 'enterprises earning excessive profits' (4 countries), 'enterprises over-recruiting labour' – a sign of padded operating expenditures (4 countries), 'over-investing in capital equipment' – a sign of padded capital expenditures (4 countries), 'under-recruiting labour' (2 countries) and 'excessive rises in the pay of senior management' (3 countries).

By contrast, question 5 asked respondents to comment on difficulties faced when operating rate of return regulation. Again, the difficulty most cited related to 'information asymmetries' (10 countries), 'serious levels of customer complaints about rising prices' (10 countries), 'enterprises over-investing in capital equipment' (9 countries), 'enterprises providing misleading information' (8 countries), 'political pressures' (7 countries), 'excessive rises in the pay of senior management' (6 countries) and problems related to 'quality of service' (6 countries). The difficulties least cited related to 'enterprise earning excessive profits' (4 countries), 'enterprises over-recruiting labour' (3 countries), 'enterprises under-recruiting labour' (3 countries), 'inability to recruit staff skilled in the management of regulation' (3 countries), 'improvements in the quality of service' (2 countries) and 'enterprises under-investing in capital equipment' (2 countries).

To assist a comparison of the answers to questions 4 and 5, relating to difficulties faced when operating a price cap and rate of return regulation respectively, Table 2 provides a summary of the answers. It details both the number and percentage of countries with regulators reporting each difficulty when using price caps or rate of return regulation. The percentage figures reflect the fact that in 24 countries the price cap method is used, while

rate of return regulation is used in fewer, 17, countries. The percentage figures standardize for the different sample sizes.

Table 2: A Comparison of the Reported Difficulties Faced when Operating Price Caps and Rate of Return Regulation in Developing and Transition Economies

Number of countries in which regulators reported a difficulty: figures in parentheses show the percentage of countries in which regulators using price caps/rate of return regulation reported this difficulty.

Difficulties:		Price cap	Rate of Return Regulation
Information asymmetries or inadequate information on the firm's costs and revenues		23 (96%)	10 (59%)
Enterprises providing misleading information		14 (58%)	8 (47%)
Serious levels of customer complaints about rising prices		17 (71%)	8 (47%)
Enterprises earning excessive profits		4 (17%)	4 (24%)
Enterprises over-recruiting labour		4 (17%)	3 (18%)
Enterprises under-recruiting labour		2 (8%)	3 (18%)
Enterprises over investing in capital equipment		4 (17%)	9 (53%)
Enterprises under investing in capital equipment		10 (42%)	2 (12%)
Excessive rises in the pay of senior management		3 (13%)	6 (35%)
Problems with quality of service		12 (50%)	6 (35%)
Inability to recruit staff skilled in the management of regulation		4 (17%)	3 (18%)
Political pressures e.g. ministerial intervention in setting prices		15 (58%)	7 (41%)
Total number of difficulties reported		112	69

Comparing the replies is interesting. In particular, it appears that regulators operating price caps complain more about information asymmetries and misleading information from enterprises than regulators using rate of return regulation – 96 per cent of countries using price caps report the former as a problem compared with 59 per cent of countries using rate of return regulation. This suggests that regulators seem to perceive rate of return regulation, while not free from problems, as superior in terms of generating accurate regulatory information. It also seems to be the case that the price cap generates more serious customer complaints to regulators about rising prices than rate of return regulation – 71 per cent versus 47 per cent in terms of country replies – even though higher prices may be a sign of longer-term policy improvement by aligning prices with costs. This may reflect the fact that rate of return regulation can be easier to comprehend and more transparent in the way that it sets prices than a price cap, where calculation of the X factor and 'cost pass throughs' can be highly controversial, especially in the absence of sound benchmarking. At the same time, this comes at an apparent cost in terms of rate of return regulation distorting employment levels (both up and down) and leading to over-investment; the latter result being very consistent with expectation from the theoretical literature.

Although price caps are much less likely to be associated by regulators with over-investment, from the questionnaire answers they do appear to be linked with perceived employment distortions and stand accused of promoting *under*-investment, which, as discussed earlier, may be undesirable in economies where expanding provision to under-supplied communities is a priority. The evidence from the survey suggests that regulators believe that price caps cause firms to reduce investment, possibly reflecting uncertainty about the outcome of 'periodic reviews' when price caps are re-set and the threat of regulatory intervention at other times. Consistent with such a fear, price caps seem to be more open to political pressure than rate of return regulation – regulators in 58 per cent of countries using price caps report this as a problems compared with 41 per cent that use rate of return regulation. Again, this may reflect the uncertainties that can surround the setting of optimal X factors to promote maximum efficiency incentives while enabling the enterprises to properly fund their operations. Politicians may face pressures from the public and business to intervene outside the price review periods when profits are rising. We also had confirmation that price caps can lead to perceived distortions in the quality of service, as regulated firms attempt to cut costs to boost profitability within the cap. This seems to be less of a problem for rate of return regulation, probably reflecting the fact that under this form of regulation, firms are financed to meet agreed output targets.

Finally, those using both price caps and rate of return regulation cited some difficulties when recruiting staff with appropriate regulatory skills. In principle, both methods need staff with good regulatory experience. But the fact that this difficulty was only mentioned by seven respondents in total suggests a surprising level of skills availability in the regulatory offices of the developing and transition economies that took part in our survey – at least from the perspective of the regulators themselves! Sample bias may be a particular issue here – the regulators responding to the questionnaire may have over-estimated their knowledge of regulation, while less knowledgeable regulators may have been reluctant to complete and return the questionnaire.

CONCLUSIONS

Both price caps and rate of return regulation have been studied at length in the theoretical literature and experiences with their operation are well documented for developed economies and notably the US and UK. However, the extent of their use and the difficulties faced when using them are much less known for lower-income economies.

In this paper the results of a questionnaire survey to regulators in developing and transition countries on the use of price caps and rate of return regulation have been reported – 59 completed questionnaires were received from 36 countries, a respectable response rate of 36.4 per cent, although the response rate from individuals within these countries was lower, at 14.9 per cent. The research confirms that price caps have been widely adopted for utility sectors in developing and transition economies, especially in telecommunications, although in many countries both price caps and rate of return regulation operate in different utility industries and occasionally within the same industry. Equally, some countries have adopted other methods, especially hybrids such as the 'sliding scale', while others still report high usage of direct government setting of prices.

A number of difficulties in operating both price caps and rate of return regulation were registered in the questionnaire answers. Many of these reported difficulties are consistent with the theoretical literature on price caps and rate of return regulation. In particular, regulators in lower-income economies seem to associate rate of return regulation with over-investment, but see price caps as having greater problems in terms of maintaining service quality. The results also suggest that regulators view rate of return regulation as superior in terms of customer complaints about prices, information asymmetries and the related issue of accurate information supplied by regulated companies to the regulator. Also, price caps

are perceived as promoting 'under-investment', which may be viewed as a particularly significant disadvantage in the context of economic development. However, price caps are viewed as superior in terms of avoiding over-investment, over-paying senior management and under-recruiting labour. The regulators who responded to the questionnaire associated price caps with complaints from consumers about rising prices. Price caps involve high profits now, encouraged by the incentive for management to outperform the cost savings implied in the X factor, in return for lower prices later when the price cap is reset. The interesting question is the extent to which developing countries are able to make a commitment not to interfere in prices before the scheduled price review, possibly in the face of intense consumer pressure. The focus of future research should be on the political and social context for managing effective regulatory incentive schemes in lower-income countries.

In general, our results are consistent with the view that, while the price cap has proved successful in countries such as the UK in raising efficiency in regulated enterprises, its use in developing and transition economies, with their different institutional structures and often reduced administrative capacity, may be more problematic. Equally, however, the survey was small scale and the results must, therefore, be treated as provisional. Also, the questionnaire did not investigate the degree of privatisation that has occurred in each country and the regulators' responses may therefore reflect their experience of regulating state enterprises, which may be especially problematic irrespective of the method used. Our results, with the prevalence of answers from telecommunications regulators, could reflect ownership differences as well as differences in the forms of price and profit regulation adopted. In addition, the results may reflect the prior expectations of regulators; for example, regulators may expect much higher investment following privatisation and the adoption of price cap regulation. Therefore, if investment is higher than before, but lower than anticipated, this may lead regulators to express disappointment with the results, in spite of the economic improvement.[1]

Much more research, both statistical and case-study based, needs to be undertaken into regulation in developing and transition economies before strong conclusions can be drawn about the relative merits of price caps and rate of return regulation in these economies. It would also be useful to undertake a similar survey of the views of managers in the regulated utilities, to see if they share the same concerns. Nonetheless, the results reported here suggest a possible over-promotion of price caps in developing and transition economies by

consultants and international agencies, in the sense that inadequate attention may have been paid to the difficulties that are faced when operating this method of regulation in lower-income economies. The conclusions are consistent with the view that great care is needed when transferring regulatory policy from one country (or region) to another.

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Appendix:

The questions on price caps and rate of return regulation formed part of a larger questionnaire on regulatory methods. Below is the relevant section from that questionnaire.

4.   Regulatory Methods

As part of our on-going research aimed at improving regulatory capability and processes in lower income economies, we are interested in the regulatory methods used. It would be very helpful to us if you would also answer the following questions.

When answering the following questions these definitions apply:

Rate of return regulation: this involves the regulatory office or regulator agreeing an allowed profit or rate of return on capital. This allowed profit is then added to agreed operating and capital cost projections to establish the revenue needs of the regulated business. Given a forecast for the volume of sales in the regulated period, it is then possible to establish the permitted prices.
For example, suppose the permitted rate of return on capital is 10% and the capital stock (sometimes called the asset base) is $100m, then the allowed profit is $10m per annum. Suppose that the operating costs (wages, fuel costs etc) are $120m and the capital costs (interest on debt and depreciation) are $90m, the total revenue need is 10+120+90 = $220m. Suppose that the units of output sold is forecast to be 100m over the next year, then the price set will be 220/100 = $2.2 per unit. This becomes the price fixed by the regulator.

Price cap regulation: in this case the regulated business is given a "X" cost reduction target (or, in rare cases of rising real costs of producing, a rising cost target) reflecting the underlying expected profit growth in the business assuming that the business is managed well. The regulated firms prices are then set to rise in accordance with the economy's inflation rate (commonly reflected in the Consumer Price Index (CPI)) less the efficiency gain factor, X i.e. prices or revenue needs are established on the basis of a CPI-X price cap. The enterprise is then permitted to earn excess profits if it is able to cut costs by more than are factored into the X factor calculation.

Sliding-scale or amalgamation of rate of return and price cap regulation. Commonly under this method a price cap is set but if a firm's profits exceed a given level than the firm is expected to cut prices to consumers with immediate effect.

Government sets the prices but without using a price cap: this is the method usual under state ownership where the regulator or government department establishes prices usually after consultation with the management of the enterprise.

After reading the above definitions, please answer the following questions:

4.1 How are prices set in the regulated industries in your country:

Rate of return regulation
      Yes ( ) No (   )   Don't know   ( )
      If "Yes", in which industries, please specify………………………

Price cap regulation
      Yes ( ) No (   )   Don't know   ( )
      If "Yes", in which industries, please specify………………………

Sliding scale or similar
      Yes ( ) No (   )   Don't know   ( )
      If "Yes", in which industries, please specify………………………

Government sets the prices but without using a price cap as defined above
      Yes ( ) No (   )   Don't know   ( )
      If "Yes", in which industries, please specify………………………

Other methods to the above   Yes ( ) No (   )   Don't know   ( )

    If other methods are used please specify their form and in which regulated industries they are used…………………………………………………………………….
………………………………………………………………………………

4.2 Have you attended workshops, conferences or training courses where the differences between rate of return regulation and price cap regulation have been explained.
                 Yes (   )   No (   )

4.3 Do you consider yourself to have a good understanding of the different ways in which profits and prices can be regulated by governments, including the use of price caps?
                 Yes (   )   No (   )

4.4 If your country has used a price cap form of regulation, what are the main difficulties you have faced in operating it effectively. Please tick next to all of the relevant answers:

(   )Information asymmetries or inadequate information on the firm's costs and revenues
(   )Enterprises providing misleading information
(   )Serious levels of customer complaints about rising prices
(   )Enterprises earning excessive profits
(   )Enterprises over-recruiting labour
(   )Enterprises under-recruiting labour
(   )Enterprises over investing in capital equipment
(   )Enterprises under investing in capital equipment
(   )Excessive rises in the pay of senior management
(   )Reductions in the quality of service
(   )Improvements in the quality of service
(   )Inability to recruit staff skilled in the management of regulation
(   )Political pressures e.g. ministerial intervention in setting prices
Other: please specify…………………………………………………….

4.5 If your country has used rate of return regulation, what are the main difficulties you have faced in operating it effectively. Please tick next to all of the relevant answers:

(   )Information asymmetries or inadequate information on the firm's costs and revenues
(   )Enterprises providing misleading information
(   )Serious levels of customer complaints about rising prices
(   )Enterprises earning excessive profits
(   )Enterprises over-recruiting labour
(   )Enterprises under-recruiting labour
(   )Enterprises over investing in capital equipment
(   )Enterprises under investing in capital equipment
(   )Excessive rises in the pay of senior management
(   )Reductions in the quality of service
(   )Improvements in the quality of service
(   )Inability to recruit staff skilled in the management of regulation
(   )Political pressures e.g. ministerial intervention in setting prices
Other: please specify……………………………………………………..

Note

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[1] We thank a referee for drawing out attention to both of these points.