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ENERGY PRIVATISATION

Stephen Littlechild, Catherine Price,
Colin Robinson and Allen Sykes

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NOTE

The following papers were presented at a conference on Energy Privatisation held at the University of Surrey on 2 March 1988. Full texts are available only for the papers by Catherine Price and Colin Robinson. In order to convey something of the character of the discussion however, we have included summaries of the papers by Stephen Littlechild and Allen Sykes.

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WHY BRITISH COAL SHOULD BE PRIVATISED

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University of Surrey

Until very recently, coal privatisation was regarded as an unmentionable, possibly even unthinkable subject. A suggestion some five years ago that the industry was a good candidate for privatisation was greeted with incredulity. Even towards the end of 1985, when a privatisation programme had been under way for six years, a paper which proposed privatising coal evoked considerable surprise. But coal privatisation is now no longer a taboo subject. The government is embarking on privatisation of the electricity supply industry which is so closely related to coal - the CEGB takes about 95 per cent of its coal supplies from the nationalised British coal industry and approximately three quarters of coal sales in Britain are to power stations - that structural change in coal is bound to become an issue.

The case for privatising coal does not rest, as is sometimes supposed, on such ideological grounds as a belief that private ownership is inherently superior to ownership by the state. It is true that a few extreme supporters of privatisation evidently believe a mere change of ownership, accomplished via the sale of shares to the public, will convert ailing state-owned industries into flourishing private corporations. In practice, however, although changing ownership is generally necessary for improved industry performance it is by no means <u>sufficient</u>. Substituting private capital for government ownership will provide a measure of capital market discipline for the management of a corporation which may be more effective than government control had previously been. But, in the absence of any other change, the effect is likely to be modest, especially in cases where the organisation is protected from hostile takeover by a "golden share" so that sanctions on managerial inefficiency are weak. To obtain significant benefits, privatisation needs to be accompanied by structural change designed to improve performance by stimulating competition where there is now monopoly. In brief, liberalisation rather than privatisation <u>per se</u> should be the priority of a denationalisation programme.

Competition may appear wasteful to those who do not understand the subtleties of markets and who hanker after the illusory "advantages" of centralisation and size. If we lived in a world of omniscient and altruistic decision-makers there would indeed be benefit in centralisation. We would delegate a few ethical supermen or Platonic Guardians - who by definition would be able to perceive and would be willing to pursue the social interest - to run everything for the rest of us.

But that is not how the world is. Decisions are taken by people who exist in an uncertain environment and are engaged in a continual search for guidance on what to do and for the standards to which they should aspire. In such a world, competition has very important functions in establishing efficiency standards and stimulating change in directions which, in general are beneficial to consumers.

Neo-classical economists see competition as beneficial primarily because it promotes both productive and allocative efficiency: that is, it reduces costs and aligns prices more closely with costs than under monopoly. There is, however, more to the effect of competition than can be demonstrated with static diagrams. Even in the "imperfect" form in which competition invariably appears in the real world, it happens to be a remarkably effective way of provoking constructive tensions and rivalry. Thereby it not only stimulates efficiency in production and passes on to consumers the resulting gains in reduced prices, it also promotes innovation, entrepreneurship and technological advance and generally makes companies responsive to consumers' needs. A less obvious but very important benefit to consumers is the enhanced security of supply which they enjoy when they have a choice of suppliers rather than being faced by only one. There are managerial advantages too. Competition automatically provides the managers of a company with the only performance targets which have any real meaning-those set by the actions and performance of their competitors, which are quite different in nature from the arbitrary targets presently determined for the nationalised industries by civil servants.

On this view, the state-owned industries in Britain are good candidates for privatisation primarily because the markets in which they operate need to be liberalised. The present problem is not so much that they are state-owned but that they have been granted monopolies by the state. The monopolies they have in product markets spill over into markets for labour (where cosy arrangements with unions are common) and into the markets for their capital equipment and other inputs. Moreover, many of the nationalised corporations have monopolies of information in their industry (since there are no competing sources of information); that is one reason why they become powerful pressure groups on government. There is little incentive to operate efficiently in many of the industries, and there is a strong temptation to concentrate on political manoeuvreing rather than cost reductions because managers know very well that decisions will be under the influence of politicians and civil servants. These criticisms are not so much of the state corporations themselves but of regimes imposed by governments. Indeed, with competition absent, the industries often have no clear means of recognising what efficient operation would mean.

It follows that there is little to be said for privatisation schemes which merely transform state monopolies into private monopolies. The prime aim of the change to private ownership should be to establish competing sources of supply. I would see privatisation as an important enabling instrument (rather than an end in itself) because competition is generally hard to establish whilst state ownership remains. Monopolies are likely to be just as unresponsive to consumers under private ownership as they are when owned by the state because they still have no competitors to set efficiency standards, to temper their behaviour and to improve their performance.

The public choice aspects of liberalisation bear some examination because, despite the social advantages of liberalising markets now monopolised, monopoly privatisation schemes are undoubtedly popular with powerful pressure groups. They serve the interests of the existing management of the nationalised industry who gain much higher salaries and freedom from political interference; they are liked in

the City, which finds it easier and more profitable to bring monopolies to market; potential shareholders may welcome the opportunity to invest in a monopoly with apparently good earnings prospects; and, above all, such schemes appear to be in the short term interest of politicians because they generally raise large revenues quickly. But, though they may serve a few interest groups, monopoly privatisation schemes have little to offer the community as a whole. One can indeed go farther. It may be preferable to leave industries nationalised and subject to (admittedly unsatisfactory) political regulation rather than have them turned into private monopolies. At least, so long as they are nationalised the prospect of liberal privatisation remains. Illiberal forms of privatisation (such as in the British Gas case) are difficult to overturn.

In some of the nationalised industries, injecting competition is complicated because the industries contain "natural monopoly" elements (such as gas and electricity distribution networks). But that is not so in coal. Clearly, there are political problems in denationalising coal, mainly because of likely opposition from the leaders of the main union. But from other points of view it is one of the more straightforward cases among presently nationalised industries. Its product is dispersed by nature in deposits which vary in terms of quality and location relative to market; investment, operating and transport costs therefore vary from deposit to deposit and it is suited to a variety of forms and sizes of organisation. There are no economic grounds for placing the production of virtually all British coal in the hands of one corporation. That form of organisation was chosen in the mid-1940`s for political reasons which are entirely understandable in the context of the time when they were made. But maintaining a dominant corporation in British coal has proved difficult and expensive. It has been possible only by virtue of increasing protection - controls on imports, taxes on competing fuels, restrictive agreements between British Coal and the CEGB, a virtual ban on burning natural gas in power stations and subsidisation of the nationalised coal industry. But British coal is a naturally competitive industry where major gains should be achievable from the introduction of competition.

The difficulty of quantifying those potential gains is that competitive standards have been absent for so long. We have all become used to there being only one major coal company in Britain, subject to strictly limited import competition. Thus one can only make informed guesses about what the structure of an efficient British coal industry would be, what costs it would incur and what prices it would charge. Nevertheless, we do know that if there were several British coal companies, competing with each other and with imported coal to supply consumers, the kinds of gains listed earlier would be likely to accrue. In particular, fuel consumers would be much better served both in terms of price and in terms of security of supply. After forty years of monopoly and many years of effective cartelisation before that, it would be astonishing if there were not very big gains to be achieved. In a recent paper, written jointly with Allen Sykes, it was suggested that benefits of the order of 1 billion a year should be possible in a competitive coal market by the mid-1990`s, mainly in the form of lower prices to fuel consumers. Almost certainly, that is an under-estimate because none of us really has the imagination to foresee the dynamic

changes - via greater entrepreneurship, better and more innovative management - which would be likely to occur in an industry which has for so long been monopolised and consequently has lacked genuine performance standards. Furthermore, one can only guess at the output and employment creating effects across the economy of lower fuel prices.

It is also likely that miners (if not present miners` leaders) would in the long term benefit from a liberalised coal market. The two monopolies in coalmining - British Coal (formerly the National Coal Board) and the National Union of Mineworkers - have been very bad for the industry. For years they have been engaged in a running battle, interspersed with periods of collusion, which has made consumers very wary of relying on coal for fear of monopoly action to cut supplies or raise prices. It is highly significant that, even in the 1970s and early 1980s after oil prices had soared, the British coal industry continued to lose share in the energy market. Enhanced security of supply and lower prices in a competitive market would expand the market for coal, compared with what it would be under continued nationalisation.

If competition is to be introduced into British coalmining for the benefit of consumers, producers outside coalmining and ultimately of miners, how can it be done? An obvious initial step would be to liberalise before privatising by removing entry barriers to the industry so that the small private sector can grow and provide more competition. There are some truly absurd restrictions on the size of private deep-mines (30 men underground) and opencast operations (35000 tonnes of reserves or 50000 tonnes on adjacent sites) which severely limit the size of the private sector. Perhaps even more absurd is a system which places licensing in the hands of British Coal, which plainly has an interest in excluding competitors, and permits BC to charge a royalty to anyone it does permit to enter the industry. Licensing should be in the hands of the Department of Energy, as it is for North Sea oil and gas licenses. Private companies would then be able to bid for coal deposits which are not already being mined, for those mines which British Coal has abandoned and for coal tips and other residues from old mining operations. There is a good prospect that such a change in procedures would, by itself, have some very beneficial effects in promoting the exploitation of Britain`s smaller coal deposits and stimulating mining employment in Britain`s peripheral coalmining areas where unemployment is generally high.

Such limited liberalisation is, however, not enough. To promote competition and varied forms of ownership in this naturally competitive industry, British Coal should be broken up. The eventual aim would be to arrive at a structure suited to the varied mining conditions found in Britain. Exactly what that would be cannot be determined precisely since there is no experience of any structure other than monopoly in recent times. However, one of the aims of breaking up the industry would be to let its structure be determined by the market. Probably, a number of international mining companies (some of them British, but paradoxically precluded at present from participating in coalmining in Britain) would enter the market; no doubt there would be some buyouts of existing operations by British Coal managers; some of the existing small mining companies could be expected to expand; and in places

miners` co-operatives would probably be established. All these forms of organisation should be able to flourish given the variety of mining conditions. Instead of the concentration on "superpits" which appears to be British Coal`s policy, there would be a much greater diversity of size in mining activities. Given the close links between electricity supply and coal mining, there might also be some joint ownership of pits and power stations: some joint operations should be quite acceptable provided they did not diminish competition.

How to achieve the eventual desired state in coal mining is a problem in its own right. As in many economic policy matters, the transition - finding a path from where one is now to where one would eventually like to be - is an issue which deserves specific attention. In the case of coal, an attractive way to proceed would be to throw open to bidding all existing British Coal mining operations so that market forces allocated them among bidders, set values on them and defined "uneconomic" pits. Unfortunately, however, there are practical problems in such a procedure. Prospectuses would have to be drawn up before bidding could begin and the whole process could be obstructed and delayed. There might therefore be some advantage in having an initial stage in which existing Area Boards were privatised, followed by a subsequent stage in which these relatively large units were broken up - either voluntarily (since the companies which bought into the Areas would probably want to divest themselves of some activities) or, if necessary, by government action in the interests of competition-promotion. The government would, however, have to make very clear to potential investors its view of what the eventual state of the industry should be.

A final, very important consideration in coal privatisation is that the context in which it is likely to arise is electricity supply privatisation. The government, rightly or wrongly, has decided to embark on privatising the electricity supply industry before coal. The close linkage between the two industries means that the form in which one is privatised is bound to affect the form of privatisation of the other. An illiberal scheme for electricity supply could therefore pre-empt a liberal scheme for coal.

If the two industries are to be privatised in a way which leads to benefits for society, rather than just payoffs to the pressure groups concerned, competition needs to be introduced into both. The desirable end-result of coal and electricity supply privatisation is a generation industry and a coal industry within each of which there is competitive rivalry and between which there is bargaining among a number of suppliers and customers. There would also be actual and potential competition from imports both of coal and electricity. Given such markets, with neither industry dominating the other, there would be downward pressure on costs, consumers` interests would be safeguarded by the force of competition ("imperfect" though it would be) and there would be the other social benefits mentioned earlier in this article.

A serious danger at present is that the electricity privatisation scheme in last week`s White Paper will make it virtually impossible subsequently to introduce competition into the coal industry. That, indeed, is one of the many serious drawbacks of the scheme. If the proposal remains as stated in the White Paper - and I have some hopes

that the government will recognise before it is finally committed that changes could and should be made so that there is genuine competition- the CEGB`s two privatised successors are likely to dominate the coal market. Their dominant position will probably be a serious deterrent to investment in British coal mines. Moreover, the behaviour of both major and minor CEGB will be subject to an untried regulatory scheme: potential investors in both coal and electricity will, in contemplating likely returns, have to guess how the regime will operate over many years into the future. Thus, not only are perceived returns likely to be depressed by generator dominance, but the perceived riskiness of the return will be increased. Of course, if the government is not concerned about competition it could circumvent such problems by privatising coal as a monopoly so that it could then engage in bilateral bargaining with an electricity supply industry which, I fear, will be effectively monopolised unless the government changes the White Paper proposals. But the two industries would then have every incentive to collude (as they do now, under government-condoned agreements), restrictive practices in their labour and input markets would remain, they would retain their information monopolies and they would continue to be powerful pressure groups on government. There would be few gains (if any) for consumers. One assumes that such results are not what privatisation is intended to achieve. After long, time-consuming consultative and Parliamentary processes the industries would retain all the worst features of nationalised ownership. Furthermore, because of the absence of competition, difficult regulatory procedures would have to be established.

It is already clear that a serious mistake was made in establishing a private gas corporation with at least as much market power as its nationalised predecessor. It would be ironic indeed if the error were to be repeated, not just once but twice, by a government which is evidently dedicated to allowing private competitive markets to flourish. There is an awful possibility that the government could complete its intended programme of "structural" change in the energy industries only to find that it has substituted three private monopolies for three state monopolies (for I believe that the electricity proposals are not capable of establishing competition in that industry). There would, in the meantime, have been a great deal of structural upheaval and a considerable expenditure of time by many people. Seldom would so little have been achieved by so many at such cost.

No doubt, the government does not intend to preserve monopoly in the energy market. But is showing every sign of wasting an opportunity to liberalise. If it persists with its electricity supply proposal, it is very unlikely to have competition in electricity and it will probably finish up with a monopoly in coal too. If that is the way things are going, it would be better to leave the coal and electricity industries nationalised. At least, we have learned to live with the nationalised energy industries with all their deficiencies. In retrospect, the period of nationalised ownership might actually look quite good compared with a British energy market dominated by private monopolies and either hamstrung by involved regulatory procedures or lightly regulated so that consumers experience poor service and high prices.

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LESSONS FROM GAS PRIVATISATION

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INTRODUCTION

Two lessons can be learnt from gas privatisation - how an industry should be privatised and how it should be regulated after privatisation. This paper is not concerned with the general merits (or otherwise) of privatisation, which are discussed elsewhere, but with how effectively such privatisation has been implemented in the gas industry. The most appropriate yardstick for such an appraisal seems to be the Government's own criterion of maximising efficiency. For the economist this has two dimensions - the popular notion of managerial efficiency, ie. keeping the costs as low as possible at any given level of production; and economic efficiency, the relation of prices to costs in such a way as to ensure the most appropriate level of demand and production. Both the structure of the privatised industry itself and the regulatory rules under which it operates can be judged by these criteria. Regulation is often seen as a substitute for competition- a means of reaching those parts of the industry which competition cannot reach - but we shall see that the relationship is rather more complex than this initial classification would suggest.

STRUCTURE OF BRITISH GAS PLC

Consider first the structure of British Gas (BG), which was formed from the British Gas Corporation (BGC). This had been incorporated under the 1972 Gas Act, which integrated into a single industry the twelve Area Boards and the Gas Council. Previously these had been thirteen separate entities, with Area Boards responsible for manufacture and distribution of gas within their own regions. It was the advent of North Sea gas on a large scale which brought about the unification of the industry. Despite an increasing sense of corporate identity the BGC continued to operate on the basis of previously established regional profit and cost centres, as shown in the Deloitte Haskins and Sells (1982) report on efficiency and in the continuing relationship between customers and their local office. By the time that privatisation was seriously considered in the mid 1980's the industry was a central purchasing agent (with an important production operation at Morecambe Bay), a national transmission system and twelve regional distribution networks, still largely organised separately within BGC.

There are clearly elements of natural monopoly in gas transmission and distribution and it is difficult to see how these can be overcome at the local distribution level. Legislative attempts to introduce competition into the transmission system in the 1982 Oil and Gas (Enterprise) Act and the 1983 Energy Acts have had little success, though this is probably at least in part due to BG's overall market power.

The chief characteristic of the gas privatisation process was its speed - the total time from announcement of intent to sale was a mere eighteen months. At the time the Government was worried about proceeds from industry sales, since the planned sale of British Airways was delayed by impending litigation over Laker, and the speed and size of proceeds was clearly of prime importance. After the initial announcement in May 1985 details of privatisation and regulation were presented just before the initial Parliamentary debate at the end of the year, and the Gas Act incorporating British Gas as a private company received the Royal assent in July 1986. Thus there was little time for considered debate on the process of privatisation.

The need for high sales proceeds to fulfill the Government's expenditure forecasts highlights one of the tensions of privatisation. Since the sales revenue from shares is in effect the present realisation of potential future profits, it will be the higher the more profits are expected to be. And these in turn will be greater the greater is the degree of monopoly power in the industry (unrestricted either by competition or regulation). Thus the Government can raise its own revenue at the expense of the consumers of a privatised industry by allowing more monopoly power to the new plc. Significant monopoly power certainly does now rest with BG, though it is not clear whether the Government's view was as overtly cynical a view as this reasoning suggests.

The natural monopoly element left little scope for direct competition in supply, but could have involved horizontal division of the industry, so that the pre 1972 structure of 13 smaller local monopolies was sold in the private market. This would have had the advantage of providing some competition within the industry (in terms of inter-regional rivalry) and in providing more information for the regulator, who could have used comparisons between the regions to introduce a certain amount of 'yardstick' competition (Yarrow, 1986). It is interesting that the most publicised disagreement between the Director General of Gas Supply and British Gas has been over the provision of information. British Gas has traditionally been secretive, and it seems to be using the lack of information to hamper the regulator.

Individual flotation of Area Boards would also have provided a more competitive capital market for each unit; since competition for capital is a much vaunted argument for privatisation this would seem to be a lost opportunity. But splitting the industry would have suited neither the Chairman, who wanted to maintain his company intact, nor the Government who wanted to maximise speed and size of flotation proceeds.

A more disintegrated industry would certainly have improved managerial efficiency. Shareholders as well as the regulator would have been able to compare performance between regions and bring pressure to bear on less efficient managements to improve performance. In so far as large companies are inherently subject to some inefficiency (known as X-inefficiency, though any connection with the X in the regulation formula seems to be purely fortuitous) this is likely to be greater the larger is the company. For all these reasons, a degree of competition should have been introduced into the industry by spitting it. It is not clear how far this would have helped <u>economic</u> efficiency, since the

elements of natural monopoly would remain within each distributive operation. But it would certainly have given the regulator more information, and therefore might have guided the appropriate regulatory regime for each region. Also the maintenance of an internal regional management structure would have made such a split comparatively easy to make. It might have resulted in lower proceeds at flotation, but only to the extent that such proceeds represent a transfer of welfare from the consumer to the producer (and thence to the Government) as a result of excessive monopoly power.

A better structure of gas privatisation might therefore have been a single body which bought gas from the North Sea oil producers and was responsible for national transmission, and twelve area boards who bought gas from this company and retailed it to consumers. The central body would take on the role of the Gas Council before its demise, and much of the work based at Rivermill House, the BGC headquarter in London. It could have extracted the economic rent from North Sea operations, which occurs both because of the low price contracts signed in the 1970's in the Southern Basin and because of the 'scarcity premium' associated with the depletion of a non-renewable resource in an imperfect world market. Such rent belongs to the Exchequer - there is no reason why it should be enjoyed either by gas consumers through lower prices or by owners through higher profits. It could be argued that the rent in potential profits is captured for the Government in the initial sale price, but the form of price constraint suggests that little explicit account was taken of this factor at privatisation. Whether such a central purchasing body, used primarily to extract the rent for the Exchequer, should be privately or publicly owned is not clear. There would be some difficulties in regulating it (since such a high proportion of its costs would be 'allowable') and there may be a case for keeping it in the public sector. The loss in share sales revenue would have been more than compensated for by gains in managerial efficiency and consumer welfare.

EXTENT OF REGULATION

The need for good potential profits to boost the sale price would also suggest a light regulatory regime, and some critics suggest that the limited regulation to which the industry is subject results from such a policy. Here there are three issues - the extent of regulation (in terms of market coverage), the type of regulation and the formula itself.

Only the tariff market is regulated (ie. the market which supplies consumers with annual demand less than 25,000 therms) - the BGC argued that it was a price taker in the contract (mainly industrial) market and therefore no regulation was needed (Energy Committee, 1986). Competition in the industrial market is difficult to gauge. Gas supplies about a third of the total industrial (non vehicular) energy demand, which would suggest that it has oligopolistic powers. But there are parts of the industrial market where competition is fierce, particularly for consumers who use gas as an interruptible fuel and therefore have access to alternative fuel burning equipment. Conversely firms with appliances which will burn only gas and which

are not due for replacement can be charged a high price without significant loss of demand. This has led to considerable price discrimination between industrial consumers in the last decade, and culminated in the complaint by Sheffield Forgemasters which has been referred to the Monopolies and Mergers' Commission. The Commission may prove to be an important supplementary regulatory body to Ofgas, but at this stage the referral suggests that the degree of competition in the industrial market has been overestimated, and regulation here too might have been appropriate.

However, it would be quite wrong to suppose that the industry's discriminatory behaviour is a result of privatisation, since it has caused concern for some time in both Government and consumer circles. It is ironic that the political difficulties of investigating possible abuses of the market are less after privatisation than when BGC was a public corporation.

Insofar as the regulation does encourage efficient pricing it should extend over as wide a group of the monopoly's activities as possible. This is because prices are determined relative to each other subject to an overall constraint, and the removal of a section of activities inhibits this process. Ironically so does the introduction of competition into some activities, which brings price in those markets close to marginal costs. (This can never be achieved for all activities of a profitable natural monopoly.) Partial competition is thus not desirable in terms of economic efficiency, though there may be arguments in its favour if it is a more powerful incentive for management efficiency than regulation. If competition is effective it determines the price for the product concerned, so nothing is lost by leaving the product in the basket (though the appropriate level of X would be affected). If competition is ineffective then welfare is improved by leaving all activities under regulation.

Another argument for regulating the whole industry arises when renewal or alteration of the regulatory regime is considered which, as we have seen in the case of British Telecom, cannot be separated from the rate of return considerations (Oftel, 1986). We shall consider this aspect in more detail in relation to the type of regulation used. But there certainly seems to be prima facie evidence that regulation should have included the industrial market.

FORM OF REGULATION

The type of regulation chosen for BG differs from that for British Telecom in the weights which are used to combine the prices. BT charges different prices for different services, and so the weights chosen to average these prices are the quantities of each service sold in the previous year. Because BG has eschewed price discrimination in its tariff either between regions (except for some sight variation in standing charges) or in any form of peak load pricing it is less obvious that it too supplies different services - a unit of gas is not the same in cost or demand regardless of the time or place it is delivered. But since a single price is at present charged under the tariff, the price constraint is on the average revenue per therm sold

in a particular year. Thus the quantities by which the prices are weighted are those in the current year, and this gives the company an incentive to alter demand and price in an inefficient way (Bradley and Price, 1987). The profit motive itself provides an incentive for tariff differentiation, and this is accentuated by the average revenue constraint to which BG is subject, so that BG may charge too 'high' a price for high cost products, though there is no sign yet that such differentiation is to be introduced. The division of categories of supply (presumably according to place and time) necessary for the tariff basket constraint might have concentrated BG's attention on appropriate price differentials. (Such differentials would be quite easy to introduce, and are almost certainly desirable on a regional basis (see Price, 1986) though the benefits might not justify the cost of introduction for a peak load pricing system).

Both the average revenue and the tariff basket price constraint have inbuilt incentives for managerial efficiency (since the company retains the benefit from any cost reductions at least until the constraint is reviewed), but the average revenue constraint applied to BG (and British Airports Authority, with even less justification) is less economically efficient than the tariff basket constraint applied to BT. For any level of price constraint it will push the company to set prices which result in lower welfare in the market (Bradley and Price, 1988).

However even the more efficient tariff basket constraint is subject to strategic manipulation immediately prior to review. The initial level of X seems to have been largely a political decision, but revisions will depend on the industry's rate of return. The higher are rates of return, the stiffer is likely to be the next regulatory regime, and therefore further potential profit gains at the end of one cycle are saved until after the next regime is established, though the changes so delayed would improve welfare if introduced earlier. It has become clear that the problems associated with rate of return regulation are not entirely avoided in either form of price regulation. The simplicity of cost reduction by controlling prices disintegrates in the face of strategic behaviour immediately prior to revision when firms will try to depress apparent rate of return to gain more profits in the next 'round'. Here the incentives for both managerial and economic efficiency are diluted, and such behaviour is likely earlier in future regulatory rounds now that the link is more clearly understood by both industries and regulators.

The role of rate of return in determining X in the regulatory formula raises another difficulty with partial regulation, viz. that of shared capital between regulated and unregulated activities. If the regulator is to ascertain the rate of return on regulated activities, the costs (and particularly the capital employed) for the regulated sector must be separated from those for non-regulated activities. But it is in the nature of industries like gas that systems and costs are shared between the two markets (for example the same pipelines transmit gas to contract and tariff markets), and it is therefore impossible to separate costs and returns from each market. Thus rate of return can be considered sensibly only over the industry as a whole. And it is not clear what is an appropriate (or excessive) rate of return for such a hybrid of regulated and unregulated activities. Any standard guides

to rates of return are likely to depend on the risk involved, and riskiness is itself affected by regulation (presumably adversely, so that risk is greater the tougher is the regulatory regime). The increased risk from regulation was amply demonstrated by the requirement that BG lower its prices because of the formula relating to allowable gas purchase costs - a clause which was meant to protect the industry from unavoidable cost increases, not to force it to pass on cost savings as in fact occurred in 1987. Thus partial regulation of an industry complicates the calculation of appropriate rates of return, and therefore the level of X in the subsequent regulatory round.

THE PRICE CONTROL FORMULA

A long regulatory cycle, desirable to minimise the industry's strategic behaviour, requires long term forecasts which may be difficult. It was partly to overcome a particular difficulty of this kind that the Y element was introduced into gas regulation, since it was argued that BG had no control over the rise in costs of purchasing gas. This is true to the extent that gas available via cheaper contracts declines as the fields are depleted, but is an odd assumption for a monopsonist facing oligopolistic sellers. Even were it true it is not clear why the full amount of such cost increases should be passed on to consumers, though profit maximising considerations might prevent BG from implementing the full rise. However the inclusion of 'unavoidable' gas costs are likely to have two deleterious effects on managerial efficiency. The first is that there is less incentive to minimise gas purchasing costs if they can be fully passed on to the consumer. Both British Gas and its suppliers know this, and it is likely to remove the edge from competitive bargaining for gas supplies.

Secondly, there is a temptation to move costs from the 'regulated' to the 'allowable' section where there is some discretion. One such activity is in the provision of storage facilities, which can be saved by buying gas of which a higher proportion is delivered in winter (and is therefore more expensive). This higher cost of purchasing can be passed on to the consumer in a way which the (non-allowable) storage costs cannot, and therefore gives BG an incentive to meet the peak demand by more variability in gas contracts and less storage than the least cost solution would suggest. Both these factors lead to managerial inefficiency.

The gas price constraint formula contains a separate restraint on the standing charge. Indeed it was one of the few changes achieved in the Parliamentary debate that this constraint was made mandatory. We have seen that the average revenue constraint is likely to result in an inefficient structure of prices for a given level of profit, by raising prices in high cost markets and in markets with price inelastic demand. To the extent that demand with respect to standing charge is inelastic a separate price cap may therefore improve the price structure and economic efficiency. This is not so with a tariff basket price constraint which gives incentives to move towards an efficient price structure; in this case limits on individual charges will merely inhibit such a process.

CONCLUSION

The ways in which the gas industry has been privatised and regulated are unlikely to maximise either the managerial or economic efficiency available from the process. Managerial efficiency would have been greater if the industry had been privatised as a number of smaller local monopolies, promoting some within-industry competition and providing the regulator with more information. It would also have lessened the danger of regulatory capture which is clearly significant with such a large industry and small regulator. While the industry should have been split horizontally, regulation should have applied over the whole range of each part's activities, since this gives incentives for prices to be related more appropriately to costs and makes the calculation of rate of return, and revision of X, easier. However the type of regulation chosen for the gas industry is not that which encourages most efficiency in the structure of prices, and so economic efficiency has been lost in the choice of average revenue rather than tariff basket constraint. The inclusion of 'allowable gas costs' encourages managerial inefficiency in removing some incentives to minimise costs.

The experience of the gas industry's privatisation would lead to the following recommendations:

- to allow adequate time for discussion of industry structure and regulatory regime
- to split the industry into its constituent parts without losing economies of scale or scope to regulate all the activities of each part of the industry
- to use a tariff basket price constraint without individual price caps
- not to have exceptions in the price control formula which may lead to managerial inefficiency

Rather than privatise the industry wholesale and regulate it piecemeal, the Government should have privatised the gas industry in parts and subjected all its activities to regulation.

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PRIVATISATION PRINCIPLES

Summary of Paper by
Stephen Littlechild, University of Birmingham

Reviewing the arguments in favour of privatisation, Professor Stephen Littlechild of Birmingham University distinguished two specific economic benefits which might be expected to arise from privatisation. In the first place managerial efficiency would improve since under privatisation management would become more interested in the market value of the company, in maximising profits, in discovering what customers want and in getting costs down through higher productivity. The second benefit comes from the removal of governmental constraints which tend to hinder cost reduction. But how well had the government coped with the problems of implementing its privatisation policy? The likely negative employment consequences of privatisation were presented as essentially short term and the remedy a programme of redundancy payments and job creation schemes. In the longer run employment prospects were better under privatisation than under nationalisation. The provision of uneconomic services perceived to be in the public interest was handled either by placing obligations on the private companies to maintain these services or by levies on profitable operations to support cross subsidisation. The problem of monopoly power has proved to be more difficult. Professor Littlechild claimed that nationalised industries have always exploited their monopoly power not commercially but in terms of higher wages. This type of exploitation could have been countered by competition. Where it did not exist competition could have been created by the removal of barriers to entry like statutory restrictions and lack of access to long life plant which protect the incumbent firm against potential new entrants. Competition should be strengthened by splitting up industries, giving more powers to the Office of Fair Trading, and price regulation to stimulate efficiency instead of merely enforcing a regulated rate of return as in the US.

The government's choice of targets had not in the event followed the logic of its case. Up to 1984 companies privatised were those which were operating satisfactorily and had few problems. The privatisation of companies where the greatest benefits in terms of increased efficiency and savings of state assistance might be achieved - like the CEGB, British Coal and British Rail - had been delayed. In retrospect the government chose to privatise the easiest cases first. The government's record in promoting competition has been mixed- failure in the case of British Telecom but success in that of the privatised bus industry. Littlechild further criticised the government for having chosen an order of privatisation designed to maximise proceeds rather than promote efficiency. The real reason it went this route was because it was easier to privatise companies as monopolies. Nevertheless he concluded that on balance the process had been as near 'a Pareto' improvement as anything we have seen. Governments had taken steps to deal with all eventualities and had found money so that no one had been made worse off. It was not surprising that coal, rail and ports had been left to the end of the queue in view of their acute problems of employment, uneconomic services and monopoly power.

PRIVATISING ELECTRICITY

Summary of Paper by
Allen Sykes, Consolidated Gold Fields

Dealing specifically with the privatisation of electricity, Mr. Allen Sykes of Consolidated Gold Fields emphasised the unique relationship between the UK coal and power industries - British Coal sells 75% of its coal to UK power stations while the Central Electricity Generating Board (CEGB) buys 95% of its coal from British Coal. In such a situation of mutual dependence the government has little room for experiment and a poor programme for privatisation would be inferior to the status quo. A potential for improved efficiency exists because electricity generation (72% of the industry), unlike transmission and distribution, is not a natural monopoly. Sykes estimated that benefits with a present value of £13 billion were achievable within 5 years (based on a 12% discount rate). If coal were also to be privatised extra benefits could be achieved of a further net £4 billion. Approximately one half of the benefits from electricity privatisation would come from buying coal more efficiently without damaging British Coal. Of the remainder, part would come from more efficient manning levels, and improved purchasing including capital purchasing. The rest would derive from overhead economies less any costs resulting from the break up. The scale of the benefits would depend on the degree of regulation.

The only way to achieve these benefits he argued was to break up the generation activity into four or five units as compared with the governments proposed two. Since power cannot be stored, producers must be able to offer a spectrum of supplies to meet requirements. A dominant producer with such a spectrum of supplies acquired at a discount of between 40 and 50 percent of replacement cost is in a very strong position `vis a vis` a new producer. Furthermore the high capital cost of plant (perhaps £1 billion per station) gives the dominant established producers every incentive to prevent entry. A policy of providing all new capacity from new producers would only lead to 10% ownership by new suppliers by the end of the century, and would not be adequate.

The government's proposals would increase competition by separating the grid from the producers and giving it to the Area Boards. It was, however, a major new task for the Boards requiring new and experienced management. This would create problems since no one outside of the CEGB had such relevant experience. The decision to split generation between only two producers would please the existing producer since it would retain most capacity. While this would make the privatisation easier to carry out it provides an incentive for the two producers to collude rather than compete. It is difficult to see how anyone could compete effectively against the two producers and few benefits are likely to be secured by customers.

A second major criticism related to the cost of coal inputs to electricity production. British Coal's prices often were double those of imported coal. Costs could be reduced by more open cast coal extraction. Yet by passing the licensing of open cast coal extraction over to local authorities the government had hindered this process. Local authorities were reluctant to authorise open cast working either because of environmental concern or for job preservation motives. There was the danger of creating a sellers market in coal.

The need for regulation of generation as well as of distribution and transmission is crucial. Even the smaller of the proposed generating companies is as big as any utility in the United States. Customers will want to be satisfied that investments are justified and afterwards that they were prudent. However this creates problems for investors since it is more difficult to forecast the cash flow under regulation. If the companies are sheltered from competition and electricity prices are kept high, industry will suffer, and protest.

The final criticism related to the requirement that the larger generating company (G major) should be responsible for nuclear generation. The government would have to give assurances that it would compensate the firm in the event of a forced shutdown. This would make it very difficult for private investors and City institutions to evaluate the company's performance. The answer would be to have nuclear on its own with special provisions thus strengthening the case for splitting up G major.