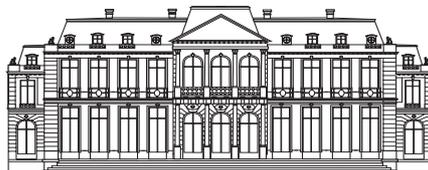


**REGULATION, COMPETITION AND PRIVATISATION**

*Helsinki, 17 - 18 September 1998*

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***Privatisation and Competition: the Evidence from Utility and  
Infrastructure Privatisation in the UK***

***Helsinki (Finland)*  
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# REGULATION, COMPETITION AND PRIVATISATION

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## PRIVATISATION AND COMPETITION: THE EVIDENCE FROM UTILITY AND INFRASTRUCTURE PRIVATISATION IN THE UK

STUART HOLDER\*

### *I. Executive summary*

This paper reviews the currently available evidence on the experience of the privatised utilities and infrastructure providers in the UK. It covers the telecommunications, gas, electricity and water industries, and also the provision of port and airport infrastructure.

It is difficult to identify a separate impact of privatisation, which was often accompanied by significant regulatory, competitive and structural changes. We do not know, moreover, how these industries would have performed had they remained in the public sector. Nevertheless, the evidence shows that the privatised utilities and infrastructure providers:

increased labour productivity, and sometimes total factor productivity, at rates faster than those generally achieved before privatisation;

offered real price reductions (except in the water industry, where higher charges were needed to fund significant quality improvements). In the telecommunications and gas industries in particular, prices have fallen at a faster rate than they did before privatisation;

achieved sustained improvements in levels of service quality, especially in the telecommunications and water industries; and

provided very substantial contributions to public sector finances.

A combination of privatisation, industry restructuring, regulation and liberalisation has allowed the companies to build upon the improvements achieved by better management of the nationalised industries in the early 1980s. It is hard to believe that these companies would have achieved these significant further improvements had they remained in the public sector.

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Competition has been introduced in the telecommunications, gas and electricity industries. To date, this process has generally been managed by the regulators, and has required some privatised firms to reorganise (either an accounting separation or the creation of separate subsidiaries) to ensure that competitors have non-discriminatory access to their networks. Longer-term issues still need to be addressed, particularly concerning the sustainability of universal service obligations in a competitive environment.

### **II. Introduction**

The UK privatisation programme commenced in 1979, at a time when nationalised industries accounted for about a tenth of the country's Gross Domestic Product and employed about 1.5 million people. Some of these industries were (or were thought to be) natural monopolies, often providing vital services such as water, electricity and gas to domestic and industrial customers. Others, including coal and steel producers, car manufacturers and ship builders, occupied what was sometimes characterised as "a position of strategic importance" to the UK economy.

Since then, more than 50 major companies (and dozens of smaller ones) have been transferred to the private sector, raising more than £60 billion for the UK government in the process. Many privatised firms face strong competition in an increasingly open world market. Others, notably the traditional utilities, became private sector monopolists, though most of these are now facing competition in some or all of their markets. Although some of its language may be different, the current Labour government is continuing to privatise (or, in some cases, establish "public private partnerships"), organisations such as London Underground and the national air traffic control service.

This paper reviews the currently available evidence on the experience of privatised utilities and infrastructure providers in the UK, including the telecommunications, gas, electricity and water industries, and also the provision of port and airport infrastructure.<sup>1</sup> Academic research has focussed mainly on the impact of privatisation (and other changes) on firms' efficiency, as measured by labour productivity and total factor productivity. This research is summarised below, along with the findings from surveys carried out by NERA into the prices, service quality and financing of privatised industries in the UK.

It is difficult to reach conclusions from this evidence about the impact of privatisation. One reason for this is that privatisation has often coincided with other significant changes, for example to the regulatory structure, the nature of competition or even the basic structure of the relevant industry.

An equally difficult problem is that of establishing the correct counterfactual: what would have happened if these firms had remained in the public sector? As noted in Section IV, there is convincing evidence that the nationalised industries performed better in the 1980s than they did in the 1970s, including some industries for which privatisation was not on the political agenda during this time. If this improved performance would have been maintained (or bettered) in the absence of privatisation, then some of the apparent benefits from privatisation may be illusory.

The rest of this paper is structured as follows. Section III describes the way in which each industry was privatised, including the market structure and regulatory framework adopted on privatisation, and also identifies significant developments since privatisation. Section IV then considers the various ways privatisation might affect an industry's performance and reviews the available evidence on the performance of UK utilities and infrastructure providers before and after privatisation. Section V draws some conclusions.

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### **III. Overview of utility and infrastructure privatisation in the UK**

This section describes the process of industry restructuring, privatisation and regulation in UK utility and infrastructure industries, including both the privatisation process and any significant regulatory or competitive changes, which have occurred since privatisation. Sections III.1 to III.6 cover the individual industries in the order they were privatised, then Section III.7 draws together some common themes.

#### **III.1. Ports**

The first major utility or infrastructure privatisation was that of Associated British Ports (ABP), formerly the British Transport Docks Board, which was privatised in February 1983. ABP owns 22 large and small ports, accounting for about a quarter of total UK port capacity (by value of trade). There is strong competition between UK ports, and the industry has a historic tendency to provide excess capacity. UK ports also face competition from ports in Belgium, Holland, France and Germany. In view of this competition, ABP is largely unregulated, though it is subject to general competition law and there are also backstop procedures for appeals to the Secretary of State for Transport over the level of charges.

The main change to the industry since privatisation was the abolition of the Dock Labour Scheme in 1989, which removed a number of historical restrictions on port owners. This allowed ABP and other port owners to manage their workforces far more efficiently, and also to contract out some operational activities, such as cargo handling. This is one reason for ABP's apparent strong performance during the "recession period" shown in Table 3.1 below.

#### **III.2. Telecommunications**

Before 1981, all telecommunications services in the UK were provided by the Post Office.<sup>2</sup> In 1981 a separate public corporation, British Telecom (BT), was created to carry out the Post Office's telecommunications functions, and BT was privatised in November 1984. A new regulatory body, the Office of Telecommunications (OFTEL),<sup>3</sup> was created both to regulate BT's prices and service quality and, more importantly, to oversee the interconnection arrangements between competing operators.

Some of BT's prices are subject to a price cap formula determined by OFTEL. At first, this covered only exchange line rentals and local and national direct dialled calls, accounting for about 50% of BT group turnover. Subsequently, the scope of the price control was extended to include operator assisted calls, directory enquiries, some private circuits, international calls and connection charges, accounting for about 65% of BT group turnover.<sup>4</sup> Last year, in view of the increasing extent of competition (see below), the price cap was amended so as to apply only to the lowest spending 80% of residential customers and a package to protect small businesses, and to exclude directory enquiries services.

At the time of privatisation, BT was a *de facto* monopoly supplier of basic telephone services. Even though a national competitor, Mercury Communications, had been licensed in 1982, it was unable to

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supply basic telephony until it had an interconnection agreement with BT, which was eventually determined by OFTEL in October 1985.<sup>5</sup> At the time of privatisation, moreover, the government announced its intention not to license any further fixed-link competitors until 1990 at the earliest. Between 1985 and 1991, BT and Mercury enjoyed a duopoly in the market for fixed-link telephone services.<sup>6</sup>

Following its review of the duopoly in 1990-1, the government decided to allow further (and, in theory, unrestricted) entry by suppliers of domestic fixed-link telephone services. Importantly, cable television operators were to be allowed to compete in their own right (rather than just providing infrastructure for BT or Mercury, as was previously the case). BT's market share has now dropped below 75% of call revenues (ranging from 52% for international calls to 85% for local calls), and 90% of exchange line rental revenues.<sup>7</sup>

The framework for interconnection between operators has had a major impact on the nature of competition, particularly between BT and other operators. OFTEL's initial determination in 1985 was favourable to Mercury, since it ignored the impact of BT's "access deficit" (which meant that BT was forced to keep call charges high in order to compensate for low line rental charges). This arrangement was formalised in 1993, when access deficit charges were introduced for other operators, but a waiver was granted so that operators only paid access deficit charges when they had achieved a 10% share of international or inland calls.

The structural problems associated with introducing competition in the presence of a vertically integrated, dominant incumbent were addressed more directly by OFTEL's requirement that, from 1995, there should be an accounting separation between BT's retail business (i.e. supply of calls), network business and access (i.e. supply of lines) business. Under this new arrangement, BT's network division charges all operators (including both BT's retail division and its competitors) for the use of its network according to a common set of charges.

### ***III.3. Gas***

British Gas (BG) was privatised in December 1986 as a vertically integrated producer, transporter and supplier of natural gas. Although other suppliers had been able, in theory, to purchase and transmit gas for sale to final users through BG's pipelines since 1982, BG was still a monopoly supplier at the time of privatisation.

A new regulatory body, the Office of Gas Supply (OFGAS), was created to protect the interests of customers, but its powers were restricted to the "tariff" market for customers with an annual demand of

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25,000 therms or less. BG's monopoly over the "contract" market (for customers using more than 25,000 therms a year) was abolished, and regulations to allow common carriage through BG's pipelines were strengthened. Notwithstanding the absence of actual competitors, this market was thought to be sufficiently competitive that it should be subject only to general competition law (rather than industry-specific economic regulation).

Within a year of privatisation, BG was referred to the Monopolies and Mergers Commission (MMC), following complaints of discriminatory behaviour in the contract market. The MMC found that BG was practising extensive discrimination, and that this was acting against the public interest by imposing high prices, deterring entry, increasing the risks faced by customers and imposing additional costs on those users whom BG refused to supply with interruptible gas. BG was required to produce price schedules for all supplies to large customers, to publish details of the terms and conditions of common carriage, and also to contract for no more than 90% of the gas from any new field.

The Office of Fair Trading (OFT) reviewed the impact of these remedies in 1991, and found that they had been ineffective in terms of encouraging competition to BG. The OFT recommended that BG should release some of its contracted gas, that the upper threshold (25,000 therms a year) on the tariff market should be reduced, and that BG should divest (or at least create an arm's length subsidiary for) its gas transportation and storage business.

BG agreed a set of undertakings based on these proposals in 1992, which also provided for the regulation (by OFGAS) of its transportation and storage charges. The threshold on BG's monopoly tariff market was reduced from 25,000 therms to 2,500 therms a year in August 1992. But BG was unable to reach agreement with OFGAS, particularly about the rate of return to be included in its transportation and storage charges, and so there was a further MMC investigation which reported in 1993.

The MMC recommended that BG's trading business should be divested, and that the threshold on BG's monopoly should be reduced further (to 1,500 therms per year) and perhaps then abolished.<sup>8</sup> The Secretary of State for Trade and Industry decided not to accept the MMC's recommendation for full separation, but instead allowed both trading and transportation/storage businesses to remain as separate subsidiaries of BG. He also established an accelerated timetable for the removal of BG's monopoly, starting with the introduction of competition in the South West of England in 1996, spreading to the South East of England in 1997, and covering the whole of Great Britain in 1998.

BG now faces significant competition in all supply markets. About 25% of domestic customers in the relevant parts of South West and South East England had switched to alternative gas suppliers by 1997, and its share of the industrial and commercial sector has now fallen below 30%.

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### **III.4. Airports**

British Airports Authority (BAA) owns and operates seven UK airports (Heathrow, Gatwick, Stansted, Southampton, Edinburgh, Glasgow and Aberdeen) which together account for roughly three-quarters of UK air transport movements and passengers. BAA was privatised in July 1987, and the main regulatory issues arising since privatisation have concerned the details of five-yearly price reviews (see below), rather than any structural or competitive changes.

All of BAA's airports are subject to economic regulation by the Civil Aviation Authority (CAA). For the smaller airports, this simply takes the form of provisions designed to protect airlines and other airport users from anti-competitive practices. But BAA's three largest airports (Heathrow, Gatwick and Stansted), plus the publicly owned Manchester airport, are also subject to price cap regulation, which automatically involves the Monopolies and Mergers Commission (MMC).<sup>9</sup>

Although only some airport charges (including take-off and landing fees, parking fees and per-passenger charges) are regulated, the price cap is reviewed on the basis of the overall financial performance of each airport.<sup>10</sup> For BAA, the price cap applies to the three airports taken together, and also separately for Heathrow and Gatwick.

### **III.5. Electricity**

Unlike previous utility privatisations, electricity privatisation in Great Britain was preceded by significant industry restructuring. Until 1990, the electricity industry in England and Wales had consisted of a vertically integrated generation and bulk transmission business, the Central Electricity Generating Board (CEGB), plus 12 area boards responsible for the local distribution and supply of electricity. The industry was restructured in 1990, as follows:

the area boards were renamed Regional Electricity Companies (RECs) and were privatised in December 1990;

the CEGB's non-nuclear generation capacity was split between two firms, National Power and Powergen, which were privatised in March 1991;

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the CEGB's transmission activities were transferred to the National Grid Company (NGC), which was set up as a jointly-owned subsidiary of the RECs, and which was sold (by public offer) in November 1995;

the CEGB's nuclear generation capacity initially remained in the public sector (as Nuclear Electric). This was merged with nuclear generation in Scotland to form British Energy, which was privatised in July 1996.<sup>11</sup>

Generators and suppliers buy and sell electricity either under contract or through a spot market operated by the Electricity Pool of England and Wales ("the Pool"), which is a collective organisation of electricity generators and suppliers. NGC operates the settlement system and funds administration on behalf of the Pool.

In contrast, the only major restructuring before electricity privatisation in Scotland was to separate nuclear generation (initially as Scottish Nuclear) from other activities. Otherwise, the two vertically integrated suppliers were renamed Scottish Power and Scottish HydroElectric and privatised in June 1991.

This was followed by the restructuring and privatisation of the electricity industry in Northern Ireland. Four power stations were sold (as trade sales or management buy-outs) between April and June 1992, and the new transmission and distribution company, Northern Ireland Electricity, was privatised in June 1993.

A new regulatory body, the Office of Electricity Regulation (OFFER), is responsible for the economic regulation of the industry. Price cap regulation is applied separately to supply prices (except to larger customers who may use alternative suppliers - see below), the RECs' distribution charges, and NGC's transmission charges. Generation prices are not regulated, though following concerns about National Power and Powergen's market power, these companies agreed to voluntary limits on the prices at which they bid into the Pool.

The period since privatisation has already seen a number of significant changes to the industry. Initially, competition in the supply of electricity was restricted to customers, mainly large industrial or commercial users, consuming more than 1MW per year. In 1994, competition was allowed for customers using more than 100KW per year, and is due to be extended to all customers later this year.

In addition, the distinction between generators and suppliers has blurred, as some of the RECs have acquired significant generation capacity.<sup>12</sup> Initially, the RECs were not permitted to own generating capacity in excess of 15% of their requirements, but these limits were subsequently relaxed, which allowed Eastern Electricity to purchase divested capacity from National Power and Powergen and thus become the fourth largest generator, with a market share of almost 10%.

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More fundamental changes could have occurred in 1995/6, when National Power and Powergen each bid to take-over a REC (respectively Southern Electricity and Midlands Electricity). Although the Monopolies and Mergers Commission concluded that, subject to undertakings being provided, the mergers should be allowed to go ahead,<sup>13</sup> they were blocked by the Secretary of State for Trade and Industry. Some further vertical integration was allowed, however, through Scottish Power's take-over of a REC (Manweb) in 1995.<sup>14</sup> The question of vertical integration is now being revisited, following a bid in July 1998 by Powergen for another REC (East Midland Electricity).

Most of the other RECs have changed hands, with buyers including US electricity companies and UK conglomerates. Two RECs (Norweb and SWALEC) were acquired by privatised water and sewerage companies (North West Water and Welsh Water).

### **III.6. Water**

From 1974 to 1989, the water industry in England and Wales consisted of 10 state owned regional Water Authorities, which supply approximately three-quarters of the population of England and Wales, and 29 privately owned Statutory Water Companies.<sup>15</sup> The Water Authorities were responsible for water supply and sewerage services, plus a number of functions associated with water resource management,<sup>16</sup> whereas the Statutory Water Companies were responsible only for water supply.

A new regulatory and legislative framework was introduced in 1989. The Water Authorities became Water and Sewerage Companies (WaSCs), while the Statutory Water Companies became Water Supply Companies (WSCs). The WaSCs were privatised in December 1989.

Both the WaSCs and the WSCs are regulated by the Office of Water Services (OFWAT). This is mainly carried out through price caps placed on each company, and also a set of minimum service standards. The companies must also comply with quality standards established by the Environmental Agency (which is responsible for pollution control, water resource management and related functions) and the Drinking Water Inspectorate.

The scope for competition in the water industry is clearly limited. Nevertheless, the current framework allows for "inset competition" whereby a new supplier is licensed to supply water and/or sewerage services within an area already served by another supplier for either greenfield sites (which are not served by an existing supplier) or large customers using at least 250 megalitres a year. To date, most cases of inset competition have involved third party brokerage arrangements rather than new entry.

There has been some limited merger activity in the water industry, mainly involving the WSCs. Even when companies with no other involvement in the water industry have bid to take-over WaSCs, OFWAT

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has argued that such take-overs will lead to a loss of comparative financial information, and has often sought compensating price reductions for consumers. There has been only one case involving a proposed merger between WaSCs, when both Severn Trent Water and Wessex Water bid for South West Water.

The Monopolies and Mergers Commission recommended that both bids be blocked, mainly on the grounds of the reduced ability to make comparisons between WaSCs, and this recommendation was accepted by the Secretary of State for Trade and Industry.

### **III.7. Summary**

The privatisation and subsequent regulation of port and airport infrastructure suppliers has been relatively straightforward. By and large, these companies have continued to carry out their business in the way envisaged at privatisation.

In contrast, the privatised utilities have been subject to significant internal and external pressures for change. In the telecommunications and gas industries, these reflect the significant difficulties associated with introducing competition in industries still served by large vertically integrated incumbents. The industry structure adopted for privatisation in these industries is not necessarily (indeed, almost certainly not) that which would be chosen today. Conversely, private operators in the electricity industry have been trying to reverse the vertical separation created at the time of privatisation, and sales and purchases of generating capacity have blurred the distinction between generators and suppliers.

An important feature of competition in the telecommunications, gas and electricity industries is that it has been carefully managed by the industry regulator. Administrative decisions have been taken about when and how to introduce competition, and the “rules of engagement” have been established by the regulators, sometimes placing constraints or disadvantages on the incumbent supplier in order to facilitate entry.

In the longer term, important questions remain to be addressed about the nature of competition in the regulated utilities. Incumbents may enjoy advantages from economies of scale and an established market position. But they may be disadvantaged because of universal service obligations and also by the impact of investment decisions taken while the firm was in the public sector. Regulators also face conflicting pressures, as a tough approach to price and service quality regulation of dominant incumbents, while delivering benefits to consumers in the short run, may make it more difficult for competitors to enter (and remain in) the market in competition with an efficient incumbent. Such problems can be overcome while competition and entry is managed by the regulator, but in the long term the impact is unclear.

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### *IV. The performance of the privatised industries*

Privatisation is merely a change in the ownership of a firm. If both public sector and private sector owners had direct control over managers' behaviour, then there might be no reason to suppose that a publicly-owned firm would be more or less efficient than a privately-owned firm. The two firms may have different underlying objectives, in particular the privately-owned firm will be profit-seeking rather than welfare-maximising, but most of these differences can be addressed through an appropriate framework of regulation.

In practice, of course, owners cannot directly control those who manage their firms. Instead, they must provide their managers with appropriate incentives and put in place arrangements for the monitoring and control of managerial behaviour. The differing incentives and controls placed on managers in the public and private sectors could mean that ownership *does* matter as:

shareholders are interested primarily in financial returns, and managers' remuneration can be linked directly to the profitability (and share price) of the firm. In contrast, public sector firms may pursue a variety of objectives and managers' priorities may include, for example, keeping in favour with the relevant Minister rather than necessarily improving the financial performance of the firm;

it may be easier for shareholders to monitor the performance of private sector managers than for Ministers or civil servants to monitor public sector managers;

the threat of take-over may act as a discipline on the behaviour of private sector managers;<sup>17</sup>

managers in the public sector may be subject to additional constraints which are not placed on private sector managers. In the UK, for example:

the government seeks to restrain public sector pay, both to control public expenditure and also to set a low benchmark for private sector pay negotiations. Public sector managers may find themselves locked into pay disputes which would have been settled in the private sector, or unable to pay sufficiently high wages to attract the staff they would like to employ; most public sector enterprises are not allowed to borrow money from private capital markets. Instead, they must use public funds, and negotiate with government as part of its general determination of public spending plans. Investment projects might come under pressure as they are judged not merely on their own merits but in comparison with other items of public expenditure which could be financed instead. In addition to the change in ownership, other changes occurring at the same time as privatisation might have a significant impact on managerial behaviour. The privatised utilities are now subject to economic regulation, and price limits may be based on a more rigorous assessment of potential efficiency gains than was usually carried out when they were in the public sector. Increasingly, they are also facing competition in some or all of their markets, leading to further significant pressure for firms to achieve efficiency gains.

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The fact that privatisation was often accompanied by a new regulatory framework, and sometimes by industry restructuring or liberalisation, means that researchers have not generally attempted to identify the impact of privatisation alone. Haskel and Szymanski (1993) have attempted to do this (see Section IV.1), but most others have simply recorded the change in overall industry performance which occurred around the time of privatisation.

The rest of this Section summarises the main evidence available on the performance of privatised utilities and infrastructure providers in the UK. Sections IV.1 to IV.4 deal with costs and efficiency, prices, service quality and financing. Section IV.5 contains a brief summary of the main findings.

### *IV.1. Costs and efficiency*

The efficiency of public or private sector companies is usually measured by either labour productivity or total factor productivity. In theory, total factor productivity is preferable, as it measures the efficiency with which all inputs are used. In contrast, an increase in labour productivity might reflect a substitution of capital for labour inputs rather than any change in the firm's underlying productivity. But total factor productivity is more difficult to measure, particularly as it requires an estimate of the change in capital inputs, and both measures are used in practice.

#### *IV.1.1. Cross-sector studies*

As noted above, Haskel and Szymanski (1993) derived separate estimates for the impact of privatisation, as opposed to management restructuring, increased competition or regulatory change, on labour productivity for a sample of 12 UK firms or industries which were publicly owned in 1972.<sup>18</sup> Unfortunately, only four firms in the sample were privatised during the study period (1972/3 to 1988/9), and Haskel and Szymanski found that privatisation had a significant positive impact on labour productivity growth for only two of these firms (British Airports Authority and British Airways). The impact was insignificant in the other two cases (British Gas and British Telecom). Their conclusions on the impact of privatisation were only tentative, however, because of the relatively short period of post-privatisation experience during the sample period.

Parker and Martin (1997) analysed labour and total factor productivity data to assess the impact of privatisation and associated changes on 11 UK firms, including four utilities or infrastructure suppliers (Associated British Ports, British Airports Authority, British Gas and British Telecom).<sup>19</sup> They measured trends in labour and total factor productivity relative to the economy as a whole, both in the eight years before privatisation (divided into two four year periods, labelled as the "nationalisation" and "pre-privatisation" periods) and in several periods after privatisation (the "post privatisation" period covers the

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first four years after privatisation, which in some cases overlaps with the "recession" period (1988-92). These are followed by the "latest" period (generally 1992-5, but 1993-4 for Associated British Ports).

Their results, which are summarised in Table 3.1 below, show clear evidence of improved labour productivity growth both before and after privatisation, but the findings in terms of total factor productivity are less clear cut. Similar results were obtained for the other firms in the sample, and Parker and Martin observe that their stronger findings in respect of labour productivity are consistent with the view that state ownership is primarily associated with over-manning, which may reflect either managerial slack or the impact of political intervention.<sup>20</sup> They conclude that:

" The empirical work presented confirms that there is no automatic relationship between privatisation and performance improvement. Privatisation has been associated with improvements in performance in a number of cases but not all. Also, improvements in performance often pre-dated actual privatisation, leaving open the question of whether ownership matters."

Even this conclusion may be overstating the case. The general improvement in the performance of the nationalised industries during the 1980s is well documented (see, for example, Bishop and Thompson, 1992). Substantial increases in labour productivity and, to a lesser extent, total factor productivity growth were achieved not only by the privatised utilities, but also by a number of firms (including British Coal, British Rail and the Post Office) for which privatisation was not yet on the political agenda. Indeed, Bishop and Green (1995) draw attention to the strong productivity growth of the (still publicly owned) Post Office during the early 1990s, compared with less impressive performances by several privatised utilities.

Put simply, therefore, the UK government got better at managing public sector enterprises, and economists have not yet been able to find conclusive evidence of additional improvements which are attributable to privatisation alone.

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Table 3.1

### Productivity Trends Before and After Privatisation

Annual % change relative to the economy as a whole	Nationalisation period	Pre-privatisation period	Post privatisation period	Recession
<u>Labour Productivity</u>				
Associated British Ports	- 3.1	0.4	12.7	23.2
British Airports Authority	- 0.1	2.4	- 0.7	- 1.5
British Gas	- 0.2	5.5	2.0	1.8
British Telecom	1.3	3.8	2.3	5.6
<u>Total Factor Productivity</u>				
Associated British Ports	- 1.2	5.7	9.2	2.6
British Airports Authority <sup>a</sup>	0.4	0.1	- 5.2	- 4.0
British Gas	- 0.3	2.1	- 0.1	- 0.3
British Telecom	6.7	2.8	1.0	3.1

*Source: Parker and Martin (1997), Tables 3 and 4*

<sup>a</sup> *The data shown are based on an estimate of all BAA outputs. Parker and Martin also report estimates of productivity growth with output measured by the number of air traffic movements*

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### IV.1.2. Single sector studies

The evidence from studies of individual industries or firms is also mixed. Waddams Price and Weyman-Jones (1996) constructed Malmquist indices of productivity growth to assess British Gas' performance over a sample of 12 production and distribution regions. They found that privatisation was associated with a doubling of British Gas' rate of productivity growth (to 5-6% per year), and that this was due to a shift in the production frontier rather than any catching up between regions.<sup>21</sup> They argue that this is because privatisation and regulatory reform placed improved incentives on the entire industry, rather than any pressure on individual regions to improve their relative performance.

Burns and Weyman-Jones (1994) carried out a similar analysis for the electricity distribution industry in England and Wales. They found a wider diversity of performance among the 12 companies after privatisation (compared with the period before privatisation), but were unable to identify a statistically significant impact of privatisation on productivity growth. Two possible reasons for this outcome are the fact that the companies were privatised during an economic recession, and also Burns and Weyman-Jones argue that the initial price cap placed on the companies was extremely lenient (in part to allow for improvements in service quality).

In the case of telecommunications, Parker (1994) reports a substantial increase in BT's labour productivity growth, from an average of 3.8% per year in the five years before privatisation to an average of 6.9% per year in the ten years since privatisation. But he also found that average total factor productivity growth fell after privatisation, though this is consistent with the fact that most of the efficiency gains realised by BT have resulted from labour shedding.<sup>22</sup>

### IV.1.3. *Labour costs*

Anecdotal evidence exists of low wages paid by privatised firms, though these often involve services (such as refuse collection, cleaning and London bus routes) which are contracted out under a system of competitive tendering. The limited evidence about the privatised utilities is more mixed.

Haskel and Szymanski (1992) examined the impact of either privatisation or changed objectives on employment and wages in 14 firms or industries which were publicly owned in 1980.<sup>23</sup> They found that privatisation or changed objectives led to large-scale labour shedding as companies became more profit oriented. Those workers remaining with the firms have generally maintained their wages relative to comparable groups, but relative wages have fallen in cases where liberalisation has reduced the firm's market power.

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Parker (1994) found that performance related pay had been introduced and union power had diminished since BT privatisation. Average wages increased at similar rates to those in the rest of the economy and in manufacturing, until 1992/3 when a shake-out of labour led to an increase in average wages.

### **IV.2. Prices**

The prices charged by most of the privatised utilities and infrastructure providers are controlled by industry regulators, usually through a price cap formula ("RPI-X" or similar) which sets the maximum level of prices the firm is allowed to charge in each year. But some prices are excluded from price cap regulation (including energy prices for large customers, mobile phone and payphone charges, and BAA airport charges outside of South East England), mainly because these activities are subject to a greater degree of competition. Neither do price caps apply to firms competing with the privatised utilities, though clearly the regulated tariffs set a benchmark for the prices which competitors can charge.

Trends in prices (and service quality) for five privatised industries are recorded in NERA (1997). These are summarised in Figures 3.1 to 3.5 below, which show real price indices set equal to 100 in the year of privatisation. Points to note about these charts are that:<sup>24</sup>

the data shown in Figures 3.1, 3.2, 3.4 and 3.5 are industry averages, which therefore include the prices charged by both the privatised utilities and their competitors;<sup>25</sup>

each data series is a separate index, so the relative positions of the lines for domestic and industrial users in Figures 3.2, 3.4 and 3.5 do not indicate anything about the relative levels of charges for these customers;

there is no series for telecommunications charges for business users. The impact of re-balancing of BT tariffs (see below) is likely to have resulted in larger real price reductions for business users than for domestic users, therefore Figure 3.1 understates the overall fall in real telecommunications prices since privatisation;

the data series for domestic energy users in Figures 3.2 and 3.5 exclude the impact of VAT on household fuel, which was introduced in 1994.

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Figure 3.1: Real Domestic Telecommunications Prices

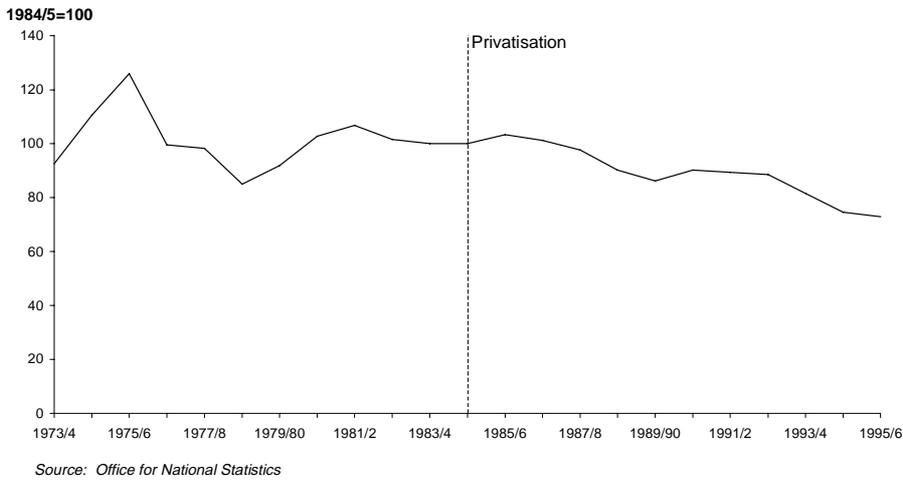
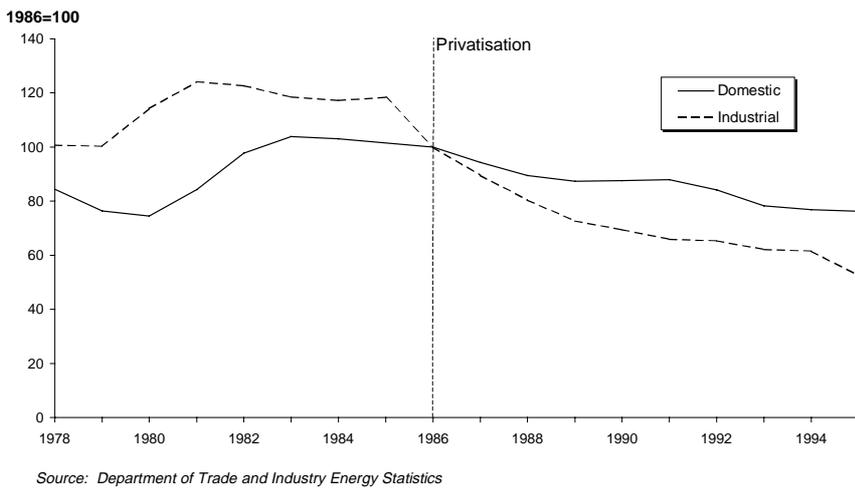
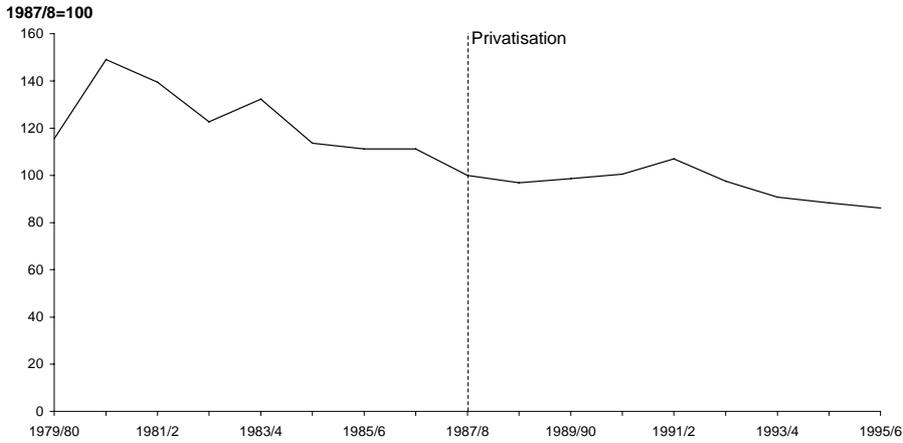


Figure 3.2: Real Gas Prices

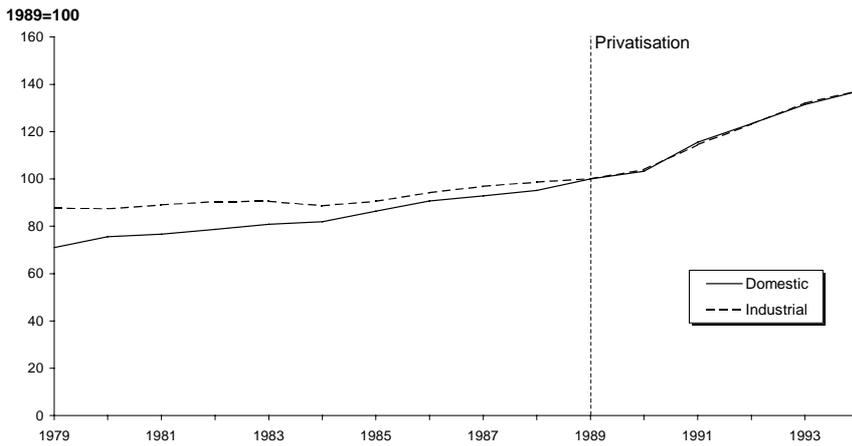


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**Figure 3.3: Real BAA Airport Charges**



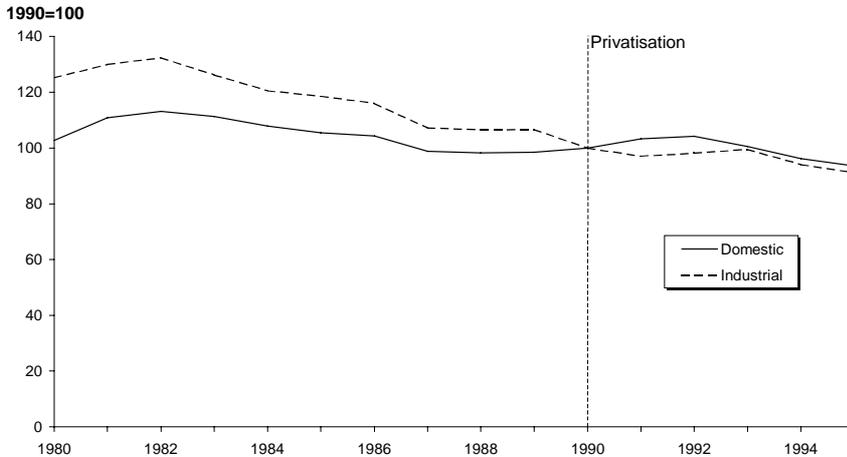
**Figure 3.4: Real Water Prices**



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Figure 3.5: Real Electricity Prices



Source: Department of Trade and Industry Energy Statistics

Figures 3.1 to 3.5 show that both domestic and industrial customers have generally benefited from real price reductions since privatisation. The only exception to this is the water industry, where prices rose by 37% in real terms between 1990 and 1994 in order to fund a major increase in investment. This investment was required partly to ensure future compliance with EU legislation on water quality, and also to address a shortfall in investment from the 1970s and 1980s which had left much of the industry's infrastructure in a poor condition.<sup>26</sup>

Elsewhere, both telecommunications and gas users have benefited from real price reductions in most years since privatisation, whereas reductions in airport and electricity charges have been concentrated in the last two or three years of the period. Comparison with pre-privatisation price trends is difficult, mainly because of the volatility of the prices charged by nationalised industries, which is particularly marked in Figures 3.1 to 3.3. Nevertheless, the long term trends in telecommunications and gas prices are clearly more favourable after privatisation than before privatisation, while the reverse applies to water prices.

It is clear from Figures 3.1 to 3.5 that there has been a significant rebalancing between domestic and industrial tariffs over the last 15-20 years. In the period before privatisation, gas, electricity and water charges to domestic users rose faster (or fell more slowly) than those to industrial users. This trend has continued since privatisation in the gas industry, and initially in the electricity industry (though this appears to have been mostly corrected).<sup>27</sup> Though not shown on Figures 3.2 and 3.5, domestic consumers have also had to pay VAT on household fuel since 1994.

There has also been a significant re-balancing of telecommunications prices, reflecting both the impact of competition and the need to correct a large imbalance between exchange line costs and revenues (known as the "access deficit"). The real reduction shown in Figure 3.1 is the result of a much larger reduction in call charges, especially for long distance and international calls, combined with a real *increase* in BT's line rental charges. These trends are likely to have benefited business users, who often make more intensive of exchange lines and tend to make more long distance calls than domestic users.

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### *IV.3. Service quality*

The regulatory frameworks established in the early privatisations (including those of British Telecom, British Gas and British Airports Authority) contained no explicit provision for regulating service quality, though it was recognised that price cap regulation created strong incentives for firms to achieve cost reductions, and that these might be achieved at the expense of poorer service quality (rather than through improved efficiency). Following criticisms of BT's quality of service by the National Consumers' Council in 1987, OFTEL has become increasingly involved (and remains so) in monitoring the performance of both BT and its competitors.

The regulatory frameworks established for later privatisations included provisions which allowed the regulators to collect and publish service quality data, to set minimum performance standards and to require companies to establish customer compensation schemes for cases where they fail to meet these standards. The telecommunications and gas regulators were given similar powers by the Competition and Service (Utilities) Act 1992.

Any attempt to assess the impact of privatisation on service quality is hampered by the relative paucity of data for the pre-privatisation period. The nationalised industries were essentially self regulating with respect to service quality, and there is very little systematic data available to compare with the post privatisation period. Since privatisation, however, most of the utility regulators have collected a substantial amount of service quality data, and this is summarised in NERA (1997).

In general, these data indicate a sustained improvement in levels of service, especially in the telecommunications and water industries. The improvements achieved since privatisation by British Telecom include:

a reduction in the percentage of call failures from 4.4% for national calls and 2% for local calls in 1984/5 to an average of 0.5% for all domestic calls in 1995/6;

a significant improvement in the reliability of payphones. OFTEL intervened after finding that nearly a quarter of payphones were out of order in 1987. It now collects data on payphone serviceability, which showed that an average 96% of payphones were in working order during 1995/6;

an increase in the proportion of residential orders completed in eight working days, from 59% in 1985/6 to 97% in 1995/6, and a significant increase in the proportion of faults cleared within two working days.

While BT's service quality improvements were accompanied by a significant real reduction in average telecommunications charges, the improvements achieved by the water industry were partly the result of

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the substantial increase in investment expenditure, funded by higher real charges as noted in Section IV.2. These improvements have included:

an improvement in drinking water quality, as measured by the proportion of samples tested by the Drinking Water Inspectorate which comply with its prescribed concentrations or values, and also by a water quality index published by OFWAT;

a marked improvement in river water quality, and an increase in the proportion of bathing areas complying with EC standards;

a decrease in the proportion of the population at risk from water shortages, and a trend decrease in the incidence of hosepipe bans;<sup>28</sup>

steady reductions in the proportion of properties at risk from either low water pressure or sewer flooding.

There are two main aspects of service quality in the electricity industry: the security and availability of supply; and standards of customer service (including activities such as responding to service requests, reading meters and handling complaints). Data on the security and availability of supply are generally available for the period since 1985/6, therefore covering both before and after privatisation. There is little perceptible long run trend in these data, however, which are heavily influenced by bad weather conditions in particular years. Overall, it appears that the industry's performance has been at least maintained, and may have improved slightly.

In contrast, there is clear evidence of an improvement in customer service since the privatisation of the electricity supply industry. No data are available for the period before privatisation, but since privatisation the data show that the average performance of the regional electricity companies has improved significantly in each of the areas where OFFER has set service standards. The number of payments to customers made by companies for failing to meet service standards has also fallen dramatically, from 17, 415 in 1991/2 to 3, 795 in 1995/6.

Until recently, OFGAS collected relatively little information on British Gas' service quality, partly because of the existence of a separate consumer body, the Gas Consumers' Council. Following increasing concern about British Gas' quality of service, OFGAS and British Gas agreed (after several years of discussions) a set of 30 formal service standards, which were implemented in 1992 and extended the following year. British Gas' performance against these standards has improved in a number of key areas, but the volume of customer complaints (to both OFGAS and the Gas Consumers' Council) continued to rise between 1990 and 1995. In addition, in November 1995 British Gas voluntarily relinquished its Charter Mark, which had been awarded in 1993 for the delivery of high standards of public service.

Finally, the performance of British Airports Authority (BAA) is also difficult to assess. This is partly because the quality of service experienced by airport users depends on the performance of a number of different parties, including airlines, baggage handling firms and others not directly under BAA's control. Service quality is measured mainly through passenger surveys in relation to aspects such as cleanliness, comfort, helpfulness of staff and availability of trolleys. In general, the data show some improvement in overall service quality since 1986, especially at Heathrow and Glasgow and, since 1990/1, also at Stansted.

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### **IV.4. Public sector finances**

A conventional, if rather simple, view of privatisation is that the government receives sale proceeds in return for relinquishing its claim on the future profits of a company. In reality, of course, the relationship between privatisation and public sector finances is much more complex.

NERA (1996) examined this relationship for a sample of 31 privatised utilities and infrastructure providers,<sup>29</sup> and its findings are summarised in Table 3.2. Even before any of the companies were privatised, they were net contributors to public finances as interest payments on government debt and corporation tax payments more than cancelled out the amounts they received through external financing limits (EFLs) agreed with the Treasury. Collectively, the companies were also paying interest of more than £500 million on loans provided by parties other than the UK government.

At the time of privatisation, the government received proceeds from the sale of shares, which in some cases were staggered over a number of years. Where it retained some of the shares in the privatised company, the government continued to receive dividends on those shares, and also received corporation tax payments which in most cases increased significantly after privatisation (reflecting the companies' improved profitability). In some cases, moreover, companies were privatised while owing significant amounts of debt to the government, so the government continued to receive interest on and eventual repayment of these debts.

Table 3.2 shows that the privatisation process was associated with a substantial increase in government receipts in relation to these 31 companies. This reflected: the sale of shares, which generated average proceeds of £3.2 billion a year (net of flotation costs) between 1984/5 and 1994/5; annual corporation tax receipts of £2 billion or more since 1990/1, compared with an average of £135 million a year between 1979/80 and 1984/5; interest receipts and debt repayments, which averaged £1 billion a year even before privatisation, but increased to £1.7 billion a year between 1986/7 and 1995/6; average dividend receipts on the government's residual shareholdings of £285 million a year between 1985/6 and 1995/6. The overall impact was an inflow to public sector finances which rose from an average of £1.5 billion a year between 1979/80 and 1985/6 to an average of £8.3 billion a year over the following nine years.

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**Table 3.2**  
**Financial Flows for 31 Privatised Utilities and Infrastructure Providers**

<b>Public Sector Flows</b> <sup>1</sup>												
(£ million)	Year ended 31 March	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<b>Net Privatisation Proceeds</b>					<b>44</b>		<b>1,255</b>	<b>1,246</b>	<b>2,726</b>	<b>2,355</b>	<b>2,244</b>	<b>450</b>
<b>Other Flows to Public Sector</b>												
External financing repayments <sup>3</sup>		-449	-15	-451	301	154	-616	281	1,661	1,107	1,639	1,379
Debt repayments and share redemptions					25		44	61	1,061	273	585	892
Interest received on government debt		580	1,025	1,072	1,137	1,120	1,080	1,099	1,199	1,248	1,218	875
Corporation tax received		22	20	180	212	238	137	391	929	1,521	1,551	1,321
Dividends received		0	0			1	11	269	300	322	326	336
Other												
<b>Total Other Flows</b>		<b>153</b>	<b>1,030</b>	<b>802</b>	<b>1,675</b>	<b>1,512</b>	<b>656</b>	<b>2,101</b>	<b>5,151</b>	<b>4,471</b>	<b>5,320</b>	<b>4,803</b>
<b>Total Flows to Public Sector</b>		<b>153</b>	<b>1,030</b>	<b>802</b>	<b>1,720</b>	<b>1,512</b>	<b>1,911</b>	<b>3,347</b>	<b>7,877</b>	<b>6,826</b>	<b>7,564</b>	<b>5,253</b>
<b>Private Sector Flows</b> <sup>2</sup>												
(£ million)	Year ended 31 March	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<b>Share (and Debt) Purchases</b>					<b>-46</b>		<b>-1,409</b>	<b>-1,246</b>	<b>-2,901</b>	<b>-2,396</b>	<b>-2,244</b>	<b>-2,080</b>
<b>Other Flows to Private Sector</b>												
External financing repayments <sup>3</sup>					-25	10	108	-129	210	-892	-1,083	-1,767
Interest received		514	718	708	694	681	635	694	616	543	568	675
Dividends received						1	2	212	247	552	684	789
<b>Total Other Flows</b>		<b>514</b>	<b>718</b>	<b>708</b>	<b>669</b>	<b>692</b>	<b>745</b>	<b>777</b>	<b>1,073</b>	<b>203</b>	<b>169</b>	<b>-303</b>
<b>Total Flows to Private Sector</b>		<b>514</b>	<b>718</b>	<b>708</b>	<b>623</b>	<b>692</b>	<b>-664</b>	<b>-469</b>	<b>-1,828</b>	<b>-2,194</b>	<b>-2,075</b>	<b>-2,383</b>

Source: NERA (1996)

- (1) Cash flows from the companies to (the rest of) the public sector. Negative signs indicate that the companies were net recipients of public sector funds
- (2) Cash flows from the companies to (the rest of) the private sector. Negative signs indicate that the companies were net recipients of funds from the rest of the private sector
- (3) A negative entry indicates that the companies were net recipients of financing from either the public sector (this would be shown in government statistics) or the private sector

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Table 3.2 also shows the net contribution of the private sector. In addition to purchasing shares, the private sector has continued to provide further finance to the privatised companies. These amounts have been increasingly offset by higher interest and dividend receipts, which reached £4-5 billion a year over the last few years of the period. Consequently, the private sector was a net recipient of funds from the 31 companies in 1994/5, for the first time since 1983/4.

### *IV.5. Summary*

While it is not possible to identify the "impact" of privatisation, the evidence set out above shows that the privatised utilities and infrastructure providers:

- increased labour productivity, and sometimes total factor productivity, at rates faster than those generally achieved before privatisation;
- offered real price reductions (except in the water industry, where higher charges were needed to fund significant quality improvements). In the telecommunications and gas industries in particular, prices have fallen at a faster rate than they did before privatisation;
- achieved sustained improvements in levels of service quality, especially in the telecommunications and water industries;
- provided very substantial contributions to public sector finances.
- At the very least, a combination of privatisation, industry restructuring, regulation and liberalisation has allowed the companies to build upon the improvements achieved by better management of the nationalised industries in the early 1980s. In reality, it is hard to believe that these companies would have achieved these significant improvements had they remained in the public sector.

### *V. Conclusion*

This paper has reviewed some of the available evidence on the performance of privatised utilities and infrastructure providers in the UK. It is not possible to identify a separate "privatisation" impact, both because privatisation was often accompanied by other significant regulatory, competitive or structural changes, and also because we can do little more than guess how these firms would have performed had they remained in the public sector. If we take a broad definition of privatisation, however, which also includes industry restructuring, liberalisation and regulation, then it seems very likely that privatisation has had a significant and largely beneficial impact.

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Even though substantial improvements in the efficiency of the nationalised industries were achieved in the 1980s, including cases where privatisation was clearly not being considered by politicians at the time, it is difficult to believe that this momentum would have been sustained over a longer period, particularly after initial inefficiencies had been removed and the achievement of further improvements would have required significant reductions in the workforce. More importantly, the introduction of competition, which has brought significant benefits to telecommunications users and industrial (and increasingly domestic) energy users, would have been more difficult to achieve if the dominant incumbent firms in these industries had remained in the public sector.

Improvements have been achieved even in the absence of competition. Strong regulation has achieved significant long term benefits for consumers. But regulation is only a substitute for competitive pressures, and mistakes have been made (and will continue to be made) from time to time. Considerable effort is therefore being devoted to the introduction of competition in electricity and gas supply markets.

Competition may be difficult to introduce into markets where the industry structure is not appropriate, for example because there is a vertically integrated monopolist. But once an industry has been privatised, then it is usually very much more difficult (if not impossible) to restructure that industry. If British Gas and British Telecom were privatised today, it seems likely that a very different approach would be taken to that adopted in the mid 1980s. Even in the electricity industry, which saw significant restructuring and the introduction of complex new trading arrangements before privatisation, the Regional Electricity Companies are having to ensure an arm's length relationship between their supply and distribution businesses in preparation for the full liberalisation of the supply market later this year.

So far, the introduction of competition has been largely controlled by the regulators. Competition has been prevented by legislative restrictions on market entry, or encouraged by constraints on incumbents (for example, limiting their opportunity to meet competition with regional or other targeted price reductions). There are important long run questions which have yet to be addressed, involving the sustainability of universal service obligations in a competitive environment, and whether there is a point beyond which the loss of scale and scope economies may outweigh the benefits of additional competition.

For the moment, however, the UK privatisation programme, along with associated structural, regulatory and competitive changes, seems to have had a significant and beneficial impact. And in the immediate future, consumers face the prospect of further price reductions as a result of competition, particularly in telecommunications and energy markets.

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### NOTES

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- <sup>1</sup> Rail infrastructure, which was privatised in May 1996, is excluded from this survey because of the limited amount of post privatisation experience.
- <sup>2</sup> The only exception is Kingston-upon-Hull, which was (and continues to be) served by a separate municipal telecommunications operator.
- <sup>3</sup> Formally, regulatory functions and duties are vested with an individual, the Director General of Telecommunications, who heads OFTEL. For simplicity, however, OFTEL is used interchangeably to refer to both the regulatory office and the individual. Similar comments apply to the Director General of Gas Supply and OFGAS, the Director General of Electricity Supply and OFFER, and the Director General of Water Services and OFWAT.
- <sup>4</sup> Unregulated charges include equipment rentals, calls from public telephone boxes, calls to mobile telephones and calls to "premium rate" services.
- <sup>5</sup> Interconnection is essential, as it allows customers of competing telecommunications operators to call each other. Clearly, large operators are likely to be net recipients of interconnection charges, as a high proportion of calls are likely to terminate with their customers, each requiring an interconnection payment.
- <sup>6</sup> Other markets were liberalised at an earlier stage. The supply of telecommunications apparatus (which accounted for 10-15% of BT's turnover at the time of privatisation) had been liberalised since 1981, and competing mobile telephone services were introduced in 1985 (though one of the two initial operators, Cellnet, is partly owned by BT).
- <sup>7</sup> Source: OFTEL (1998).
- <sup>8</sup> The MMC also made recommendations on the price formulae for both BG's transportation/storage business and its supply business.
- <sup>9</sup> This is in contrast to the MMC's role in other regulated industries, which is more like that of an appeals body.
- <sup>10</sup> This is known as the "single till" approach.
- <sup>11</sup> The older magnox reactors were excluded from this transaction, and remain in the public sector as Magnox Electric.
- <sup>12</sup> This is partly as a result of sales of National Power and Powergen capacity which, like the companies' voluntary price limits, were required to address concerns about their market power.
- <sup>13</sup> The MMC acknowledged that the mergers would have adverse impacts, but did not consider they were sufficiently serious to justify blocking the merger.
- <sup>14</sup> Scottish Power also owns a privatised water and sewerage company, Southern Water.
- <sup>15</sup> Take-overs and mergers between these companies have resulted in their number falling from 29 (at privatisation) to 18.
- <sup>16</sup> These functions were transferred first to the National Rivers Authority, and then to its successor body, the Environmental Agency.

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- <sup>17</sup> The threat of bankruptcy is often added to this list, in contrast to the "soft budget constraint" placed on public sector firms. In reality, the threat of bankruptcy is quite a remote prospect for most privatised firms, particularly the regulated utilities.
- <sup>18</sup> The firms/industries were British Airports Authority, British Airways, British Coal, British Gas, British Rail, British Steel, British Telecom, the Electricity Supply Industry, London Regional Transport, the Post Office, the Regional Water Authorities and Scottish Transport Group.
- <sup>19</sup> The other firms in the same were British Aerospace, British Airways, British Steel, Britoil, Jaguar, National Freight Corporation and Rolls-Royce, all of which now operate in relatively competitive markets.
- <sup>20</sup> Making the same point in their earlier study (Parker and Martin, 1995), Parker and Martin refer specifically to "political intervention which postponed rationalisation".
- <sup>21</sup> Interpreting a similar earlier study by the same authors, Button and Weyman-Jones (1994) identified a once-off impact of privatisation and associated changes in the regulatory regime which was equivalent to a 2.3% annual increase in productivity. Of this, 0.5% was due to catching up between regions, and 1.8% was due to a shift in the whole production frontier.
- <sup>22</sup> The average number of BT employees fell slowly from 244,592 in 1983/4 to 237,400 in 1990/1, then dropped to 163,500 in 1993/4 (see Parker, 1994).
- <sup>23</sup> These were British Airports Authority, British Airways, British Coal, British Gas, British Rail, British Steel, British Telecom, Electricity Supply Industry, North of Scotland Hydro-Electric Board, South of Scotland Hydro-Electric Board, London Regional Transport, Post Office (posts), Regional Water Authorities and Scottish Transport Group.
- <sup>24</sup> See NERA (1997) for more detailed information about the data series used.
- <sup>25</sup> The data for water prices, in particular, include prices charged by public sector suppliers in Scotland and Northern Ireland, and also by water supply companies which were already privately owned in 1989.
- <sup>26</sup> In the first five years after privatisation, the average annual capital expenditure of the privatised water companies was about £2.5 billion, compared with an average of £1.1 billion in the ten years before privatisation.
- <sup>27</sup> The movement of electricity charges immediately after privatisation reflects the liberalisation of supply to larger industrial and commercial users at a time when charges to smaller and domestic users were controlled by a rather lenient price cap.
- <sup>28</sup> The incidence of hosepipe bans fell between 1990/1 and 1994/5, but rose sharply as a result of serious drought conditions in 1995/6.
- <sup>29</sup> These were Associated British Ports, British Airports Authority, British Gas, British Telecom, the 17 privatised electricity companies in England, Wales and Scotland, and the 10 water and sewerage companies in England and Wales. The original study also included British Airways and British Steel, but the results from these companies have not been included in the totals shown in Table 3.2.

