Volume Title: Seeking a Premier Economy: The Economic Effects of British Economic Reforms, 1980-2000

Volume Author/Editor: David Card, Richard Blundell and Richard B. Freeman, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-09284-4

Volume URL: http://www.nber.org/books/card04-1

Conference Date: December 8-9, 2000

Publication Date: June 2004

Title: Seeking a Premier-League Economy The Role of Privatization

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URL: http://www.nber.org/chapters/c6745

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Seeking a Premier-League Economy
The Role of Privatization

Richard Green and Jonathan Haskel

> Taken together, the privatisation program in Britain probably marked the largest transfer of power and property since the dissolution of the monasteries under Henry VIII.
> —M. Pirie, *Privatisation*

2.1 Introduction and Summary

In 1979, when Margaret Thatcher came to power, publicly owned companies produced roughly 12 percent of U.K. gross domestic product (GDP). By the time of the election of the Labour government in 1997, this figure had fallen to 2 percent. At least in the United Kingdom, public ownership seems to have been discredited. The Labour Party, which had initially met the privatization program with the policy of renationalization without compensation, is now running privatizations of its own. In the meantime, the opinion and experience of U.K. privatization practitioners and regulators is sought throughout the world. In the United Kingdom, the debate has now shifted from the sales of publicly owned assets to the issues of franchise design for public services, public-private partnerships, and internal markets in state organizations.[1]

In this chapter we try to answer some of the following questions. First, what were the origins of privatization? Was the policy the natural outcome of Conservative thinking, or was it a decisive break from the past? Second, why has privatization proved so enduring? Why is renationalization off the

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We thank David Card, Richard Freeman, John Kingman, and conference participants for comments on an earlier draft. Thanks also to Jonathan Ashworth and Matt Barnes for expert research assistance. The plant-level data in this paper were prepared under the Office for National Statistics Business Data Linking Project. Errors are our own.

1. Following Kay and Thompson (1986), we think of privatization as a term covering various means of changing the relationships between government-provided economic activity and the private sector. The main areas of government activity are (or were) in (1) various industries, such as utilities, steel, and cars; (2) infrastructure, such as roads and railways; and (3) social services, such as pensions, health, and schools.

agenda? Third, and important in the context of diagnosing Britain's failure to reach the premier league of output per head over the last twenty years, did privatization raise productivity in the companies concerned? If it did not, what future steps concerning privatization or the privatized companies can be taken that might improve performance?

Our purpose in the chapter is partly to survey existing evidence and partly to bring new evidence to bear on these questions.[2] The following summarizes our argument. We start in the next section with an overview of the history of public-ownership levels in the United Kingdom and other countries. Before World War II, industries such as steel, coal, and transportation were mostly privately owned, with a few exceptions (the British Broadcasting Corporation [BBC] and British Overseas Airways Corporation). Utilities (gas, electricity, and water) were a mix of private and municipally owned, with some regulation (a position similar to the United States today). The major wave of nationalization occurred during the postwar Labour government (gas, electricity, steel, coal, and rail), aligning the United Kingdom with other European countries. Subsequent pre-Thatcher Conservative administrations privatized some industries (steel in 1953, for example) but equally nationalized some (Rolls-Royce in 1971) and attempted no major privatization of, for example, the utilities. Thus, privatization was in no sense inevitable; The Thatcher program was a decisive break from the past.

Although Thatcher came into office with a pro-market philosophy, the word "privatization" does not appear anywhere in the 1979 Conservative Party manifesto.[3] Privatization, at least on a large scale, was in fact something of an accident. During the early 1980s, it became apparent that the state-owned telephone monopoly, British Telecommunications, would have to undertake huge investment, in part because of previous unwise decisions on which technology to adopt (Galal et al. 1994). By Treasury accounting rules, such investment would count as public spending, which the government was committed to reduce, and all schemes to finance this public investment off the public balance sheet failed. The government decided to sell the company, ensuring that its investment would take place in the private sector, and they discovered that the sale was very popular with its supporters and extended the policy.

What effect is privatization likely to have? As we discuss in section 2.3,

2. This paper is predominantly a survey, but it does offer two original pieces of research. First, we look at newly assembled data on total factor productivity (TFP) for a series of previously public companies. Second, we use plant-level data for an industry that had a mix of public and private plants in 1979 (confidentiality precludes us from revealing the plants concerned), and we look at their relative productivities and at the contributions of plant closure to productivity growth.

3. There were commitments to return a few companies to the private sector, but the term "privatization" is not used.

economists have naturally focused on the possible efficiency gains from privatization, but these were not uppermost in politicians' minds at the time. Rather, as sections 2.4 and 2.5 set out, privatization was a way of meeting a number of economic and political objectives, such as reducing the power of public-sector trade unions. Management remained more or less the same, as did market structure (at least until the later privatizations of electricity and the railways). A number of steps were taken to try to make privatization irreversible, such as making shareholding widespread enough so that the opposition Labour Party's then stance of renationalization without compensation (later dropped) would potentially harm a large pool of shareholders.

Section 2.6 studies efficiency. Most studies of the major industries and utilities in the 1979 public sector start from the observation that the biggest improvements in productivity came before much of the sector was privatized. This suggests that restructuring and competition are more important in raising productivity than ownership per se. Studies of contracting out reach a similar conclusion. In refuse collection, for example, it is possible to compare costs when collection remains in the public sector without competition (i.e., the service being tendered), when it remains in the public sector with competition, and when it passes to the private sector. Evidence suggests that savings are similar whether collection is public or private as long as there is competition (i.e., tendering) for the service.

After all this, it seems appropriate to ask: Did the U.K. economy need privatization? To the extent that competition (and not ownership) matters, privatization would seem irrelevant. Thus, the imperative question is to devise appropriate regulation mechanisms and introduce competition, and these design issues are important in developing the next phase of privatization—namely, the Private Finance Initiative (PFI) and other public-private partnerships.

But to the extent that preprivatization restructuring matters, the effect of privatization is rather subtle (and would not be picked up in conventional regression analysis of company performance). Restructuring of public-sector firms needs tough decisions (e.g., deciding to close down plants). That toughness may come from a strong ministerial personality, but this is all too rare. However, it may also come from the threat (or promise) of privatization in the future. Thus, privatization is perhaps seen as a credible signal of public-sector toughness that politicians cannot otherwise give. Furthermore, the fact that privatization has been carried out confers an advantage to ministers on the left of the political spectrum: They can now credibly commit not to have to intervene in many formerly public-sector decisions. This might explain why renationalization has vanished from the U.K. Labour government's agenda, although it has intervened selectively from time to time.

2.2 Public Ownership in the United Kingdom

In 1979, government-owned firms produced approximately 12 percent of GDP. Public ownership predominated in the utilities, transport, and the "heavy industries" (i.e., coal, steel, and shipbuilding), although there were state-owned companies in other sectors. Table 2.1 shows how the pattern of public ownership in the United Kingdom developed over time. Since there is a longer history of public ownership in the utilities, we begin with these.

Utility public ownership began at the level of local, not national, government. Clean water supplies, and later gas (for lighting), were provided by local councils in some areas and by the private sector in others. Joseph Chamberlain's "gas and water socialism," which gave Birmingham improved services in the 1870s, was perhaps the most famous example, but there were many others. In the last two decades of the century, when the electricity supply industry began to emerge, some areas were served by privately owned companies and others by municipal undertakings. The 1882 Electric Lighting Act allowed the local authorities to buy out the private companies (at their written-down asset value) after twenty-one years, later extended to forty-two years. Unfortunately, this fragmented ownership structure made it almost impossible to gain economies of scale, since municipal undertakings could not expand beyond their boundaries, and the private companies, potentially larger, were in practice smaller (Hannah 1979).

Telephone services were initially also fragmented, but the post office became a near-national monopoly from 1912 onwards.[4] At that time, the post office was a government department headed by a minister, but it eventually became a conventional nationalized industry, a "public corporation," in 1969. The possibility of greater state control of the electricity industry to solve the problems caused by its fragmentation was discussed soon after the first World War, but was rejected. In 1926, however, the government set up the Central Electricity Board to construct a national transmission grid and allow the industry to gain economies of scale through better coordination of (still independent) generating stations.

Nationalization on a large scale followed the second World War and the election of the first majority Labour government. The private electricity companies were bought out, and the municipal undertakings transferred to central government ownership, in 1947. The gas industry was nationalized in a similar manner the following year. The water industry remained a mixture of local authority water boards and regulated private companies until 1973, when the local authority undertakings in England and Wales

4. Kingston-Upon-Hull City Council continued to provide its own telephone services. The first author used to assume that the civil service had simply forgotten the city when planning the reorganization. He now knows that the decision was made because the people of Hull deserve a better service than the rest of the country.

Table 2.1 **Public Ownership in the United Kingdom**

Industry	Pre-1914	1919–1939	1945–1951	1950s and 1960s	1970s	1980s	1990s
Aerospace		P			N 1977	P 1981	
Airlines		P; N 1939				P 1987	
Airports		P; M		N 1965 (some)		P 1987	
Bank of England	P		N 1946				
British Petroleum	P; stake bought 1914				Shares sold 1977–1987		
Broadcasting (BBC)		P; N 1927		P; stations added			
Cable and wireless (telecoms)	P	N 1938 (Part)	N 1946			P 1981	
Coal	P		N 1947				P 1994
Electricity	P; M	N 1933 (Grid)	N 1948				P 1990
Gas	P; M		N 1948			P 1986	
Oil (North Sea exploration)[a]				P	N 1975 (partly)	P 1982	
Ports						P 1983	
Post Office[b]	Govt. Dept.			N 1969			
Railways	P		N 1948				P 1994–1997
Road freight	P		N 1948	Mostly P		P 1982	
Rolls-Royce	P				N 1973	P 1987	
Shipbuilding	P				N 1977	P 1980s	
Steel	P		N 1949	P 1953; N 1967		P 1989	
Telecommunications	P; M; N 1912					P 1984	
Vehicles (British Leyland)	P				N 1975	P 1988	
Water[c]	P; M				N 1973; M	P 1989	

Notes: Blank cells indicate that the status of the industry in question did not change in the decade in question. M = municipal ownership; P = private ownership; N (date) = nationalization in that year; P (date) = privatization in that year (the first sale for companies privatized in tranches); and Govt. Dept. = government department.

[a]Britoil was set up alongside private-sector oil companies in 1975—no companies were taken over.

[b]The government department was transformed into a nationalized industry in 1969, but this was not a change of ownership.

[c]Only the municipal water undertakings were nationalized in 1973.

were reorganized into ten Regional Water Authorities. The private companies, which supplied about a quarter of the consumers in England and Wales with water, were not affected by this reorganization.

The postwar Labour government also nationalized a number of nonutility industries. The "commanding heights" of coal and steel were nationalized in 1946 and 1949, although the steel industry was to be sold back to the private sector by the next Conservative government. Similarly, much of the long-distance road freight industry was nationalized in 1948, and most of it privatized again in the early 1950s. The railways, losing traffic to roads and starved of investment during the war, were nationalized in 1948. The British Overseas Airways Corporation, including most of the country's fledgling airlines, had been nationalized in 1939. The steel industry was renationalized in 1967, and shipbuilding and aerospace were nationalized in 1977.

These latter nationalizations were bitterly opposed by the Conservative Party, even though the previous Conservative government had effectively nationalized Rolls-Royce (aircraft engines). Rescued from bankruptcy, the company did not become a public corporation, but it remained a limited company with the government as the major shareholder, as did the vehicle firm British Leyland, which was rescued a couple of years later. They were not the only private companies with substantial government shareholdings—the government had taken a strategic stake in British Petroleum before the first World War and later acquired Cable and Wireless, which provided telecommunications services in a number of (then) British colonies.

In 1979, therefore, Britain had a much higher degree of public ownership in industry than the United States, but it was not far out of line with the pattern in many other European countries. Public ownership of gas and electricity was common in Europe (sometimes in the charge of local government, sometimes central), while government ownership in the United States was much more limited (to municipal distribution bodies and the New Deal–era generating boards, such as the Tennessee Valley Authority). Telecommunications was usually public in Europe (as in the United Kingdom) and private in the United States. Public railways and "flag carrier" airlines (with smaller private competitors) were common in Europe but not in the United States. The United Kingdom had a mixture of public and private water suppliers. In the United States, water was (and is) predominantly municipal. In France, however, although municipalities own the water assets in their districts, operation is usually contracted out to private companies. The United Kingdom was relatively unusual in the number of industrial companies in the public sector, including coal, steel, shipbuilding, and car manufacturing; most companies in these sectors were in the private sector in Europe and the United States. However, some industrial companies in Europe were state owned, and the Mitterand government in France embarked on a large program of nationalization in the early 1980s, after privatization had started in the United Kingdom.

How, in practice, did the government control its nationalized industries? Most were organized as public corporations, a type of organization invented for the BBC, which was nationalized in 1927. A public corporation is established by an Act of Parliament and governed by a board responsible to a minister. The corporation is financially independent of government, although any borrowing had to be approved by the Treasury. The Act laid down the board's duties, and, although ministers are allowed to give the board general directions, they are meant to keep away from detailed decision making.[5] Morrison summed up the attitude sought of board members when he called upon them to regard themselves as "the high custodians of the public interest" (1933, 157).

It soon became apparent that merely requiring corporations to break even, taking one year with another, as most of the nationalization statutes did, would lead to an inadequate financial performance. The first step toward greater control was taken in a 1961 white paper that set out financial targets in terms of a target rate of return. A 1967 white paper, which was perhaps the high point of economic analysis in the control of nationalized industries, required corporations to base their prices on costs at the margin and to use a test discount rate of 8 percent (in real terms) in all investment appraisals. Financial targets were intended to be compatible with these economic rules. In the early 1970s, however, many corporations were required to hold down their prices to combat inflation, producing heavy losses. Two more white papers were produced, in 1975 and 1978, that concentrated on the financial objectives of safeguarding cash flow and restoring profitability.

The 1978 white paper also required ministers to set a range of performance targets for the nationalized industries, including measures such as productivity and service standards. This was due to the gradual recognition that the industries had not been performing well—their productivity was typically well below that of comparable foreign enterprises and was growing too slowly. Labor relations at British Leyland became a national joke during the 1970s, and other industries had similar problems. Possible reasons for these problems are discussed in the next section.

2.3 The Rationale for Privatization

To the extent that privatization is a change in ownership, the private and public sectors differ because the public sector has different *objectives* than the private (i.e., broader objectives than profit maximization) and different *incentives.* The different incentives arise because a public-sector firm is not

5. In practice, ministers almost never gave general directions of the kind envisaged in the Acts but intervened far too frequently in matters of detail, even though Morrison (1933, 171) had feared that a "mischievous and not too competent minister could easily ruin any business undertaking if that were permitted."

vulnerable to takeover or bankruptcy and has a different information relationship with its owners.[6]

The textbook argument for public ownership centers on differences in objectives between private and public firms. Profit-maximizing firms with market power will produce inefficiently low levels of output relative to welfare-maximizing firms (assuming that costs are independent of ownership). Furthermore, many utilities have increasing returns and, thus, market power. The rationale for public ownership is then clear—namely, a change in objectives to increase social welfare—although the rationale for public ownership of industries without market power is less clear.

There are at least two problems with this view. First, it is not clear that ownership is necessary to obtain a socially optimal output level, since a regulator could simply require firms to produce at that necessary level. The problem is, of course, that regulators are unlikely to know what the socially efficient output level is, but then neither will government. Second, the apparent inefficiency in public firms (Pryke 1982) suggests relaxing the assumption that public and private firms have similar costs. Both these arguments suggest examining productive efficiency in public and private firms.

There are two main approaches to this. The agency approach to privatization focuses on the principal/agent relationship between the owner and a manager (private sector) and government and manager (public sector). Assuming that the private sector is more effective at monitoring managerial activity than the public sector, privatization improves productive efficiency by ensuring that managers supply effort and keep down costs (Bos 1990; Rees 1988). This is therefore primarily an argument about the effect of incentives on productive efficiency.

The delegation approach is primarily about the effect of objectives on efficiency. It begins with the observation that worker effort is frequently bargained over between managers and workers.[7] Furthermore, private firms are assumed to maximize profits, whereas the objectives of public-sector organizations are a combination of profits, consumer surplus, and the welfare of public-sector employees.[8] Under various conditions (Haskel and Sanchis 1995), it can be shown that the effect of changing objectives

6. Owners of public firms are voters and ministers, whereas owners of private firms are shareholders and managers.

7. Millward and Stevens (1986, table 9.19) report that, in 1984, 87 percent of nationalized industries negotiated with trade unions over working conditions, and 77 percent over manning levels.

8. According to former minister John Moore, as quoted in Martin and Parker (1997, 3), "the priorities of elected politicians are different from and often in conflict with the priorities of effective business managers. Yet in state-owned industries politicians are in charge, which means that whenever politicians cannot resist getting involved in what should be management decisions, political priorities take precedence over commercial ones. Politicians may overrule commercial judgements in other to build a new factory in an area where voters need jobs, or they may refuse to close an uneconomical plant. They can become involved in policies affecting the hiring and the size of the workforce."

toward profit maximization is to raise effort. The intuition for this result is straightforward. Privatization can then be viewed as a way of committing the government not to pay high wages, to accept low effort, or both. It is a method of delegating authority over wage and effort bargaining for a government that is unable to commit itself to bargaining at arms' length with the workforce. A union bargaining with a private firm faces, at the margin, a firm unwilling to concede to demands for high wages and low effort.[9]

Both models would predict relatively high employment and low effort before privatization.[10] Similarly, any liberalization of markets raises effort. Note, too, that while privatization shifts the objectives of the public-sector firms toward profit maximization, this process may take place before private ownership is instituted. This may be important empirically in the U.K. case, since, typically in the United Kingdom, more commercially orientated managers were brought in while firms were still in the public sector.

Privatization of natural monopolies will usually require regulation. Cost of capital regulation—common in the United States, for example—is likely to lead to overcapitalization (Averch and Johnson 1962). The regulation of prices faces a fundamental trade-off: profit regulation gives firms little incentive to reduce costs but may keep prices more aligned with marginal costs, whereas price cap regulation gives ample incentives for cost reduction at the cost of a possible wedge between prices and marginal costs. Furthermore, dynamic price cap regulation faces the problem of resetting the price cap. As we document later, proponents of the first U.K. price cap scheme believed this dynamic problem to be of academic interest only since they expected that competition would arrive before the price cap had to be reset. In reality, if resetting the price cap involves looking at profits, then price cap regulation becomes de facto profit regulation (Beesley and Littlechild 1989).

It is often argued that competition is not feasible in natural monopolies. However, it is worth noting that, first, such arguments generally refer to competition within the market, but competition for the market, such as rail franchises (or more generally contracting out), is often feasible. Second, on close examination, natural monopolies often consist of parts where competition is indeed not feasible (e.g., transmission of electricity and railway lines) and others where it is feasible (e.g., generation of electricity and energy retailing), and the privatization and restructuring process can take account of this. Third, with technical change, the technology that causes

9. The complication here is that the result depends on the functional form of the utility function. If workers care a good deal about effort but not wages, they may agree to wage cuts after privatization. If such cuts are deep enough, then effort can even fall. See Haskel and Sanchis (1995) for discussion.

10. The agency model is usually cast in terms of managerial effort, and the effect on employment is seldom derived. The delegation model obtains specific predictions on overemployment and undereffort (see Haskel and Szymanski 1992; Haskel and Sanchis 1995).

natural monopoly can cease to be of such great importance (e.g., the development of mobile phones). Finally, competition can become part of regulation. Yardstick competition (Shleifer 1985) regulates a firm by making prices (e.g., in a firm with the monopoly of a particular region) dependent on other regions' costs, thus providing good incentives for cost reduction.[11]

Finally, the regulation of quality of service has become an important factor in the U.K. debate. Such an issue amply illustrates the information problems confronting the regulator. Since it is impossible for the regulator to write complete contracts specifying all dimensions of quality, firms can neglect nonregulated quality dimensions.

2.4 Privatization in the United Kingdom since 1979

In 1975, Margaret Thatcher became leader of the Conservative Party. The party had supported the corporatist consensus of the 1950s and 1960s and had expanded the state's role in industry by taking over Rolls-Royce and British Leyland. Thatcher and her advisors gradually became determined to move away from this consensus, which they saw as responsible for the country's relative decline. They planned to introduce "free-market" policies that would reduce the role of the state in the economy. Private enterprise was not only believed to be more efficient than state provision; many thought it was morally superior.

The Conservatives also sought to reduce trade union power, which was strongest in the nationalized industries. In 1974, the National Union of Mineworkers, working for the dominant state-owned mining industry, called a national strike for better pay. The resulting power cuts caused the Conservative Prime Minister at the time, Edward Heath, to call an election under the slogan "who governs Britain?" He lost the election and, later, the leadership of his party. In opposition, in 1978, the Conservatives' Ridley Report[12] argued that where industries "have the nation by the jugular vein the only feasible option is to pay up." John Moore, who later became Financial Secretary to the Treasury, was to say that "Public Sector trade unions have been extraordinarily successful in gaining advantages for themselves in the pay hierarchy by exploiting their monopoly collective bargaining position. . . . Privatisation . . . makes it possible to link pay to success and to provide appropriate rewards" (as quoted in Kay and Thompson 1986).

11. While competition might improve productive efficiency, a more difficult question is whether this by itself improves welfare. No one disputes that welfare improves if competition aligns prices closer to marginal costs, but if it simply reduces costs, then this does not necessarily raise welfare since it may just be a transfer of welfare from managers (who may have to work harder) to consumers (who get lower prices). Yardstick competition is a case in which welfare is increased, since splitting a firm into many units expands the information base upon which to write contracts. Auctions are also likely to be welfare-improving since they reveal what was private information (on all this, see Vickers 1995).

12. Nicholas Ridley, MP, chaired a Conservative study group whose unpublished report was leaked to *The Economist* ("Appomattox or civil war," 27 May 1978, pp. 21–22).

In the light of subsequent developments, it is interesting to note that the word "privatization" does not appear in the Conservative Manifesto for the 1979 election. The party pledged to sell the National Freight Corporation (the rump of the road-haulage industry that had not been denationalized in the 1950s) and some of the companies owned by the National Enterprise Board (a Labour creation designed to provide finance for industrial investment). During the election, the party also proposed the sale of British Airways. The most eye-catching commitment, however, was to allow council-house tenants to buy their own homes, with discounts reflecting the length of time they had been living there. This proved to be a very popular policy, with more than 1.5 million homes sold to date, or roughly 25 percent of the 1979 stock of 6.5 million council houses. The arguments for this policy were not primarily economic, however, and its effect on economic efficiency is likely to be limited, as discussed by Gregg, Machin, and Manning (chap. 9 in this volume).

With no plans for large-scale privatizations, in the early 1980s the government began to sell shares in the private companies that it owned. The 1980 Civil Aviation Act allowed the government to turn British Airways from a public corporation into a limited company suitable for privatization, but it started to incur huge losses due to the recession in the airline industry, and a sale was clearly inappropriate.[13] The National Freight Corporation was also suffering in the recession, but it was bought by a consortium of managers, employees, and pensioners who believed that the company was about to turn around. Helped by the sale of some of its surplus property, it did so. Nevertheless, privatization was proceeding on a small scale and was not a major political issue.[14]

All this was to change with the privatization of British Telecommunications (BT). During the 1970s, BT had built up a backlog of investment, in part due to previous misguided decisions on the right technology to adopt (Galal et al. 1994). The main reason, however, was the tight external financing limit that controlled the amount that BT could borrow from the government. In the early 1980s, macroeconomic policy was based upon the medium-term financial strategy, which depended on reductions in the Public Sector Borrowing Requirement (PSBR) to reduce the money supply and hence inflation. Under Treasury accounting rules, BT's investment would add directly to the PSBR. Various attempts were made to finance the investment outside the PSBR, and all fell foul of the "Ryrie rules" that determined whether a transaction should be counted as public spending. In

13. British Airways became profitable a few years later, but its privatization was delayed by legal action concerning the demise of Laker Airways, which went bankrupt during the recession, alleging that other airlines, BA among them, had engaged in predatory pricing. The matter was settled out of (U.S.) court, after which BA was sold.

14. The sale of Amersham International in February 1982 attracted some controversy when the shares rose by 32 percent on the first day of trading, giving large profits to some investors, but most voters probably remained blissfully unaware of this.

the end, privatizing BT seemed to be the only way to finance the investment within the government's self-imposed macroeconomic constraints.

The privatization of 51.2 percent of BT would be the largest share sale ever seen on the London Stock Exchange, however. The government's advisors doubted that the financial sector would be able to absorb the new shares. The only possibility seemed to be to offer shares to the general public in the hope that they could mop up the excess. A new kind of advertising campaign was designed,[15] and the shares were sold in November 1984. The advertising proved extremely successful: the issue was greatly oversubscribed, and when trading started on December 3 the shares closed at a premium of 33 percent to the offer price.[16]

From this time onward, a significant part of the electorate saw privatization as an easy way to make money,[17] and the policy acquired a large number of supporters. It soon seemed as if the only obstacle to privatizing a company was finding a place in the queue, since the government had to leave an interval after each major sale in order to allow investors to find money for their next purchase. As the recession of the early 1980s abated, state-owned companies that had been making huge losses became sufficiently profitable for privatization. Table 2.2 shows the major events affecting a selection of these companies, while table 2.3 records the more important sales. By May 1997, when the Conservatives lost power, very few firms remained in public ownership, and some of those became candidates for privatization under the Labour government. In most cases, privatization has meant the end of specific state involvement in the formerly nationalized firms. Some in ailing industries, such as coal and shipbuilding, have continued to receive state aid, although this is restricted by European Union rules (Besley and Seabright 2000). The Rover Group, formerly British Leyland, has changed hands twice since it was sold to British Aerospace,

15. Only an investment advisor can legally recommend that someone should buy a particular share, so the campaign could do no more than tell people that the sale was taking place—while also introducing many of them to the whole concept of share ownership.

16. Small shareholders who bought with the intention of selling their shares quickly made an even greater profit because the offer price was payable in three installments, and the rise represented 86 percent of the first installment. The phrase "stagging" soon entered the national vocabulary.

17. The shares of privatized companies generally outperformed the stock market in the period immediately after their privatization—the twenty-three companies that are still quoted on the stock market today outperformed the *Financial Times* all-share index by 43 percent (unweighted average) in the two years after their privatization. Kay (2001) has pointed out, however, that twenty-two of these twenty-three companies subsequently underperformed the market by an average of 39 percent ("More Brickbats than Bouquets," *Financial Times,* 7 February 17). The unweighted average performance from privatization to the end of 2000 is a loss of 15 percent relative to the all-share index. Individual figures range from a gain of 131 percent (Forth Ports) to a loss of 83 percent (British Steel/Corus). Kay suggests that this reflects the difficulties of truly transforming a nationalized industry into a private company, difficulties that only gradually became apparent. A gradual toughening of regulation and the very mixed record of diversifying acquisitions by privatized companies will also have affected their performance.

Table 2.2 **Events in Key Nationalized Industries**

	Nationalized	Privatization Announced	Restructured While Public	Privatized	Subject to RPI-X?	Liberalized	Postprivatization Events
British Airports Authority	1965	1985		1987	Yes		
British Airways	1939	1979	1982	1987	No		1988 merger with British Caledonian 1997 EU liberalization completed
British Coal	1946	1988	1985	1994	No		1998 contracts with ESI ended
British Gas	1948	1985		1986	Partly	1986, 1996	1988 MMC report on large users 1993 MMC report on entire industry 1997 British Gas splits itself in two
British Rail	1948		1981, 1993	1994–1997	Yes		1998 Strategic Rail Authority announced
British Steel	1967		1980	1988	No		
British Telecom	1912	1982	1981	1984	Partly	1984, 1991	1985 interconnection determination 1989 price controls reviewed 1991 duopoly review
Electricity	1948	1987	1983, 1990	1990–1991	Partly	1990–1998	1994 Generators' undertakings 1994–1995 REC price controls tightened 1995 first REC mergers
Water Authorities	1973	1986	1983, 1988	1989	Yes	Slowly	1994 price controls reviewed

Notes: British Caledonian was then the second largest U.K. carrier. The MMC is the Monopolies and Mergers Commission, REC is a regional electricity company (a local electricity distributor), EU is the European Union, and ESI is the electricity supply industry.

Table 2.3 Major Privatizations in the United Kingdom

Company	Float or Private Sale	Date	Proceeds (£millions; net of debt issue/cancellation)	
			Current Prices	2000 Prices
British Petroleum	F	1977–1987	6,226	11,454
British Aerospace	F	1981–1985	413	749
Cable and Wireless	F	1981–1985	1,066	2,014
National Freight Consortium	PS	1981	54	105
Amersham International	F	1982	65	134
Britoil	F	1982–1985	1,090	2,206
Associated British Ports	F	1983–1984	18	30
Enterprise Oil	F	1984	392	728
Jaguar	F	1984	—	—
British Telecom	F	1984–1993	13,201	17,621
British Gas	F	1986	7,720	13,254
British Airways	F	1987	900	1,472
Royal Ordnance	PS	1987	186	304
Rolls-Royce	F	1987	1,080	1,766
British Airports Authority	F	1987	1,281	2,094
Rover Group	PS	1988	150	231
British Steel	F	1988	2,425	3,738
Water authorities	F	1989	3,740	5,357
Regional electricity companies	F	1990	7,907	10,504
National Power and PowerGen	F	1991–1995	6,548	7,727
Scottish electricity companies	F	1991	3,481	4,369
Northern Ireland Electricity	F	1993	362	419
Coal	PS	1994–1995	1,633	1,859
Rail stock leasing companies	PS	1996	1,800	1,901
Railtrack	F	1996	1,950	2,059
British Energy (nuclear)	F	1996	2,108	2,226

Source: Pollitt (1999).

Note: Dashes indicate that amount is negligible.

and it narrowly escaped closure in 2000, causing a major political row. The government and its agents have continued to play a major role in the development of one group of the privatized industries, however. These are the utilities, and we now turn to consider them.

2.5 The Privatized Utilities

The 1979 Conservative Manifesto had not suggested that any utilities would be privatized, but once BT's privatization had proved a political success, the government started to look upon the other utilities as possible candidates for privatization. In April 1985, the government announced that British Gas would be sold, and the company became the second privatized utility in December 1986. The water industry followed in 1989.

None of these privatizations involved significant restructuring of the firms to be sold. The government had hoped that competition would develop in gas and telecommunications, but the process was very slow in the face of dominant, unrestructured incumbents. Not until the electricity industry was reorganized in 1990 did the privatization process involve the significant restructuring of an industry in order to promote effective competition. The railways were also restructured, in a more complicated process, and were privatized between 1994 and 1997.

The government recognized that it would be inappropriate to privatize the utilities as unregulated monopolies. The telecommunications industry had been opened up to competition in 1982 when the government gave Mercury a licence to build its own network in competition with BT. The hope was that this competition would soon be sufficient protection for consumers, but in the short term some regulation was needed. Thus, the first concern was to devise an appropriate regulatory system to restrain the company's behavior until competition became effective. At the same time, the government was conscious that the opposition Labour Party was deeply opposed to privatization. Thus, the second matter was to ensure that a future Labour government could not interfere with the regulatory system in order to disadvantage the company.

To cope with the second issue, the government established an independent regulator, the Director General of Telecommunications, with statutory duties that required the regulator to ensure that the company could finance its activities. The details of the company's regulation were enshrined in its licence, a contract that could only be revoked with twenty-five years' notice. Under English law, contracts cannot be changed unilaterally. The regulator would be allowed to impose a change against the wishes of the company, however, if the matter was referred to the Monopolies and Mergers Commission (MMC; the United Kingdom's competition authority, now the Competition Commission) and the MMC supported the change. The regulator was also subject to judicial review of his or her decision making. If the company felt that the regulator had not followed the proper procedures or that the decision taken was manifestly unreasonable,[18] it could ask a court to review the matter. This system of checks and balances was designed to protect the company's interests while ensuring that the regulator could still control its behavior (Levy and Spiller 1994).

What was this independent regulator expected to regulate while waiting for effective competition? At first, the Treasury had suggested a modified version of U.S.-style rate-of-return regulation, which would set a maximum rate of return but no minimum. This was intended to give the company stronger incentives for cost efficiency than a pure rate-of-return

18. Note that judicial review does not ask whether a decision was actually right or wrong, but whether it was unreasonable, which is less of a constraint on the regulator.

scheme, under which the company could appeal for higher prices if its costs rose and depressed its rate of return. When Alan Walters, the Prime Minister's economic advisor, suggested an alternative—namely, an output-related levy on profits (which was designed to give the company an incentive to keep prices low, since the levy rate would fall as output rose)—Stephen Littlechild (then a professor of economics at the University of Birmingham and later the U.K. electricity regulator) was commissioned to decide between the two schemes. He came up with a third: a local tariff reduction scheme, under which a basket of BT's prices (in the markets with the least competition) would have to fall by a preset amount in real terms each year. In nominal terms, they could rise by (RPI-X) percent, where RPI was the change in the retail price index and X was the preset real reduction, and this soon became the nickname for the scheme. Littlechild (1983) saw the scheme as a temporary expedient until competition became effective in holding prices down, because if it was needed for a permanent control, it would be necessary to reset the level of X from time to time. This could not sensibly be done without looking at the company's costs and profits, which would blur the distinction between his scheme and rate-of-return regulation. In practice, RPI-X, or price cap, regulation was later adopted for every other utility privatization, including those in which there was little prospect of competition (table 2.2).

The RPI-X regulation limits price increases for a basket of goods to X percent below the rise in the retail price index, with X being set by the regulator for a period of four or five years at a time. This system does away with the nationalized industry policy of tying prices to marginal costs in favor of providing strong incentives for cost reduction, since firms can keep any profits they make as long as they do not exceed the price cap. Thus, theoretically RPI-X should promote productivity improvement. In practice, a number of problems have emerged with the system. The first issue relates to the rebalancing of relative prices. If the company faces competition for some regulated services, it will have an incentive to reduce their prices. Doing so will relax the constraint on its other prices and thereby weaken the regulator's control of its activities as a monopolist. In the case of BT, an explicit constraint on domestic line rentals was introduced to limit the scope for this rebalancing, but other industries have not faced such constraints. The second point relates to quality. For BT, for example, there were initially no quality controls, and it was widely perceived that quality had deteriorated. Explicit quality targets have now been introduced. Finally, Beesley and Littlechild (1989) characterize the initial choice of X as the outcome of a bargain between incumbent managers and government. Managers were in a position to hold up the privatization process that politicians were anxious to speed along, and they often obtained favorable values of X as a result. Since then, in reviews, regulation has been set more toughly, but if X is to be chosen in the light of observed previous profit rates, then RPI-X

regulation is in danger of becoming like rate-of-return regulation with all the attendant incentive problems.

Some of these problems can be reduced by using yardstick regulation (Shleifer 1985). In its pure form, this suggests that the price allowed for one company is based on the average of its rivals' costs, breaking the link between the company's price and its own costs while still allowing it to offset industrywide movements in costs. The existing regional structure of the water industry and of electricity distribution allowed the adoption of yardstick competition, but in a slightly different form. In practice, the U.K. regulators use yardstick comparisons to assess the efficiency of each company in their industry and, hence, to predict the cost savings that each company might make over the next four or five years. The company's price control is based on the regulator's forecast of the company's costs (Waddams Price 1999). However, as well as predicting operating costs, in practice, regulators also have to predict the company's investment needs. Since the amount of investment needed depends on the state of each company's infrastructure, which is private information, regulators are compelled to rely on the company's own reports. This reintroduces scope for opportunistic behavior and bargaining between the regulator and the company.

The water regulator has placed the greatest stress upon yardstick techniques, asking the MMC to block mergers that would have reduced the number of water and sewerage companies to compare.[19] Despite this, a large number of the smaller water-only companies have been acquired, either by water and sewerage companies or by international groups. The electricity regulator has placed rather less stress on yardstick comparisons, in part because the fourteen companies in the industry did not allow much scope for formal statistical analysis. So far, mergers between electricity distribution networks (five to date) have not been blocked.

Figure 2.1 shows the development of prices in the main regulated utilities. In each case, the price level at privatization is taken as 100. The first company to be privatized with an RPI-X constraint was BT—in this case, X was set at 3 for five years. When he wrote the report proposing RPI-X, Littlechild (1983) seems to have envisaged that competition would develop so rapidly that regulation would not be needed after this initial period. That hope proved too optimistic, and the price control has been reset four times so far, with larger X values each time.[20] British Gas was the second company to be privatized, and the price cap for gas transportation has also

19. The MMC (1995) estimated that losing one water company through a merger would cause losses, due to the increased difficulty in making comparisons, with a present discounted value of between £50m and £250m.

20. Strictly speaking, when X was reset in 1996, the value chosen was lower than before, but it applied to a smaller bundle of services with prices that had been rising in relative terms. The regulator claimed that the headline cap of RPI-4.5 would have the same effect on those prices as a cap of RPI-8.5, applied to the company as a whole, and then subjected to the same degree of rebalancing.

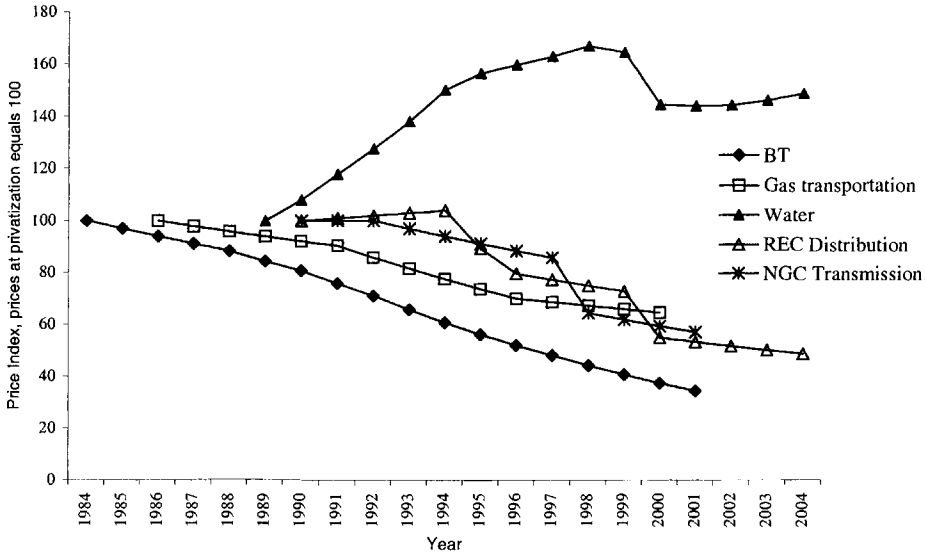

Fig. 2.1 Regulated prices in the United Kingdom

declined continuously since privatization. The cost of gas, which also fell dramatically in the years after privatization, was a separate pass-through element in the cap and is not shown in the figure. Both companies have been able to reduce their costs at least as rapidly as their price caps required, and have been highly profitable.

The first price caps implied real-price reductions, but the transmission-price cap for the National Grid Company (NGC) implied constant prices, while most of the Regional Electricity Companies (RECs) were allowed small real increases in their distribution charges for several years. NGC's cap was first reset roughly two years after privatization and was only tightened to a small extent, but by the time the RECs' price caps were reset, in 1994, the companies had reduced their costs significantly and were very profitable. When BT's profits were above the level that the regulator thought necessary, he had tightened the company's price control to reduce profits in a gradual manner, allowing the company to keep the benefits of its extra productivity for a longer period and maintaining incentives for future reductions. The electricity regulator, in contrast, believed that the RECs' profits were so exceptional that a one-off price cut could be justified without affecting their incentives for future price reductions. The regulator proposed a one-off price reduction averaging 14 percent, but had to follow it with a further 11 percent the next year amid widespread criticism of his leniency. The most recent REC price control review has imposed a further

one-off cut, implying that the companies continued to cut costs by more than the regulator had expected in 1995. Over time, regulators have come to release far more information during the process of reviewing a price control—including predictions of the companies' costs (on which the control will be based)—in part to ensure that the companies and commentators do not comment adversely because they are surprised by the level chosen.

The water industry has been allowed significant real price increases since its privatization. This is largely because of the need to finance new investment in higher quality; indeed, the desire to keep this investment away from the PSBR was one of the motives for the privatization. Although the steadily rising prices might imply that there have been few efficiency gains, the regulator pointed out that efficiency improvements actually halved the price increases that would otherwise have been required between 1995 and 2000. In fact, the companies did better than the regulator expected, and so the latest price control, scheduled to start in 2000, started with a one-off cut to finance additional investment before the prices rose again. Thus, figure 2.1 is consistent with improvements in efficiency in all of these industries.

2.5.1 Competition

An alternative to regulation is competition, although it is increasingly felt to be desirable to introduce competition as part of regulation (Schmalensee 1989). Restructuring was strongly resisted by the incumbent managements, and so little restructuring occurred in the initial utility privatizations. Before electricity generation and the railways were privatized, however, they were restructured to introduce competition.

In the case of electricity generation, the Central Electricity Generating Board was split into a transmission company and three generating companies. Two of these generators were privatized in 1991, whereas nuclear power remained in state ownership until 1996, when the newer stations were privatized. The generators competed to sell power to electricity suppliers (and thence to consumers) in a wholesale market organized around the Electricity Pool, which took daily price bids from every power station and selected the cheapest ones. The two largest generators controlled 70 percent of the industry's capacity in 1990, however, and clearly had the ability to raise prices above competitive levels (Green and Newbery 1997). One response to this was entry by new stations, mostly gas fired, which hastened the decline of the coal industry. A second was pressure from the regulator to keep prices down, which eventually led the major generators to divest some of their plant. Taken together, entry and the divestitures have created a more balanced market structure, but the limited amount of competition in the initial market structure meant that prices were higher than they needed to have been for several years. By 2002, however, surplus capacity and a more competitive market structure had depressed wholesale

electricity prices to the extent that several generators faced severe financial troubles, and the government organized a financial rescue package for British Energy. The privatization did introduce rules for separating the distribution of electricity from its retail sale (supply), which allowed customers to choose their supplier. The incumbents rapidly lost market share among larger customers, bringing the margins on serving them down to competitive levels.

The railways were split into even more pieces before their privatization. Railtrack, which was floated in May 1996, owned the track network and most stations but did not run any services. Instead, the services were split up into more than twenty franchises, which were let out for periods of between seven and fifteen years by the franchising director. Some franchisees required subsidies from the government (typically declining over time), while others (particularly the intercity routes) were able to pay for their franchises. It is difficult to replace a franchisee who owns a large amount of sunk capital, and so three rolling stock companies were created, which lease trains to the franchisees for the duration of their franchises. In practice, however, the rolling stock companies have been reluctant to invest without commitments from the train-operating companies. Some of the first franchises are now being renewed, and the new contracts are likely to last longer. This should allow for more investment but may reduce the competitive pressure on the franchisees.

Railtrack, however, was placed in administration by the government in October 2001 and replaced by a company limited by guarantee, Network Rail, in October 2002. Railtrack's current and predicted future costs had risen rapidly after a major accident at Hatfield in October 2000 (discussed later) and had exposed a maintenance backlog, and its predicted revenue streams were inadequate to finance these. Rather than finding additional revenues (which must, ultimately, come from either the rail traveller or the Treasury), the government decided to replace Railtrack with a new organization. Instead of shareholders, Network Rail has about 100 members (rail companies, organizations with an interest in the rail industry, and individuals) to whom its board will report at annual general meetings, but the company will not pay dividends. The structure was carefully designed to ensure that Network Rail's borrowings will not count against the PSBR, but it does represent a move away from the previous philosophy that "standard" public limited companies would normally give the best performance.[21]

It is also possible to introduce competition without restructuring an industry, although this is often less effective since it may leave the incumbent

21. A similar organization, Glas Cymru, took over in May 2001 the assets of Welsh Water public limited company, which also faced problems financing future investment.

in a position to harm entrants. Perhaps the earliest example of this type of liberalization was the deregulation of interurban coaching in 1980 (Thompson and Whitfield 1995). Until 1980, the sole licensed operator was National Express. The 1980 Transport Act allowed entry subject only to quality standards, and large-scale entry took place, with substantial price reductions (see following discussion). However, the wave of new entrants did not survive long, and by 1983 National Express was practically the sole operator on the English and Welsh routes (competition remained on the Scottish routes). The U.K. and European Union (EU) air routes have also been deregulated, following initiatives from the U.K. government and Brussels (see Abbot and Thompson 1989; McGowan and Seabright 1989). There has been some entry here, but again the incumbents appear mainly to have held their own.

Another example of the failure of competition to develop unaided was the gas industry. At privatization, rival suppliers were given permission to enter the market. However, they would need to buy gas from North Sea operators, who sold most of their output to British Gas (and were presumably reluctant to upset their major customer), and then ship it through British Gas's pipes—at charges set by British Gas—to gas consumers with individual, confidential, contracts. Practically no entry occurred, presumably because rival suppliers feared that, while they were negotiating transportation charges with British Gas, that company would make selective price reductions to their chosen customers. In 1988, the MMC ordered British Gas to provide more information on transportation charges, to sell to all its consumers on published tariffs, and to buy no more than 90 percent of any new gas field, thus allowing rivals access to gas and to the information they would need to compete with the company. Even these measures, however, only allowed a very gradual development of competition. It was not until the early 1990s, when British Gas negotiated specific (and rapidly declining) targets for its market share and took several steps to help rival suppliers, that competition really took off. Eventually, following a second reference to the MMC, the government decided to allow all gas consumers to choose their supplier. Roughly a third of domestic gas consumers now buy from another company (very often their local electricity company), in part because the regulator allowed British Gas to set prices that recover most of the costs of past gas purchases at what had become above-market prices, while new suppliers based their prices on the lower prices then in effect.[22]

The main question regarding competition is whether new firms constitute a sufficient threat to incumbents and so force price reductions and

22. The electricity regulator returned the favor and allowed entrants to undercut the incumbents in electricity as well. The largest entrant is British Gas.

quality improvements. In the industries considered here, this requires them to have access to essential facilities that were previously controlled by the incumbents, given the sunk costs of recreating these facilities. In the case of gas, the pipeline network is (literally) the sunk cost. In the U.K. coaching market, the physical facilities of the Central London coach terminal owned by the incumbent might have been recreated at moderate cost but not the network benefits of being able to change between so many routes at one place. To obtain these benefits, an entrant denied access to the terminal might have had to set up a national route network, making small-scale entry impossible (Thompson and Whitfield 1995). British Airways (BA), which has grandfathered rights to many of the choice Heathrow Airport landing and take-off slots, also gains from network externalities. Low-cost entrants operating from other airports have been able to compete for passengers who do not wish to change planes at a busy hub, and policymakers have been considering ways of reducing BA's dominance at Heathrow (such as U.S.-style slot auctions). Experience suggests, however, that the success of liberalization depends crucially on not endowing the incumbent public firm with advantages on access to essential facilities.

2.6 The Effect of Privatization

This section reviews the evidence on the effects of privatization on productive efficiency, product quality, public-sector union power, and attitudes toward privatization. Beginning with efficiency, the ideal experiment would presumably be to privatize randomly a set of firms and to observe the difference in their efficiency after privatization in comparison with a control group. In practice, one cannot do this, and so the following issues arise in trying to judge the effect of privatization on efficiency.

First, what is a good measure of efficiency? Labor productivity is one widely used measure. It has, however, a number of drawbacks. First, there have been widespread falls in labor input following privatization and hence substitution to capital (Haskel and Szymanski 1992). Second, capital investment rose after privatization in most firms. For example, in the data that we describe later, in the case of BT and British Gas, investment during the period after privatization averaged 20 percent more than the level between 1979 and privatization. In the case of British Steel, the increase after privatization was 50 percent, although even this left investment at a third of its level during the 1970s. British Airways' investment doubled soon after privatization and doubled again in the late 1990s, linked to the exponential growth of air travel. The coal industry is the only industry in our sample in which investment was lower in the 1990s than in the 1980s, and this was due to the secular decline of the industry.

Third, many companies have replaced direct labor with contractors, and so measures of output per employee will not reflect the true relationship

between output and labor input.[23] Fourth, value added per worker would increase if a privatized company used market power to increase its markups. We have attempted to use physical measures of output wherever possible in our own study.

Thus, total factor productivity (TFP) would appear to be preferable, although factor shares may not reflect output elasticities if firms have market power, so that if market power changes with privatization, then measured TFP may change for reasons not related to efficiency. One solution to this problem is to regress real output changes on input changes, although sufficient time series is required to avoid imposing the same output elasticities across firms. In practice, however, most studies look at TFP.

Second, privatization is likely to be endogenous, especially since many firms were explicitly restructured in order to be privatized and could not be sold until they had become more efficient and profitable. Thus, one must at least examine preprivatization performance. Whether this restructuring is due to privatization is a difficult issue since one might argue that it was only the threat of privatization that provided a credible commitment to restructure. Third, many privatizations, like that of British Gas, are of the whole industry, and thus one has no suitable control group. International comparisons are potentially valuable here, and if, for example, regional accounts are available pre- and postprivatization, internal comparisons can be made. Unfortunately, privatization frequently tends to render regional accounts commercially sensitive and thus confidential, and so rather few publicly available studies have been undertaken in practice.

All this suggests looking at a variety of national and international evidence. Beginning with U.K. evidence, the upper panel of table 2.4 shows multicompany and single-company studies. Pryke's (1982) study, despite not being about privatization, is included since it was one of the first authoritative studies to document low efficiency and productivity in public-sector enterprises. Bishop and Kay (1989) was an early study that looked at TFP growth for a number of firms in the 1979 public sector. They did not explicitly study what happened to firms after privatization but rather compared TFP growth between 1979–1983 and 1983–1988, and they observed strong TFP growth, particularly in steel, gas, and coal, in the second period. (Note that this was before steel and coal were privatized.) Bishop and Thompson (1992) compared TFP in 1970–1980 and 1980–1989 with similar findings. In an update to the study, Bishop and Green (1995) found a

23. The most extreme example of this is Railtrack, which had 11,204 employees on 31 March 2000 but contracted out its track maintenance services. The prime contractors also used subcontractors, and there were more than 2,000 registered railway infrastructure companies with between 15,000 and 19,000 permanent staff, and a total pool of 84,000 registered workers, often recruited on a temporary basis through employment agencies (Juliette Jowitt, "Why an Accident Like Hatfield Was Waiting to Happen," *Financial Times,* 22 February 2001, p. 4). To get a more complete picture, we should look at total costs or total factor productivity, including services purchased as an input.

Table 2.4 Studies of Privatization and Regulation Effects

Study	Measure of Productivity	Controls	Companies Studied	Years	Findings: Productivity Rises with . . .				Remarks
					Privatization				
					After	Before	Regulation	Competition	
				Multicompany Studies					
Pryke (1982)	TFP	None	BAA, BCoal, BGas, BRail, BSteel, BT, Electricity, PO	1960–1979	—	—	—	—	Preprivatization study; found slow TFP growth relative to whole economy
Bishop and Kay (1989)	TFP growth	None	BAA, BCoal, BGas, BRail, BSteel, BT, Electricity, PO	1979–1983, 1983–1988	—	Yes	No	—	No specific study of pre- and postprivatization, or regulation
Haskel and Szymanski (1992)	*Y*/*L*	*K*/*L*, competition, hours, unions, privatization, restructuring, regulatory dummies	BAA, BCoal, BGas, BRail, BSteel, BT, Electricity, PO, BA, Water, LRT, STG	1972–1989	No	Yes	No	Yes	Little effect of privatization and regulation
Bishop and Thompson (1992)	TFP growth	None	BAA, BCoal, BGas, BRail, BSteel, BT, Electricity, PO	1970–1980, 1980–1990	—	Yes	No	—	No specific study of pre- and postprivatization or regulation
Bishop and Green (1995)	TFP growth	None	BAA, BCoal, BGas, BRail, BSteel, BT, Electricity, PO	1979–1983, 1983–1988, 1989–1994	—	Yes	No	—	No specific study of pre- and postprivatization or regulation

Martin and Parker (1997)	TFP	Whole-economy TFP, privatization, announcement dummies	BGas, BSteel, BT, BA		—	Yes	—	—	Postprivatization slowdown in BGas, BSteel, BT; speedup in BA
O'Mahony (1999)	*Y/L*	Other countries	Sectors: gas, electricity, water	1965–1995	Yes	—	—	—	Industry data, changes are after 1990 so no specific correlation with actual event (e.g., regulation)
				Individual Company Studies					
Waddams Price and Weyman-Jones (1996)	TFP	None	Gas	1980–1992	—	Yes	—	—	Comparison of different regions shows regions not catching up (BGas privatized as a whole)
Markou and Waddams Price (1999)	Labor productivity	None	Water	1980–1995	—	Yes	—	—	Real turnover per hour (water industry is confidential data)
Tilley and Weyman Jones (1999)	Frontier estimation	Inputs	Electricity		Yes	—	—	—	No catching up of regional firms

Notes: Findings: Productivity rises column, "Yes" indicates that the study examines the effect on efficiency of the column heading and finds a significant effect; "No" indicates investigation but no significant effect; and the dashes indicate that the column heading was not investigated. LRT = London Regional Transport; STG = Scottish Transport Group; PO = Post Office; BCoal = British Coal; BGas = British Gas; BRail = British Rail; BSteel = British Steel; *Y/L* = output-labor ratio; *K/L* = capital-labor ratio.

strong TFP growth performance in 1989–1994 in BT and the post office, with slow growth in British Airports Authority (BAA), British Gas, British Coal, and British Rail. They attribute BT's strong growth to technical innovation and the growth of the post office (which is still publicly owned) to a combination of growth-exploiting economies of scale and restructuring. All in all, both studies show productivity increases in advance of privatization.

Haskel and Szymanski (1992) attempted to control for some of the different factors that might affect productivity. Using panel data on output and inputs for twelve U.K. firms that were publicly owned in 1979, they attempted to measure factors such as demand, union and market power, and so forth. As well as identifying the date of privatization and regulation, they also attempted to look at preprivatization effects. First, they tried to identify the dates of restructuring (e.g., new teams of managers being brought in, or the company being reoriented toward more profitable goals). Second, they identified the dates when it was first announced that the company would be privatized. There were four main findings. First, privatization itself was not strongly associated with rises in TFP. Second, preprivatization restructuring was associated with rises in TFP. Third, market competition was associated with increased TFP, but, since there had been comparatively small rises in competition over the period, this did not contribute much to the actual TFP rise. Finally, most of the rise in labor productivity was due to fast labor shedding. Their study did stop, however, in 1989, which is, again, somewhat early in the privatization process and does not cover periods when regulatory targets are being tightened.

Parker and Martin (1995) also looked at a range of firms that were publicly owned in the 1970s in a study that covered up to 1995. One innovation was to look at TFP in companies relative to the whole economy (they also looked at postannouncement and postsale figures). Their figures confirm the very high TFP growth in British Steel postannouncement but preprivatization, which was also seen in BT and British Gas. Their data show a slowdown in TFP growth postprivatization for British Steel, British Gas, and BT, but an increase for BA.

Turning to international evidence, O'Mahony (1999) calculates labor productivity in gas, electricity, and water in the Group of Five (G5) countries (see figure 2.2). These data are of interest since they provide an international productivity comparison. The United Kingdom has the lowest level of productivity throughout the 1970s and 1980s, and it is hard to identify any change in trend between 1973 and 1990. (The annual average increase between 1973 and 1979 was 3.1 percent; in the following decade, it was 4.0 percent. The downward blip in 1984 is likely to be related to the miners' strike in that year.) From 1990 onward, however, labor productivity growth more than doubles to 9 percent a year, so that the United Kingdom overtakes France and closes the gap with the other countries in the

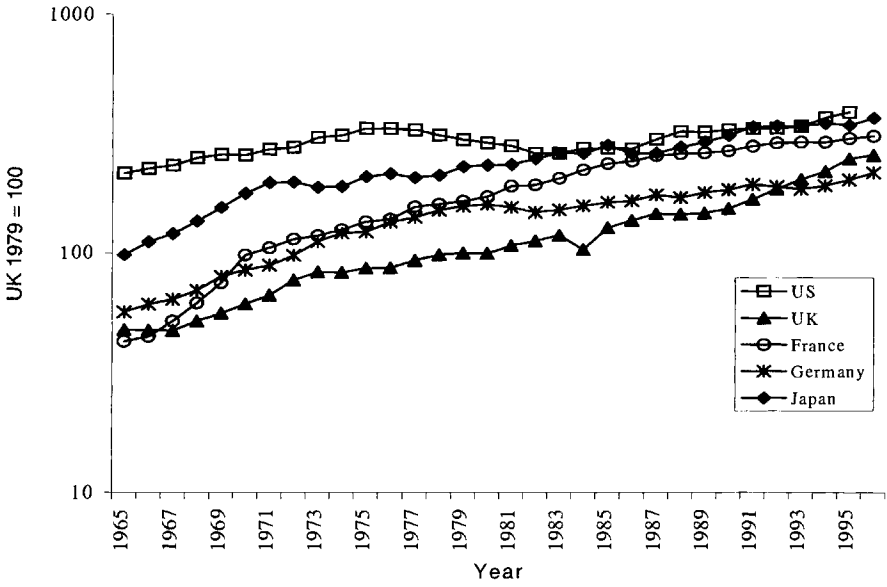

Fig. 2.2 Comparative productivity in gas, electricity, and water industries; labor productivity in gas, electricity, and water
Source: O'Mahony (1999).

sample. Productivity growth in the other countries only rose slightly—on average, from 2.4 percent in the 1980s to 3.1 percent between 1990 and 1996—and so an exogenous technical change is unlikely to be responsible for the acceleration in the United Kingdom.[24] This would appear to provide evidence of an effect from privatization and tightened regulation, but, since the dates of privatization of gas, electricity, and water vary, one cannot be conclusive whether it is due to privatization, preprivatization restructuring, or regulation.

Table 2.5 presents our own estimates for TFP growth in six formerly nationalized industries. The firms have been chosen on the basis of data availability, and so industries that underwent major restructuring as they were privatized had to be excluded. Most data are taken from company accounts. Labor inputs are represented by the "head count" total from the accounts, and gross capital inputs are derived using a perpetual-inventory method. Given the capital stock in year t, we estimate the capital stock in year $t + 1$ by adding that year's investment and subtracting the assets that

24. The United States had the largest rise, from a dismal 0.7 percent a year during the 1980s to 3.9 percent a year during the 1990s, but this is far closer to the worst performer, France (where productivity growth fell from 4.8 percent a year to 2.4 percent) than it is to the United Kingdom's figures.

Table 2.5 **Total Factor Productivity in the U.K. Public Sector (annual rate of increase; %)**

Company	1970s	1980s	Privatization 1990s	Date
British Airways	1972–73 to 1978–79 4.7	1978–79 to **1987–88** 2.9	1987–88 to 1999–2000 3.7	1987
British Coal	1972–73 to 1978–79 –2.8	1978–79 to 1986–87 0.1	1986–87 to **1993–94** 9.0	1994
British Gas	1972–73 to 1978–79 8.2	1978–79 to **1986–87** 2.0	**1986–87** to 1994–95 1.5	1986
British Steel	1972–73 to 1978–79 –5.0	1978–79 to **1988–89** 3.8	**1988–89** to 1997–98 1.8	1988
British Telecom	1972–73 to 1978–79 0.6	1978–79 to **1984–85** 3.2	**1984–85** to 1994–95 3.0	1984
Post Office	1972–73 to 1978–79 1.6	1978–79 to 1988–89 1.8	1988–89 to 1998–99 1.6	Still public

Source: Authors' calculations (see text for details).

Note: Dates in bold indicate the break-points between public and private ownership.

the company disposed of.[25] All the companies published some current cost accounting information during the 1980s, including the gross replacement cost of their assets in current prices, and we based our estimates upon these figures. We estimated earlier values of the capital stock by subtracting investment and adding disposals. The user cost of capital was the sum of the industry's depreciation rate and the public-sector test discount rate. The costs of other inputs were taken from the accounts and deflated by the producer price index (PPI) for manufacturing inputs of fuel and materials or by a more appropriate index where one existed (such as the PPI for the steel industry, which was used for British Steel). In most cases, physical output data are available, but for British Steel the company's turnover was deflated by the PPI for the steel industry's output. We used these data to produce year-by-year Tornqvist indexes of the changes in TFP and took geometric averages over several years. Our first period, 1972–1973, was in the middle of a cyclical upswing, and most of the other years we compare with it were at similar points in the cycle.

We find that the performance in the 1970s was often weak, although

25. When working with historic cost accounts, we must estimate the age of the assets being retired in order to perform all the calculations with prices reflated to a single year. With current cost accounts, this reflating was done by the company.

British Gas saw high TFP growth as it completed the country's conversion to natural gas, and BA also did well. In the 1980s, most firms improved, although British Coal continued to show stagnant TFP in the few years before the miners' strike of 1984–1985.[26] After that strike, however, British Coal's productivity rose rapidly while still in the public sector. British Airways, which saw dramatic improvements in profitability and labor productivity, suffered a decline in TFP growth after 1979. Four of our firms were privatized within our sample period, and three of these saw slight declines in TFP growth after privatization. Only BA improved its performance after privatization, and the company did not regain its growth rate of the 1970s. The one industry that has not been a serious candidate for privatization, the Post Office, had the lowest TFP growth over the period, although this may reflect the limited technological opportunities facing its delivery operations. Overall, it is probably fair to characterize our results as showing that firms tended to improve their productivity significantly in the run-up to privatization (with some exceptions) but giving little evidence that the faster growth rate was sustained after privatization. In other words, there is a catch-up rather than a permanent change of pace.

Our results can be compared to the lower panel of table 2.4, which shows some studies of individual firms. Waddams Price and Weyman-Jones (1996) compared British Gas's twelve operating regions and found continuous improvements, although there was little sign that the less efficient regions were catching up with the better ones. Similarly, Tilley and Weyman-Jones (1999) found that there was no catching up among electricity-distribution companies, although there was productivity growth from an outward shift of the efficient frontier. Markou and Waddams Price (1999) looked at labor productivity growth in water and found that it rose before privatization but, owing to confidentiality, were unable to look at data by region.

Overall, then, table 2.4 and most commentators (e.g., Pollitt 1999; Waddams Price 1999) seem to agree that preprivatization restructuring was an important source of productivity gains, as is increased competition. Privatization itself does not seem to be correlated with productivity growth, and most studies stop before the effect of regulation can be estimated with any reliability. Whether the commitment to privatize is essential to getting the gains from preprivatization restructuring remains an open question that is unlikely to be econometrically testable.

2.6.1 The Sources of Productivity Growth

Even if such studies show improvements in TFP, they do not isolate the sources of such improvements. There are a number of possible sources.

26. Our break point, 1986–1987, is chosen to allow the industry to recover from the 1984–1985 strike and the preceding overtime ban.

First, there might be changes in work practices in given plants. Sanchis (1997) uses the U.K. Workplace Industrial Relations Survey, which provides detailed survey information on working practices at a representative sample of U.K. plants, some of which have been privatized. Controlling for cyclical variables and union presence, she finds that privatization is significantly linked with improvements in working practices on the shop floor.[27] These improvements might allow the elimination of "slack" and labor shedding, which would also raise the capital-labor ratio without necessarily improving the firm's capital stock.

Second, the private sector might be able to close plants that a nationalized industry would have been constrained to keep open. If these are the less-efficient plants in the firm, its average TFP will rise, whether or not there are improvements at "survivor" plants. The firm-level studies in table 2.4 are unable to shed light on this issue, and there is, to the best of our knowledge, no evidence on this for the United Kingdom.

We therefore turn to plant-level data drawn from the Annual Respondents to the Census of Production (ARD) database, which is in turn based on the U.K. Census of Production (see Disney, Haskel, and Heden 2003 for details). Here we use data on public- and private-owned plants in a U.K. manufacturing industry, where the firm concerned was privatized in the 1980s (confidentiality rules preclude us from naming the firm or industry).

Table 2.6 sets out some raw data. Consider the top row. Employment in the industry as a whole shrank from just over 200,000 in 1980 to 95,821 at privatization to 72,276 in 1992 (when our data end).[28] In 1980, 102,672 employees worked in private plants, with 112,251 in public-sector plants. At privatization, the figures were 41,246 and 54,565, respectively. By 1992, private plants employed 45,940 and formerly public plants 26,336. So, as the second panel shows, public plants went from accounting for over 50 percent of employment in 1980 to around 36 percent in 1992. As the third panel shows, there was also a considerable fall in the number of plants, with, interestingly, proportionately more closure in the private sector in the years before privatization at least.

The last few rows of table 2.6 show labor productivity levels and growth.[29] The picture is clear. The public sector had similar labor productivity to the

27. Privatization is associated with changes in working practices that reduced job demarcation and increased work flexibility, for example.

28. The fall in employment (of about 8 percent per annum) dwarfed the economywide fall (between 1980 and 1992, U.K. manufacturing employment fell by 3 percent per annum).

29. The labor productivity ($\ln Y/L$) is real gross output per person-hour, deflated by a four-digit industry output deflator. The values of Y and L are available directly from the census, and the hours variables are two-digit manual hours. We calculate TFP as $\ln \text{TFP} = \ln Y - \alpha_k \ln K - \alpha_l \ln L - \alpha_M \ln M$, where Y is real gross output, K real capital, L worker hours, and M real material use, the α is share of each factor in gross output, and i denotes establishment; M is recorded directly from the ARD. Capital stock is estimated from establishment-level investment on in-plant vehicles and buildings, using perpetual-inventory methods with the

Table 2.6 Industry Data Relevant for the Plant-Level Study

	1980	Privatization	1992
Employment	214,923	95,821	72,276
Private	102,672	41,256	45,940
Public (ex-public after privatization)	112,251	54,565	26,336
Industry employment (%)			
Private	0.48	0.43	0.64
Public (ex-public after privatization)	0.52	0.57	0.36
Number of plants			
Private	1,272	583	577
Public (ex-public after privatization)	46	31	15
Labor productivity (industry = 100)	100	139.5	139.7
Private	96.8	121.9	127.3
Public (ex-public after privatization)	102.6	156.1	158.8
Labor-productivity growth (% per annum)	—	4.9	0.04
Private	—	3.2	1.1
Public (ex-public after privatization)	—	6.5	0.43
TFP levels (industry = 100)	100	235.8	221.0
Private	162.6	250.1	224.5
Public (ex-public after privatization)	49.1	222.2	215.6
TFP growth (% per annum)	—	17.0	–1.6
Private	—	6.7	–2.6
Public (ex-public after privatization)	—	44.1	–0.7

Source: Authors' calculations from ARD.

Note: Data for "public" in 1992 refers to those plants present in 1992 but that were publicly owned before privatization. Growth rates are percent per annum from 1980 to privatization (column [2]) and privatization to 1992 (column [3]). Dashes indicate missing data.

private sector but much lower TFP, whereas productivity growth was much higher in the public sector. This suggests that public plants substantially caught up to private plants over the period. Note that in the postprivatization years there was negative TFP growth, which was during a recession. Although we have data on hours worked, we may not measure short time working and so have negative TFP.

How did the productivity gains come about? If the 1980 public-sector inefficiency was widespread throughout plants, one would expect there to be plenty of scope for productivity improvement without closure. Alternatively, it could have been that the average was brought down by some very poor plants (kept open due to soft budget constraints in the public sector,

starting values and depreciation rates taken from Oulton and O'Mahoney (1994). Labor input is person-hours, as before. Output, capital, and materials are all deflated by the appropriate four-digit industry price deflator. Following Foster, Haltiwanger, and Krizan (2001), the factor shares are calculated at the four-digit industry level to minimize the effects of measurement error. We chose to work with the Solow measure, since it is relatively transparent and the empirical implementations of superlative index numbers in unbalanced panels raise a number of significant complications (Good, Nadiri, and Sickles 1997).

for example), in which case it could have been substantially raised by closure. To measure this we therefore decompose productivity growth as follows. We write industrywide productivity in year t as $P_t = \Sigma\theta_{it}p_{it}$, where θ_i is the employment share of establishment i, and P_t and p_{it} are productivity measures (labor productivity and TFP). The decomposition proposed by Foster, Haltiwanger, and Krizan (2001) relates to the change in industrywide productivity between $t-k$ and t, ΔP_t, and is written

$$(1) \qquad \Delta P_t = \sum_{i\in S} \theta_{it-k}\Delta p_{it} + \sum_{i\in S} \Delta\theta_{it}(p_{it-k} - P_{t-k}) + \sum_{i\in S} \Delta\theta_{it}\Delta p_{it} + \sum_{i\in N} \theta_{it}(p_{it} - P_{t-k}) - \sum_{i\in X} \theta_{it-k}(p_{it-k} - P_{t-k}),$$

where S, N, and X denotes the establishments that survive, enter, and exit, respectively, between t and $t-k$. The first term in the decomposition shows the contribution to productivity growth of growth among the surviving establishments, or the "within" effect. The second term shows the contribution of changes in shares of the survivors weighted by the deviation of initial-period productivity from the average (often termed the "between" effect). This is positive when market shares increase for those survivors with above-average base-year productivity. The third term is a covariance term that is positive when market share increases for establishments with growing productivity or falls for establishments with falling productivity. The entry and exit terms are positive when there is entry (exit) of above- (below-) average productivity establishments.[30]

To get a picture of the overall period, the first panel of table 2.7 sets out the decompositions for 1980–1992. The top panel of the table shows the results for $\Delta \ln(Y/L)$ and the bottom panel for $\Delta \ln(\text{TFP})$. Each panel shows the results for the industry as a whole and then for the public and private parts of it. Each cell shows the percentage of total growth accounted for by each component of the disaggregation. Consider first the results for $\Delta \ln(Y/L)$ in the top row of the top panel. The first column shows the contribution of the within effect and suggests that productivity growth in surviving plants accounted for about 53 percent of $\Delta \ln(Y/L)$ over the whole period for the whole industry. The second and third columns show that 2 percent and 16 percent of productivity growth was due to the between and cross effects. That both effects are positive suggests that the most productive plants were gaining market share (the between effect) and that plants whose productivity was growing were also gaining market share (the cross effect). The final term shows that net entry accounts for 29 percent of productivity growth (i.e., that the opening and closure of plants accounted for 29 percent of industry productivity growth).

30. There are a number of other decompositions in the literature that have different interpretations and vary in their robustness to measurement error (see Haltiwanger 1997; Foster, Haltiwanger, and Krizan 2001; and Disney, Haskel, and Heden 2003 for discussion).

Table 2.7 Productivity Decompositions

	Within	Between	Cross	Net Entry
	1980–1992			
Δ ln(*Y*/*L*) (average productivity growth 3.3% per annum)				
Industry	53	2	16	29
Private	38	4	–7	65
Public	51	1	48	0
Δ lnTFP (average productivity growth 18.4% per annum)				
Industry	43	4	20	32
Private	20	8	11	61
Public	51	1	49	0
	1980 to Privatization			
Δ ln(*Y*/*L*) (average productivity growth 4.9% per annum)				
Industry	59	2	10	29
Private	61	3	1	35
Public	61	2	10	27
Δ lnTFP (average productivity growth 17.0% per annum)				
Industry	52	4	19	25
Private	27	16	20	37
Public	63	1	13	23

Source: Authors' calculations from ARD.
Note: In top panel, "public" refers to plants publicly owned in 1980.

The next two rows split the data into public and private. For both labor productivity and TFP, most growth in the public sector is accounted for by productivity growth within surviving plants, whereas most productivity growth in the private sector is accounted for by the net exit of poorly performing plants. Taking the within results for labor productivity growth and TFP growth together, the table is consistent with the idea that the public-sector plants in the 1970s were operating inefficiently and hence had plenty of scope for productivity improvements even without closure.

The second panel of table 2.7 looks at the preprivatization period.[31] The preprivatization picture is similar to that for 1980–1992, with most public-sector gains due to within-plant improvements. It seems safe to conclude that the scope for internal productivity growth within the public company was greater than that for private companies. The decompositions also offer an interesting perspective on efficiency gains, for this industry at least. Rather than keeping open inefficient plants, it would seem that much of the inefficiency is due to inefficient work practices within existing plants.

31. The postprivatization period has very small productivity growth and negative TFP growth and so is hard to interpret.

Table 2.8 Quality Indicators in British Telecommunications

	1979	1987	1990	1999
Average waiting time for a new phone (days)	71	15[a]		
Telephones installed within two weeks (%)	25[b]	50	64	
Faults cleared by next working day (%)	50	72	—	—
Business orders completed in fewer than 6 working days (%)		28.4	67.9	88.5
Faults cleared in fewer than 2 working days (%)		74.3	90.1	—
Operator calls answered within 15 seconds (%)	84.2	83.5	87.7	85.8
Pay phones serviceable (%)		77	95.0	96.5
Faults per line per annum		0.25	0.25	

Source: British Telecommunications Company accounts, data from http://www.bt.com/quality_of_service/index.htm and Rovizzi and Thompson (1991).

Note: Dashes indicate missing data.

[a]Data for 1989.

[b]Data for 1983.

2.6.2 Quality of Service

While productivity is important, service quality clearly also affects welfare. Critics of privatization have feared that it would lead to lower levels of quality. In competitive industries, this should not be a problem, but monopolies face different incentives, and a privatized firm might be able to raise its profits by reducing quality (especially if it can economize on quality in order to hit regulated target indicators). These fears were intensified in 1987, when BT's quality of service appeared to decline, hit by the effects of a strike. The word "appeared" was chosen deliberately—BT had published statistics on its quality when it was in the public sector but stopped doing so on privatization. As table 2.8 shows, at that time, almost a quarter of BT's pay phones were out of service.[32] Following pressure from the regulator, however, the company started to publish the figures again, and quality has generally risen since, helped by rapidly improving technology. To take a single example, in 1980, the average waiting time for a new phone was seventy-one days (Galal et al. 1994, tables 4 and 5). By 1989, this had fallen to fifteen days, although more than 1 million phones were installed in each year. Table 2.8 sets out these and some other relevant data and shows particular improvement in serviceable payphones.

The political fallout from BT's quality problems encouraged the government to give a quality-control role to the water and electricity regulators and to introduce competition into the electricity supply industry. At first, the regulators were limited to publishing quality statistics, but the Competition and Service (Utilities) Act of 1992 gave customers the right

32. Pollitt (1999) notes that although BT had a statutory obligation to operate a pay phone system it was not obliged to ensure that the pay phones worked.

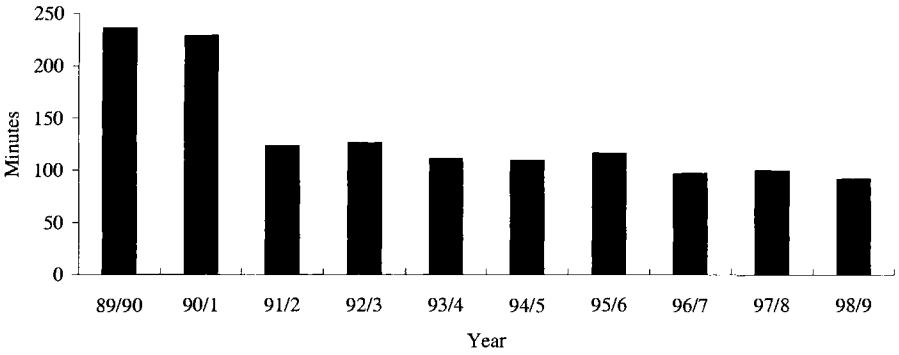

Fig. 2.3 Quality indicators in electricity—electricity distribution availability statistics: minutes lost per customer
Source: Office of Gas and Electricity Markets (2000).

to compensation for specific instances of bad service, such as power interruptions or the failure to reply to correspondence. By the time that the railways were privatized, this had been extended, so that companies were fined if they failed to meet overall performance targets. There is always a danger that companies will respond to incentives of this kind by concentrating on the aspects of quality that are being monitored while ignoring other aspects, but the data for the electricity industry imply a broad improvement since privatization. For example, figure 2.3 shows the number of minutes lost per customer in the electricity industry in Great Britain since 1989–1990, the year before privatization. The high values for the first two years are almost certainly weather related and should not be used to define a trend, but there is a clear, if slight, downward trend since 1991.

Quality is more difficult to define in the gas industry, but a good deal of political controversy was caused by the seeming rise in the number of customers disconnected by British Gas (BG) after privatization (the company cut off 0.28 percent of its credit customers in 1979, 0.31 percent in 1987, and 0.40 percent in 1998; Rovizzi and Thompson 1991). The regulator asked BG to take steps to reduce disconnections, and they did then fall, in part because the company installed prepayment meters for many customers likely to get into debt.[33]

Quality has been more controversial in the rail industry. There has been a rapid expansion in demand since privatization without a corresponding increase in network capacity. Many travellers perceived an increase in de-

33. Airports are one of the few industries where quality is not regulated; BAA have extensive quality surveys, and the regulator seemed satisfied that no quality regulation was required. Rovizzi and Thompson (1991) report 1986 data for the percent of passengers satisfied with Heathrow cleanliness, catering, trolley availability, and staff helpfulness at 97.9, 75.7, 97.0, and 96.7, with corresponding data for 1990 at 98.6, 82.5, 99.4, and 98.2.

Table 2.9 Signals Passed at Danger on Railtrack Controlled Infrastructure

Year	Total	Level 1 Severity	Level 2 Severity	Level 8 Severity	Other
1994–1995	771	355 (46%)	239 (31%)	1 (0.1%)	176 (23%)
1995–1996	729	299 (41%)	284 (39%)	0 (0.0%)	146 (20%)
1996–1997	688	303 (44%)	227 (33%)	1 (0.1%)	157 (23%)
1997–1998	640	282 (44%)	211 (33%)	1 (0.2%)	146 (23%)
1998–1999	664	279 (42%)	232 (35%)	0 (0.0%)	153 (23%)
1999–2000	551	215 (39%)	187 (34%)	1 (0.2%)	148 (27%)

Source: Health and Safety Executive, available at http://www.hse.gov.uk/railway/spad/spadfeba.htm#Table 3.

Notes: Minimum severity: overrun 0–25 yards, no damage; level 2 severity: overrun 26–200 yards, no damage; level 8 severity: fatalities to staff or passengers. The absolute numbers by severity level in the table are derived from the percentage breakdowns and are therefore accurate only to ±5 (apart from the figures for level 8).

lays and cancellations after privatization, and, while some companies were fined for these, some received bonus payments for other aspects of their operations that far exceeded the fines, creating political difficulties. Furthermore, three major accidents in four years (Southall, September 1997, with seven killed; Paddington, October 1998, with thirty-one killed; and Hatfield, October 2000, with four killed)[34] led to a public crisis of confidence in rail safety. Table 2.9 sets out some data on signals passed at danger (SPADs), which is a standard index of safety, along with the fraction of SPADs falling into various categories defined by their consequences. As the table shows, the number of SPADs on Railtrack's infrastructure has declined. There has been a small rise in SPADs at level 2 of seriousness. The level 8 measures reflect the Southall and Paddington crashes, and because such events are comparatively infrequent it is hard to discern a trend. Although there is a perception that the industry has been reluctant to spend money on safety improvements that would save lives, the verdict on safety and quality in the railways is, at worst, "not proven." Rail travel remains far safer than road transport, of course.[35]

2.6.3 The Wider Impact of Privatization

We now consider a number of other issues. First, having looked at the impact of privatization on the various sectors concerned, one might ask what impact it had on productivity growth in the rest of the economy. Since

34. The accident at Selby, February 2001, in which ten people were killed, was caused by a car running off a bridge onto the line, rather than a problem with the track, signalling, or rolling stock.

35. Rail death rates have been falling steadily over time: Rates per billion passenger km are 1981, 1.0; 1986, 0.9; 1991, 0.8; 1996, 0.3 (Office for National Statistics 1999, table 12.18).

privatization covered the energy sector, one possibility is that privatization lowered energy prices below what they would otherwise have been. This raises the possibility that privatization might have been a positive energy price shock and hence may have affected productivity just as the negative energy shocks may have done so (Bruno and Sachs 1985; Jorgenson 1984). Leaving aside the question of whether privatization affected energy prices relative to what they would have been, the effects of energy prices on TFP are likely to have been small. As Jorgenson (1984) points out, energy prices can affect TFP if technical progress is energy using (i.e., biased toward the use of energy), since a fall in energy prices causes substitution toward energy and hence a rise in TFP growth. Jorgenson's estimates for U.S. manufacturing, however, suggest that the biases are, in practice, very small, and hence even a halving of energy prices (which seems an overestimate of the effects of privatization) would still lead to a rise in TFP growth of around 0.05 percentage points per annum.[36]

How successful was privatization in weakening the power of the public-sector unions? As Pendleton (1997) argues, this rather depends on what one thinks the source of public-sector union power is. To the extent that it is unions having high-level consultation with ministers on strategic policy for nationalized industries, then privatization has clearly reduced this drastically. However, since in the 1970s many workers in nationalized companies were denied the money for pay raises as part of government incomes policy, this could help unions to gain advantages for their members. To the extent that it is unions having, for example, particular bargaining rights (when established nationalized industries were required to consult and negotiate with workers), the picture is very mixed. Bargaining arrangements changed, for example, in the Post Office, in which the separation into mail, parcels, and counters in the early 1980s led to the devolution of bargaining. Parry, Waddington, and Critcher (1997) argue that there has been a greater trend toward "management assertiveness" in electricity, shipbuilding, and water. On the other hand, Ogden (1990) finds that union membership and the scope of bargaining in water, telecoms, and gas did not change on privatization, and Millward et al. (1992), reviewing the Workplace Industrial Relations Survey (WIRS) evidence, "saw virtually no evidence" that trade union negotiating rights were withdrawn from unionized workplaces. Thus, it seems hard to argue that, in general, public-sector unions were weakened any more than unions were generally weakened by labor legislation and the macroeconomy. Finally, Bishop and Thompson (1994) docu-

36. With a translog cost function, TFP growth is the sum of Hicks neutral technical change (α_O) and biased technical progress times the log of the price of the particular factor (Berndt and Wood 1982)—that is, $\Delta \ln \text{TFP}_i = \alpha_O + \alpha_E \ln p_E + \alpha_Z \ln p_Z$, where E denotes energy and Z is other factors. As reported by Oulton and O'Mahony (1994), Jorgenson finds that α_E is, on average, 0.0007 for U.S. manufacturing. Hence, a halving of energy prices raises TFP growth by $0.0007 \cdot \ln 2 \cdot 100 = 0.049$ percentage points.

Table 2.10 **Public Attitudes toward Privatization (% of favoring responses)**

	1983	1986	1987	1989	1990	1991
"Are the nationalized industries well run?" (% agreeing)	21	31	33			
Control of wages by law	48	40	34	28	30	33
Control of prices by law	70	61	58	56	56	60
Less state ownership of industry	49	30	30	24	24	—
More state ownership of industry	11	16	16	18		
About the same level of state ownership of industry as now	33	49	48	53		
Government should own the electricity industry	—	28	26	32	28	—

Sources: Top row, Jowell, Witherspoon, and Brook (1988); other rows, Jowell et al. (1992).
Note: Blank cells indicate that question was not asked in that year. Dashes indicate missing data.

ment that performance-related pay was introduced in the period of preprivatization restructuring in all of the 1979 public sector (except BA).

Third, did privatization change people's attitudes to the public sector? Table 2.10 sets out some findings from the British Social Attitudes Survey. The first row reports the proportion agreeing that nationalized industries are well run and shows a rise in that proportion between 1983 and 1987. This could reflect the increased productivity in these industries, or it could reflect that people are referring to previously nationalized industries.

Rows (4), (5), and (6) show attitudes to state ownership (with attitudes to wage and price control added for reference). The proportion favoring wage and price control has fallen steadily. The proportion favoring less state ownership has fallen a good deal, but, since the state sector has fallen as well, this suggests decreasing support for *further* privatization. The proportion favoring more state ownership has grown, but only somewhat. The proportion favoring about the same level of state ownership has grown substantially, and, since the sector has shrunk, this is de facto approval of privatization. Finally, the proportion favoring state control of the electricity industry shows no clear trend (privatization was announced in 1987 and implemented in 1990–1991). Overall, however, the data suggest no strong support for renationalization and increasing support for the privatizations that have occurred.

2.7 Contracting Out

In the 1970s, practically all central and local government services were provided directly by government employees. In the early 1980s, however, some local councils began to contract out services, such as refuse collection, to private firms, while some hospitals obtained cleaning, catering, and

laundry services from the private sector. In an influential study, Domberger, Meadowcroft, and Thompson (1986) modeled the refuse collection costs of 305 local authorities, accounting for collection method, population density, and so forth, and whether the service had been contracted out and awarded to a private contractor, awarded to the in-house organization after competition, or had not been the subject of competition. Thus, this study is of particular interest since it provides a control group to contrast with private ownership. Relative to not being contracted out at all, costs were 22 percent lower when awarded to a private contractor and 17 percent lower when contracted out but awarded in-house. These cost savings were insignificantly different from each other, suggesting that it was the injection of competition from the contracting-out process that was important for cost savings rather than whether the operator was public or private. In a study of contracting for domestic services in hospitals, Domberger, Meadowcroft, and Thompson (1987) also found savings of about 20 percent (although there was some evidence that early contract awards had involved much lower prices than this, which they argued were unsustainable and reflected "winner's curse" effects).

Domberger and Jensen (1997) report a number of other studies, including a meta-analysis by the Australian Industry Commission, which produced a "rather wide" distribution of reported savings (from a cost *increase* of more than 10 percent to a saving of more than 50 percent). The most frequently reported savings, however, were between 10 and 30 percent, which "is entirely consistent with the conclusions based on U.K. data" (73). Given these savings, and the government's desire to reduce the size of the public sector, compulsory competitive tendering was introduced in 1988. The central government also started to contract out services, and approximately £2 billion of white-collar services had been subjected to competitive tendering by 1995 (Domberger and Jensen).

There have been claims that most of these savings have come from reductions in quality or in the terms and conditions offered to staff. Domberger and Jensen (1997) conclude, however, that most of these savings have come from "better management, more flexible working practices, more efficient use of capital and greater innovation spurred by competition" (1997, 74). Cubbin, Domberger, and Meadowcroft (1987) found that the technical efficiency of private refuse operators was 17 percent higher than that of authorities that had not put their services out to tender. This would account for three-quarters of the savings identified by Domberger, Meadowcroft, and Thompson (1986). However, insofar as employees gained rents from technical inefficiency, increasing efficiency would destroy those rents and reduce the employees' welfare. (For example, refuse workers might be able to serve an area in a shorter time than was allowed in their roster and would take the difference as leisure. Preserving such rents is not necessarily a legitimate objective of public policy, however.)

Councils' direct-labor organizations were allowed to bid against private firms. In the early studies in which these organizations won contracts, they were offering cost savings that were not significantly different from those under contracts awarded to the private sector, suggesting (yet again) that competition rather than ownership is the key to efficiency. After the introduction of compulsory competitive tendering, however, Szymanski (1996) found that local authorities that awarded contracts to their in-house teams were achieving significantly lower savings—a 10 percent rather than the 20 percent reduction from private contractors. It is at least possible that some of these councils, which had resisted compulsory tendering, were favoring their in-house organizations when they awarded contracts. If the in-house teams appreciated this reduction in competition, they could rationally offer fewer cost savings when bidding. In other words, what appears to be a difference due to ownership could still be related to competition.

There were fears that quality would also be impaired when services were contracted out. In practice, however, service levels appear to have been maintained or even enhanced, perhaps because contracting out has been associated with greater monitoring and more explicit standards (Domberger and Jensen 1997). In general, therefore, we conclude that efficiency gains from privatization are not due to lower levels of quality.

2.8 The Private Finance Initiative

The last kind of privatization that we consider is sometimes presented as a form of contracting out, in that the government is buying services from a private company. The difference is that the private finance initiative (PFI) involves investment, or the purchase of existing assets, which are used to provide the services required.[37] The PFI has been used to finance roads, prisons, hospitals, and schools. The Channel Tunnel Rail Link was finally started as a PFI project, and the government is planning to finance much-needed investment for the London Underground through the PFI. So far, the PFI has funded £15 billion in investment, about 20 percent of the government's capital spending over the period.

The administration of the PFI reflects a number of the principles the government has announced for it. First, there must be transfer of risk to the private sector. When a prison is built under the PFI, this means that the private company takes on the risk of building and operating it. When a road is funded in this way, a further risk transfer is achieved by making payments to the company conditional on the number of vehicles using the road. Second, the project must deliver value for money, and, third, there must be open competition for the project.

The PFI has a number of potential advantages. Even if there are good

37. For excellent reviews of the PFI, see Grout (1997) and Pollit (2000).

reasons for the state to subsidize services, due to externalities (e.g., roads), this does not necessarily mean that the public sector should build the assets to deliver the services or, in some cases, provide the services itself. One particular advantage arises due to risk allocation. Some of the risks of building, for example, a prison arise mainly from factors under the construction company's control, such as poor management. Traditional public procurement has often passed these risks back to the state, whereas PFI contracts for services may ensure that there is no payment to the private sector until building is completed, therefore transferring risk to the private sector.[38] There would be no need for such a policy if the government and private sector could write complete contracts that could, for example, specify varying payments for late completion of an asset depending on all possible circumstances that could in turn be verified.[39] Once the prison is in service, risks are more likely to come from government policy, such as new legislation raising the prison population, and a more flexible contract may be appropriate. Another advantage claimed for the PFI is that it removes public-sector investment from the PSBR. This is not just cosmetic, as the PSBR can be a binding constraint on governments, and moving investment outside the PSBR allows increased spending. The requirement to transfer risk is, in part, a way of ensuring that a PFI project is more than just a way of borrowing money without counting it toward the PSBR.

Against this, the PFI has some potential disadvantages. First, it can only work well if outputs and inputs can be measured and contracted over clearly. Second, PFI contracts can be inflexible: the government has to carry on with a project even if it decides it does not wish to do so. Third, the PFI, just as with direct borrowing by the government, transfers costs to future generations (compared with spending out of current tax revenue), which may or may not be desirable.

Critics of the PFI point out that the cash cost of PFI projects is increased by the higher interest rates required by the private sector compared to the cost of public borrowing. Some of the value-for-money comparisons, in which the PFI nevertheless appears to be the cheaper option, assume very large efficiency gains from private-sector delivery to offset the higher interest cost. Grout (1997) points out that this additional interest cost ought to be disregarded, since the cost of public-sector borrowing should be project specific and should depend upon the risks involved. Public borrowing for a risky project appears cheaper only because it is being subsidized by the government's ability to raise taxes if things go wrong. If this hidden subsidy

38. The National Audit Office (NAO; 1992), for example, estimated that the Department of Transport was paying an average of 28 percent more for roads than the price originally agreed.

39. Such risks can be hard to predict, however. The Skye Bridge PFI project local public enquiry resulted in delays and design changes (in order to protect a local otter population) costing £3.8 million out of a total cost of £39 million (Pollitt 2000).

is made explicit, public provision appears more expensive, and the PFI seems to be a relatively better value for money. In a sample of seventeen PFI projects, the value of the risk transferred to the private sector accounted for 60 percent of the expected savings from using the PFI, and six projects depended on these savings to pass the value-for-money test (Arthur Andersen and Enterprise London School of Economics 2000, table 5.9).

The question is whether the subsidy should be made explicit in this way. If the PFI transfers some risks away from the government, does that reduce the interest rate on the national debt? If the capital markets believe that there is no chance of default by the British government—whether or not it has to bear the risks involved in PFI projects—the implication is that the interest rate on the national debt is not affected by the PFI.[40] If this is the case, it could be argued that projects within the public sector receive "insurance" against risks at no real cost to the taxpayer, while the PFI requires the taxpayer to pay the private sector for risk bearing.[41] It may well be appropriate to use a higher test discount rate when assessing the desirability of a risky project, but that does not mean that the public sector should pay that higher rate through the PFI if cheaper financing is available. The case for the PFI would come back to the private sector's ability to produce services more efficiently than the public sector, and the efficiency must be great enough to offset the higher financing cost.

A series of NAO reports point to a mixed experience of the PFI. On the positive side, the NAO reports that a number of projects have gone ahead that simply would not have been financed were they to have come out of the public-sector capital budgets (e.g., the Channel Tunnel Rail link and the Skye Bridge; NAO 1997). On the negative side, bidding costs are high—estimated at £500 million for all outstanding PFI contracts in 1998 (Kerr 1998), which are then reflected in the final price—and delays can be long (up to two years). Furthermore, some contracts have substantially overrun, with some contract terms requiring the government to withstand the costs (e.g., computerizing post office payments). Finally, in practice, private-sector firms may have been adept at convincing the government to withstand more of the risks than would be optimal.

Thus, some PFI projects seem to have been successful and some not. The NAO judges the PFI prison contracts to have been well planned, to have offered good value for money, and to have been completed in almost half the time relative to public prison projects. On the other hand, the wrong discount rate was used in the evaluation of the comparative costs of several

40. This argument applies to the current state of the British economy—it would certainly not hold true for all countries or even all periods in British economic history.

41. A public-sector union has suggested that some services are suffering because public-sector budgets have not been increased to cover the extra capital charges involved in buying services through the PFI (Unison 2000).

road projects, potentially biasing the choice of financing method (Pollitt 2000).

2.9 Conclusions

Did privatization *itself* raise productivity? No. There seems to be very little evidence that the transfer of a public undertaking to a private one raises efficiency. British Gas is perhaps the classic example: a company that was transferred to the private sector with the same structure, same management, and very light regulation. Other companies were allowed to use British Gas's pipes to carry gas but at tariffs set by British Gas. No productivity gain occurred.

Did the *process* of privatization raise productivity? The answer is a resounding yes: Preprivatization restructuring, more competition, and tighter regulation all raised efficiency. Real change in the gas industry, for example, started in the early 1990s, once the competition authorities started to force open the industry. An open question is whether the commitment to privatization was essential to obtaining these gains.

We should also ask whether the clear change in the *level* of productivity that has been associated with privatization has evolved into higher rates of productivity *growth.* The problem here is that the process of catching up to private-sector levels of productivity can easily take the best part of a decade, and it is only after that process is complete that we will be able to discern what has happened to growth rates. At the moment, all that we can say is that it is hard to see an effect of privatization on productivity growth rates. The effect of privatization on quality seems to depend on strong regulation.

Privatization in the sense of asset sales is now more or less finished in the United Kingdom for the simple reason that there is little left to sell. Thus, the key concerns for the future are developing regulation and reshaping the PFI. It is also likely that future administrations will want to use the private sector more in delivering health and education services.

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