

The Performance of Privatised Industries:
A Report by NERA for the Centre for Policy Studies

Volume 1: Safety

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National Economic Research Associates (NERA) is a firm of economic consultants, specialising in the application of micro-economics to regulatory and competition issues, policy-evaluation and business strategy. NERA was established in 1961 and now employs more than 200 professional economists in offices in Europe and across the United States. NERA's clients include large and small businesses, government departments, regulatory authorities, law firms, industries preparing for privatisation, trade associations and international organisations. NERA works in most sectors of the economy and has built a special expertise in energy, telecommunications, broadcasting, environment, finance, water, transport, health care and pharmaceuticals.

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EXECUTIVE SUMMARY

National Economic Research Associates (NERA) was commissioned by the Centre for Policy Studies (CPS) to examine aspects of the economic record of privatised companies in the UK. The results of this work are intended for publication, as a contribution to policy debate.

This report focuses on safety, and examines the performance of privatised firms in protecting employees, consumers and the general public from accident and injury. Our findings are based mainly on official data supplied by the Health and Safety Executive (HSE), supplemented by information collected from other government agencies. We have also sought information from privatised firms, from industry bodies and from trade unions with significant membership in the industries concerned. This report draws on the detailed evidence for each of the individual firms and industries presented in the set of case studies appearing in the companion volume to this report.¹

Privatised firms are widely perceived to face greater pressures to reduce costs of all kinds in order to improve shareholders' returns, compared to public sector organisations with more diverse objectives. Our analysis suggests, however, that the "privatisation effect" is more complex than this. In particular, because improvements to employee safety yield cost reduction benefits to the firm, firms' willingness to pay for such improvement may actually increase as a result of privatisation.

Our principal findings are as follows:

- The incidence of all types of serious injury to employees has been declining fairly steadily across the economy as a whole since at least the mid-1980's. The improvement partly reflects changes in industry and occupational structures - the numbers employed in certain relatively hazardous occupations, such as coal mining, having fallen rapidly. However, it also reflects improvements in occupational safety within the manufacturing and services sectors (3.3)²
- Occupational safety standards have improved over this period in nearly all of the privatised firms and industries. In some cases, notably British Gas, British Steel, and in the electricity and water industries, the extent of improvement has been significantly greater than elsewhere in the economy (4.2).
- The majority of industrial injuries to members of the general public occur in educational or recreational establishments, and the incidence of such injuries is very low on average across the privatised firms and industries. Data on certain specific issues, where the nature of the industry is such that there are potentially significant

¹ "Safety Performance of Privatised Firms and Industries; Technical Appendix", available on application from CPS, price £50.

² References in brackets show where in the main report the detailed findings are presented.

public safety concerns, such as the incidence of gas explosions, and public health concerns such as the risk of flooding from sewers, indicate that the performance of the privatised firms has improved strongly since privatisation (3.3, 4.3).

1. INTRODUCTION

This report, by National Economic Research Associates (NERA) presents the first results of a study commissioned by the Centre for Policy Studies into the economic consequences of privatisation. It examines a hitherto neglected aspect of privatisation in the UK - the performance of the privatised businesses in protecting employees, consumers, and the general public from accident and injury. The report is mainly based on data supplied either by the privatised firms themselves or by the Health and Safety Executive (HSE), supplemented in certain specific industries by data on injuries or risks to consumers and the general public collected by other organisations, such as the Department of Trade and Industry (DTI). We have also sought information from industry bodies and from trade unions with significant membership in the sectors concerned.

The firms and industries covered by our research and the dimensions of safety performance on which information has been sought in each case are shown in Table 1.1³. Whilst the concept of employee safety is clear enough, some explanation is required of the distinction between consumer safety and the safety of the general public. The former refers to the risk of accident or injury resulting directly from the use of the goods or services supplied by the firm, such as the risk from a meter fire, or from an aircraft accident. Safety to the general public refers to all other types of accident arising from the activities of the businesses concerned, other than those affecting consumers and the employees of the firms in their workplaces. This would include, for example, an accident arising from an explosion in a gas main (to take a potentially serious example).

Table 1.1
Aspects of Safety Performance in the Privatised Industries

	Final Consumer	Public	Employees
Associated British Ports (ABP)	✓		✓
British Airways (BA)	✓		✓
British Gas (BG)	✓	✓	✓
British Steel (BS)			✓
British Telecom (BT)		✓	✓
Electricity supply industry	✓	✓	✓
Water and sewerage industry	✓	✓	✓

Consumer safety is an aspect of service quality, and the boundaries between the two are sometimes blurred in the statistics collected by regulatory agencies. An electricity outage,

³ We had originally planned to include BAA plc in the study but decided this was unfeasible because of a lack of appropriate data. BAA has told us that until very recently, data on injuries to BAA employees have been reported directly to the HSE by local airport management, and were not collected centrally. BAA is currently engaged in an exercise to establish a company-wide database from individual airport records, but the exercise is not yet complete. BAA also pointed out that it accounts for 20% or less of employees covered by the HSE category of "support services to air transport". Within this grouping, much the highest incidence of injuries is in ground handling activities in which BAA is not currently involved. BAA felt that the HSE data therefore gave little or no indication of BAA's occupational safety performance.

for example, would be recorded as a service quality incident; however, it may also create hazardous or dangerous situations.

The reasons for not analysing the incidence of accidents to consumers in the cases of *telecommunications* and *iron and steel* manufacture in Table 1 should be clear from the descriptions given above. The output of the iron and steel manufacturing activity is not used directly by consumers; telecommunications services are consumed directly but are virtually hazard-free for consumers. Although we report on the incidence of electrical meter fires, this is a relatively unimportant source of hazard to consumers, at least compared with the hazards ensuing from electrical appliance malfunctioning, which is the responsibility primarily of the equipment manufacturers and not the electricity supply industry.

The extent of the risks to the general public posed by the activities of firms and industries in our sample also varies widely. Port activities, airline and airport operations and iron and steel manufacture create relatively few hazards for the public at large. In the other industries, the existence and expansion of network facilities means that the general public is more significantly exposed to risk through equipment malfunction, trespass or as a result of public works, although such hazards are arguably less severe in the case of telecommunications. In the water industry, we discuss the exposure to risk of sewage flooding which gives rise to public health rather than safety risks.

This report is organised as follows. Chapter 2 discusses whether, in principle, we would expect privatisation to affect firms' conduct in ensuring the safety of employees, consumers and the general public. A widely perceived consequence of privatisation is that industry managers will seek to improve profitability by reducing costs more aggressively than was often the case in the public sector. Such pressures could lead to reduced expenditure on employee safety and a deterioration in safety performance. Our analysis suggests that when all the relevant factors are considered the effects of privatisation may be substantially more complex than this, and that there is in theory no reason to expect privatisation to reduce occupational safety. We also examine wider influences, such as changes in the regulatory environment, in technology and in the level and type of investment.

As the theoretical effects of privatisation on the incentives of firms to operate to high safety standards are ambiguous, and as there are important influences such as changes in technology which must have effected the safety record, it would not be possible to identify the effect of privatisation simply from examining the safety record of the privatised firms, before and after privatisation. It is therefore essential to consider the safety of firms which have not been affected by privatisation, and how this has changed over the relevant period.

Following a summary of the legislative framework, Chapter 3 therefore reviews evidence from HSE statistics on trends in the incidence of injuries to employees in the economy as a whole and in the major sectors (manufacturing, services, etc.) over the period 1986/7 - 1994/5. These data, which form a background to the analysis of outcomes in the privatised firms and industries, record:

- an almost continuous decline in the number and incidence (per 100,000 employees) of fatal accidents to employees across all industries, and within each of the main sectors;
- a less dramatic but steady decline in the absolute number and incidence of other types of injury to employees across all industries, but with significant variations between sectors;
- some decline in the number of fatal and major injuries to members of the public (the incidence of which is heavily concentrated in the educational and recreational services sectors).

Using these data as a reference point, Chapter 4 reviews the occupational safety record of the privatised firms and industries over the corresponding period. This Chapter draws on the detailed evidence for each of the individual firms and industries presented in the set of case studies appearing in the comparison volume to this report.⁴

We find evidence of widespread and sustained improvements in occupational safety. In some cases British Gas, British Steel, electricity and water, these improvements have been significantly greater than the improvements taking place across the economy as a whole. In those cases where there are significant issues of consumer safety and hazard to the general public, there is also evidence of a substantial improvement in the performance of the firms concerned.

⁴ "Safety Performance of Privatised Firms and Industries; Technical Appendix", available on application from CPS, price £50.

2. PRIVATISATION AND SAFETY PERFORMANCE

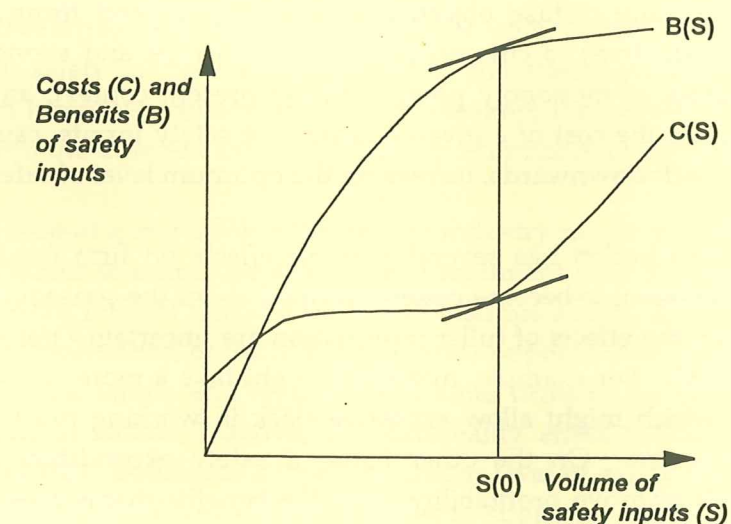
2.1. Introduction

This chapter examines how privatisation might, in principle, affect firms' safety behaviour. We then consider the wider set of factors affecting firm behaviour, including other changes linked to the privatisation process.

2.2. A Model of Firm Behaviour

We begin by specifying a simple model of firm behaviour with respect to the choice of safety related inputs. The discussion focuses on employee safety, but broadly similar considerations apply to other dimensions of safety. In order to reduce the risks of accidents or injuries to employees, firms incur costs. These include investing in safety equipment, employing safety and accident prevention officers, developing safety training programmes, and more generally, enhancing employee skills (especially those of manual employees, who are most at risk to accident and injury in the course of work) in order that tasks are undertaken in a more systematic and less "hazardous" fashion.

Figure 2.1
The Benefits and Costs of Safety Programmes



In figure 2.1, the quantity of safety related inputs, S , is shown on the horizontal axis and the associated cost function, $C(S)$ on the vertical axis. As drawn, the cost function exhibits a fixed element, and some increasing returns, but eventually returns to scale decrease for a given level of "non-safety" inputs.

Also shown on the vertical axis of figure 2.1 are the benefits produced by the safety inputs ($B(S)$). Benefits take several possible forms. In the case of employee safety, the major potential sources of benefit are, first, a reduction in the wage costs to the employer of

attracting a given quality of labour, as the incidence of accidents and injuries diminishes. There is empirical support from the literature on earnings functions for the proposition that, all other things equal, earnings increase with the degree of occupational hazard.⁵ Second, increases in safety inputs leading to a reduction in accident rates could secure reductions in payments to insurers for protection against claims by employees arising from work-related accidents. This effect also applies to decisions regarding the safety of consumers and the general public.

The optimal level of safety inputs is given in figure 2.1 by $S(0)$, at which point marginal benefits (the slope of $B(S)$) are equal to marginal costs (the slope of $C(S)$). To the left of $S(0)$, marginal benefits exceed marginal costs, indicating that safety inputs are too low and should be increased. To the right of $S(0)$, however, marginal benefits are less than marginal costs, indicating that the level of safety inputs is too high, and should be reduced. We analyse the effects of privatisation and other factors in terms of their impact on the benefit and cost functions and hence on the optimising level of S .

2.3. The Effects of Privatisation

Previous commentators on privatisation have usually sought to analyse its effects within a principal/agent framework, where firms' costs depend upon managerial effort, which is imperfectly observed by the firms' owners. The general perspective emerging from such discussions is that by substituting profitability, or similar measures of performance, such as the share price, for the more diffuse objectives of publicly owned firms, privatisation increases management incentives to cut costs, especially if prices and service quality are regulated to prevent abuse of monopoly power. In the present context, an effect of this kind would tend to reduce the cost of a given quantum of safety inputs, causing the $C(S)$ function in figure 2.1 to shift downwards, increasing the optimum level of safety inputs.

On the benefit side, privatisation has several possible effects on firm conduct. First, it should encourage management to become better-informed about the consequences of safety programmes.⁶ However, the effects of fuller information are uncertain - perceived benefits might increase or diminish. For example, managers might take a more "hard-nosed" look at current procedures, which might allow excessive slack in working practices under the guise of safety enhancement. On the other hand, if safety expenditure delivers cost-reduction benefits which improve profitability, then the benefits themselves may be more highly valued. Listing the effects in this way suggests that whilst the cost effect of

⁵ This could be extended to cover the reputational effects of being regarded as a "good employer" in reducing labour search, hiring costs etc., enabling the employer to attract a better quality of employee at any given money wage cost: see, for example, Kniesner, Thomas J and Leeth, John D (1991) "Compensating Wage Differentials for Fatal Injury Risk in Australia, Japan and the United States". *Journal of Risk and Uncertainty*, January; Dalvi M Q (1988), "The Value of Life and Safety. A Search for a Consensus Estimate", Department of Transport, London; Psacharopoulos M and Marin A (1982), "The Reward for Risk in the Labour Market. Evidence from the UK and a Reconciliation with Other Studies", *Journal of Political Economy*, Vol 90, No. 4, pp827-853.

⁶ An example of this type of culture change occurred in BAA. Employee health and safety issues had been dealt with entirely by local airport management until 1989, when a new central unit was established to co-ordinate health and safety policy across the company.

privatisation is unambiguous, its net effects on the benefit side, and hence its overall effect on conduct and performance, is uncertain.

2.4. Other Factors Influencing Safety Performance

Privatisation itself is only one of several factors affecting firms safety performance, some closely linked to privatisation itself, others operating independently.

2.4.1. Industry Re-structuring

Much of the UK privatisation process has been characterised by a preference for preserving the existing industry structure post-privatisation. BT, BG, BAA, BA, BS and ABP were privatised intact; in the water industry, the regulatory and water resource management functions previously undertaken by the water authorities were hived off to the newly created National Rivers Authority⁷, but the production activities of the authorities were transferred intact to the successor plcs. Only in the cases of electricity supply, buses and, most recently, railways has market structure been significantly altered at privatisation. In the case of buses, the state-owned National Bus Company was broken up into a large number of local units. In electricity, the CEGB's generating activities were transferred to five successors, two of which, Nuclear Electric and Scottish Nuclear remained in the public sector, and separated from its bulk transmission business, which was transferred to a newly created National Grid Company⁸.

Industry re-structuring and the introduction of competition could affect conduct and performance in safety matters independently of the effects associated with the change in ownership and incentives consequent on privatisation; the nature of the effects might also differ as between the different aspects of safety performance identified in chapter 1.

Thus, the break-up of a monopoly nationalised industry might in theory weaken incentives to commit resources to employee safety. The argument here is that the benefits of safety programmes, in the form of reduced wage and insurance costs, are fully internalised by the monopolist. Fragmentation of the industry creates opportunities for each individual player to "free-ride" on the efforts and reputation of other firms in the industry. In terms of the model described in section 2 above, this externality effect would tend to shift the $B(S)$ function downwards, leading to a lower optimum level of safety inputs than $S(0)$. To the extent that there are significant scale economies in supplying safety inputs, the break-up of a nationalised monopoly could lead to some increase in unit costs, although this could be offset by the cost efficiency benefits of privatisation referred to earlier.

If re-structuring leads to the introduction of competition in supplying final consumers, however, the direction of effect on consumer safety is quite different. A company's safety reputation then becomes one aspect, possibly an important one (as in the case of airlines) in

⁷ Now subsumed into the Environment Agency.

⁸ NGC was jointly owned by the privatised successors to the Area Electricity Boards.

the quality of service offer; effective safety performance becomes an important determinant of competitive success. In the context of consumer safety, therefore, restructuring leading to the introduction of competition would produce an upward shift in the B(S) function, leading to increased willingness to spend to safeguard consumers.

2.4.2. Growth in Real Wages

Apart from industry re-structuring and the introduction of competition, firm conduct and performance in protecting employees and others from accident and injury is also influenced by wider changes in the economy. Particularly important here are the effects of increasing real incomes on the perceived benefits of safety inputs and of technical progress on the safety cost function.

The more predictable effect is that of increasing real wages. If a given increment in safety inputs leads to a given proportionate reduction in the wage rate required to attract employees, the real value of the employee wage cost benefit will increase over time with the growth in real wages. However, the rate of increase of benefits in real terms may well be higher than the growth of real wages, if, as seems plausible, the demand for safe working conditions is itself income-elastic. If so, the proportionate real wage premium attaching to employee hazard may itself be increasing through time with the general increase in prosperity.

Whether and to what extent these effects, which cause the benefit function to shift upwards, lead to an increased level of safety inputs depends on whether the real costs of "producing" safety inputs are increasing or diminishing over time. Whilst we know of no empirical estimate of this effect, our judgement would be that the net effect of underlying shifts in the benefits and costs of safety inputs is likely to favour increased safety inputs, leading to a downward trend in the level of accidents and injuries in each sector of the economy⁹.

2.4.3. Technical Progress and the Industry Production Function

Technical progress in the wider industry production function could affect the optimum quantity of safety inputs and the "productivity" of these inputs. For example, the substitution of digital for electro-mechanical switching equipment in telephone exchanges, or the replacement of cast iron pipework by spun nylon piping in the gas industry, each represents an "intrinsically" safer technology for employees. By (greatly) increasing the benefits from a given quantity of safety inputs, technical progress of this kind could allow a smaller optimum level of safety inputs to yield an increased benefit in employee safety, and hence an overall reduction in injury rates.¹⁰

⁹ As we see in chapter 3, this "within sector" effect may be outweighed, or accentuated, by shifts in the distribution of employment between sectors with different initial levels of accident and injury incidence.

¹⁰ Note, however, that the investment programmes required to introduce the new technology, possibly involving significant construction etc. activities, might lead to a temporary increase in employee injury rates.

2.4.4. Regulatory Changes

A further influence on firm conduct is the regulatory environment and changes therein, possibly linked to wider changes in the economy and society, and to privatisation itself. Regulatory factors affect behaviour in several ways:

- The imposition of or change in standards or regulations governing the safety of employees or consumers may require firms to purchase a higher quantity of safety related inputs than would be dictated by firms' private cost and benefit schedules.
- Through the provision and dissemination of information. The introduction of a requirement to report injuries to employees, and the subsequent publication and dissemination of accident and injury statistics may affect the supply of labour to occupations with different levels of hazard, leading to changes in relative wages and to shifts in safety benefit functions.
- Privatisation itself may affect regulatory procedures, especially in relation to consumer safety. Partly as a result of concerns that privatised monopoly utilities subject to price cap regulation had strong incentives to reduce costs and service quality, especially if demand was relatively unresponsive to quality change, privatisation has led directly to major changes in arrangements for monitoring and regulating all aspects of service quality in the privatised business. Whereas many aspects of nationalised industries' service quality were subject to informal self-regulation, the establishment of external regulatory agencies has encouraged much more explicit statements of the responsibilities of the firms towards their consumers and the general public.

2.5. Conclusions

The discussion indicates that the conduct and performance of privatised firms in protecting employees, consumers and the general public from accident and injury is affected by a wide range of factors, apart from the effect of privatisation itself in altering incentive structures. Although theoretical analysis offers no clearcut predictions, it emphasises that there is no case for expecting the safety performance of the privatised firms to be adversely affected by the change in ownership.

3. LEGISLATIVE BACKGROUND AND TRENDS IN INJURIES IN THE UK ECONOMY

3.1. Introduction

This chapter begins by summarising existing UK legislation defining employers' responsibilities towards employees and the general public in matters of safety. We then examine trends in injuries as reported under provisions contained in the legislation. These data provide a reference point for our assessment of the performance of the privatised firms and industries reported in Chapter 4.

3.2. The Legislative Background

3.2.1. Legislation

Employee safety in the UK is regulated by the 1974 **Health and Safety at Work Act**, which sets out in detail the duties of the employer and employee with respect to health and safety. The main aims of the legislation are listed as:

- *securing the health, safety and welfare of persons at work;*
- *protecting persons other than persons at work against risks to health or safety arising out of or in connection with the activities of persons at work;*
- *controlling the keeping and use of explosive or highly flammable or otherwise dangerous substances, and generally preventing the unlawful acquisition, possession and use of such substances; and*
- *controlling the emission into the atmosphere of noxious or offensive substances from premises.¹¹*

Provision is made within the legislation for the attainment of all these aims. For example, the Act states that, *'It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.'*¹²

The Act then goes on to set out the matters to which this duty extends, which include the provision of a place of work, plant and equipment that are safe and do not pose a risk to health (so far as is reasonably practicable). Equipment and other substances must be stored and transported safely, and adequate training, information and supervision must be provided for employees.

¹¹ Health and Safety at Work Act 1974, Part 1, Section 1.

¹² Health and Safety at Work Act 1974, Part 1, Section 2.

As well as setting out the duties of employers towards their employees, the Act states that employers also have a duty to ensure that people who are not employed by them, but who may be affected by their activities, are not exposed to health and safety risks resulting from these activities (this regulation also applies to the self-employed). Similarly, people not employed by a firm, but who use that firm's plant, must comply with the health and safety regulations.

Employees themselves also have a duty under the act to take 'reasonable care' of themselves and others who may be affected by their actions at work, and to co-operate with their employers on health and safety issues.

The Act also provided for the creation of a **Health and Safety Commission (HSC)**, and a **Health and Safety Executive (HSE)**. The HSE has a duty to carry out functions of the HSC, as directed by the HSC. The Commission's duties include assisting and encouraging compliance with the regulations, the provision of training and information, and research into health and safety issues. The HSC (or the HSE or other approved body acting on its behalf) has powers to direct investigations and enquiries on health and safety, and to serve notices on companies requiring them to provide health and safety information.

In 1992, the Act was amended to take into account the six **EC Directives** on health and safety, which came into effect on the 1st January 1993, that is, since privatisation in all of the industries examined in this study. The main requirements of each of the six directives (referred to colloquially as the "six pack") are outlined below.

- **The Management of Health and Safety at Work Regulations.** These involved some overlap with the 1974 legislation. The main points were as follows:
 - Employers must assess health and safety risks to employees and the public. This was one of the biggest changes compared to the earlier legislation;
 - Employers must implement, monitor and review health and safety measures, and appoint someone to be responsible for this;
 - Employers must also set up emergency procedures, inform and train staff, and co-operate with other employers at the same workplace.
 - Employees have a duty only to use equipment as they have been trained to do so, and to report any safety incidents or shortcomings they see in their employers health and safety provisions.
- **Health and Safety (Display Screen Equipment) Regulations 1992.** These specify minimum health and safety requirements for work with display screen equipment, but are unlikely to have had much impact on the safety performance of the industries examined in the present study.

- **Manual Handling Operations Regulations 1992.** Under these regulations, employers have a duty to avoid hazardous manual handling where possible, to assess manual handling which cannot be avoided (they may contract this work out *but are still responsible for it*, a point of relevance for industries such as water, where a large proportion of capital investment work is contracted out), and to communicate with other employers if they are working on their premises. Employees must also play a part in assessment, and must make use of equipment provided.
- **Workplace (Health and Safety and Welfare) Regulations 1992.** These set out regulations covering for example the provision of a good working environment, with adequate lighting, ventilation, temperature, cleanliness etc., arrangements which were largely already in place under existing UK legislation.
- **Personal Protective Equipment at Work Regulations 1992.** Employers are required to provide appropriate protective equipment, to store, maintain, and replace it when necessary, and to ensure it is properly used. This regulation again overlaps with the 1974 legislation, thus limiting its impact on safety performance.
- **Provision and Use of Work Equipment Regulations 1992.** These regulations require employers to take into account working conditions and risks when selecting equipment, make sure equipment is suitable, and that adequate information and training are given. The employer must provide appropriate lighting, warnings and markings for the equipment, and provide protection from dangerous parts of the machinery. Once again, an overlap is observed with the 1974 Act.

As far as the industries in this study are concerned, the main impact of the EC directives is likely to have been in the management of health and safety, and with the introduction of risk assessment for tasks undertaken.

3.2.2. Injury Statistics

The data on injuries used in the present study have been collected by HSE under delegated legislation provisions of the 1974 Act, giving the authorities powers to require employers to supply information regarding health and safety issues. The present regulations, known as the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) came into effect on 1 April 1986, replacing earlier regulations known as the Notification of Accidents and Dangerous Occurrences Regulations 1980 (NADOR). Changes in the definitions, especially of major injuries, mean that many of the data collected under RIDDOR are not directly comparable with those collected previously under NADOR. For this reason, our analysis of trends in injuries in the economy as a whole and in the privatised firms and industries is for the most part restricted to the period 1986/7 to 1994/5¹³, for which consistent data are available.

¹³ The 1994/5 data are described by HSE as provisional, and hence subject to revision.

3.3. Trends in Injuries to Employees

The HSE reports data on the following categories of injury to employees:-

- fatal injuries;
- major injuries (as specified in RIDDOR reporting forms¹⁴);
- more than 3 day injuries (defined as injuries causing incapacity for normal work for more than three days).

Tables 3.1 to 3.3 and the accompanying figures show the incidence rates per 100,000 employees for each category of injury, by principal industry sector and by all industries for the period 1986/7 to 1994/5.

3.3.1. Incidence Rates

The HSE data reveal a number of important points, both about the relative incidence of different types of injury and about inter-industry differences in incidence rates:-

- First, the overall incidence of fatal injuries is very much lower than the incidence of major and over 3 day injuries. For all industries, major non-fatal injuries are approximately sixty times more frequent than fatal injuries. More than 3-day injuries are approximately eight times more frequent than major injuries.
- Second, the incidence of different types of injury to employees varies widely between industrial sectors. Fatal injuries are approximately fifteen times more frequent in the construction and agriculture, forestry and fishing sectors than in the services sector. More than 3-day injuries are three to four times more frequent in the energy, water and construction sectors than in services. Overall the data indicate that employees in the construction, energy and water, and agriculture, forestry and fishing sectors face significantly higher exposure to injury risk than the average for all employees, and that the degree of hazard faced by employees in service industries is significantly lower than the all-employee average.

An important implication of these data is that the economy-wide incidence of the more serious type of injury might be significantly affected by changes in the inter-sectoral distribution of employment, even in the absence of any changes in the incidence of injuries within each sector.

3.3.2. Trends in Injuries to Employees

The incidence rates of each type of injury across the economy as a whole have declined since the introduction of RIDDOR. The decline in the overall incidence of fatal injuries has been most pronounced, with the provisional data for 1994/5 indicating a fall of nearly 50%

¹⁴ The list of major injuries used in compiling the RIDDOR data is shown at Appendix 1.

compared to 1986/7. The overall incidence of the other categories of accident has also fallen steadily over most of the period.

3.3.2.1. Fatal Injuries

There was little change in the overall incidence of fatal injuries until the early 1990s, since when there has been a dramatic decline. This decline partly reflects shifts in the inter-industry distribution of employment, with reductions in employment in coal mining, construction and agriculture, forestry and fishing, all of which were relatively "hazardous" industries. However, the incidence rates in each of the major sectors has also declined; with a particularly marked decline in the service industries, where the incidence of fatal injuries, although low relative to other sectors, had increased between 1986/7 and the early 1990s.

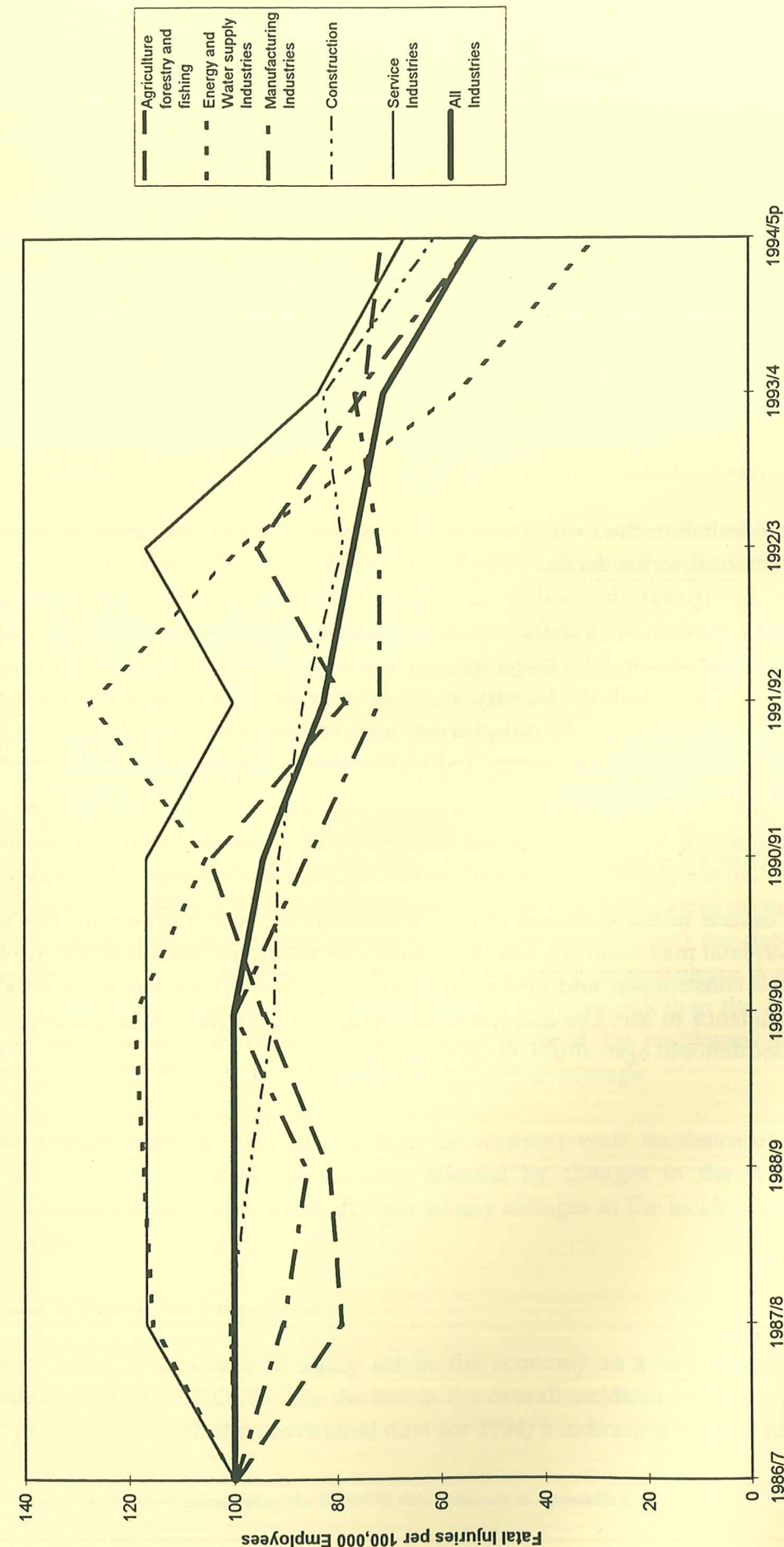
3.3.2.2. Non-fatal Major Injuries to Employees

Although the decline in the overall incidence of non-fatal major injuries to employees has been less dramatic than the decline in fatal injuries, the rate of year-on-year decline has been quite stable throughout the period since RIDDOR's introduction. The inter-industry pattern shows slightly more variation than the pattern of fatal injury incidence. Although the incidence of major non-fatal major injuries has fallen in four of the five main sectors, it has increased in the agriculture, forestry and fishing sector. The rates of decline have been broadly similar in services, manufacturing and construction, and there has been a particularly rapid decline in the energy and water supply sectors, partly reflecting the run-down of coal mining employment.

3.3.2.3. Over 3-day Injuries

The overall decline in the incidence of over 3-day injuries, which is slightly less than the decline in non-fatal major injuries, has been mainly driven by reductions in the incidence of injuries in the construction and energy and water sectors. There has been little overall change in incidence in services and manufacturing, and a significant increase (of around 50%) in the incidence in agriculture, forestry and fishing.

Figure 3.1
Fatal injuries, Incidence per 100,000 Employees, 1986/7=100



Source : HSE, Health and Safety Statistics, 1994/5

Table 3.1
Incidence of Fatal Injuries to Employees by Industry Sector, 1986/87-1994/95

Fatal Injuries per 100,000 employees

	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	8.6	5.8	2.1	10.2	0.6	1.7
1987/88	6.8	6.7	1.9	10.3	0.7	1.7
1988/89	7.0	42.7	1.8	9.9	0.7	2.4
1989/90	8.1	6.9	2.1	9.4	0.7	1.7
1990/91	9.0	6.1	1.8	9.3	0.7	1.6
1991/92	6.7	7.4	1.5	8.8	0.6	1.4
1992/93	8.2	5.7	1.5	8.0	0.7	1.3
1993/94	6.4	3.3	1.6	8.4	0.5	1.2
1994/95p	6.1	1.7	1.1	6.2	0.4	0.9

Fatal Injuries per 100,000 employees, 1986/7=100

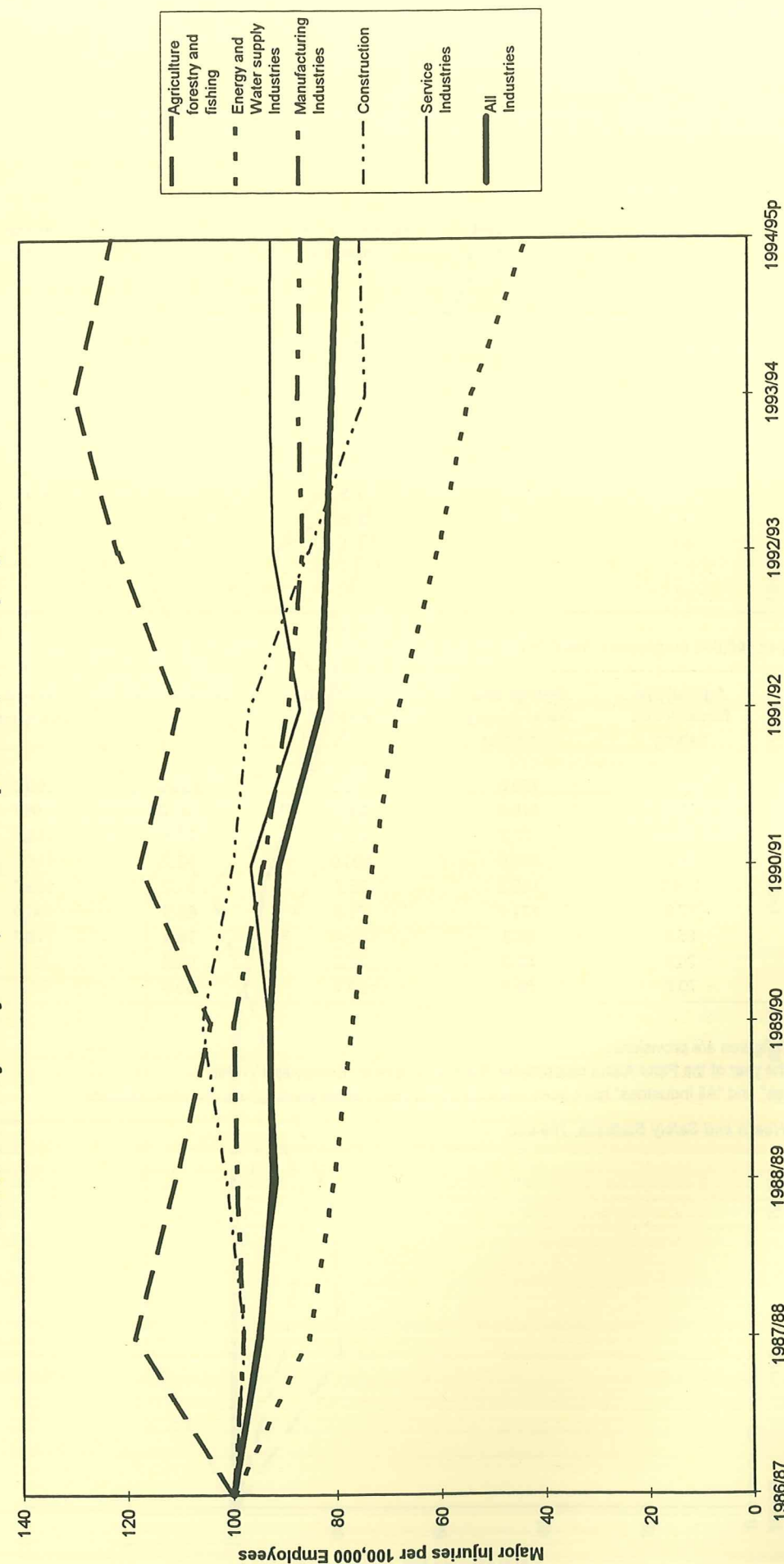
	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	100.0	100.0	100.0	100.0	100.0	100.0
1987/88	79.1	115.5	90.5	101.0	116.7	100.0
1988/89	81.4	117.2*	85.7	97.1	116.7	100.0*
1989/90	94.2	119.0	100.0	92.2	116.7	100.0
1990/91	104.7	105.2	85.7	91.2	116.7	94.1
1991/92	77.9	127.6	71.4	86.3	100.0	82.4
1992/93	95.3	98.3	71.4	78.4	116.7	76.5
1993/94	74.4	56.9	76.2	82.4	83.3	70.6
1994/95p	70.9	29.3	52.4	60.8	66.7	52.9

Note 1994/1995 figures are provisional.

*For 1988/89, the year of the Piper Alpha catastrophe, the true figures in "Energy and Water Supply Industries" and "All Industries" have been replaced by the mean of the years before and after 1988/89

Source: HSC, Health and Safety Statistics, 1994/95

Figure 3.2
Non fatal major injuries, incidence per 100,000 employees, 1986/7=100



Source : HSE, Health and Safety Statistics, 1994/5

Table 3.2
Incidence of Non-Fatal Major Injuries to Employees by Industry Sector, 1986/87-1994/95

Non-fatal major injuries per 100,000 employees

	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	136.5	330.3	145.0	282.7	57.5	99.1
1987/88	162.0	281.9	142.0	276.5	54.9	94.0
1988/89	151.3	265.6	143.7	285.9	52.5	91.4
1989/90	141.9	253.2	144.4	298.8	53.4	91.8
1990/91	160.3	239.9	136.1	281.5	55.3	89.9
1991/92	150.0	223.2	128.8	272.4	49.7	81.7
1992/93	165.4	197.5	124.4	239.3	52.6	80.4
1993/94	176.8	176.5	125.7	208.0	52.9	79.3
1994/95p	166.9	140.2	124.7	211.0	52.8	78.2

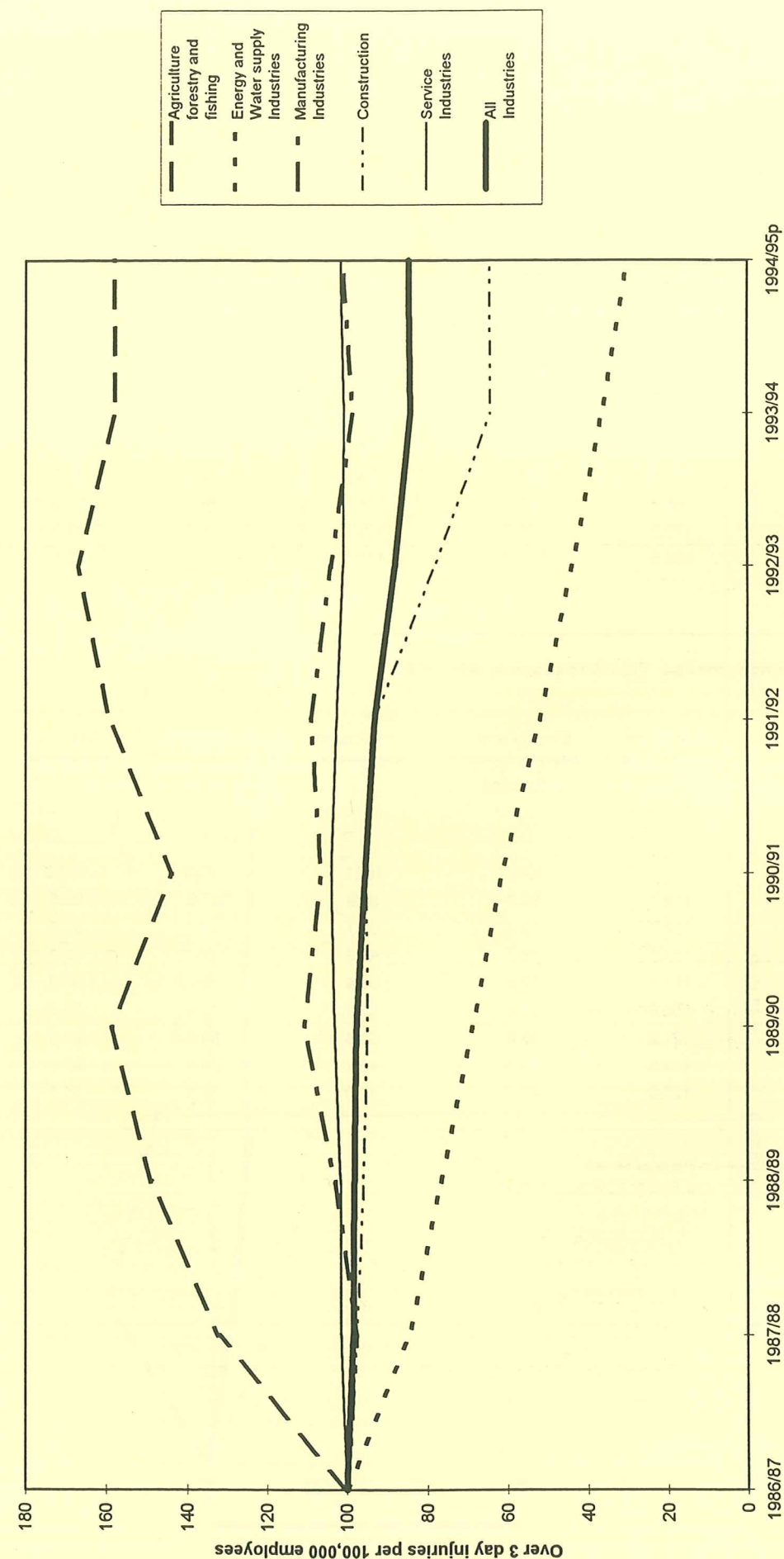
Non-fatal major injuries per 100,000 employees, 1986/7=100

	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	100.0	100.0	100.0	100.0	100.0	100.0
1987/88	118.7	85.3	97.9	97.8	95.5	94.9
1988/89	110.8	80.4	99.1	101.1	91.3	92.2
1989/90	104.0	76.7	99.6	105.7	92.9	92.6
1990/91	117.4	72.6	93.9	99.6	96.2	90.7
1991/92	109.9	67.6	88.8	96.4	86.4	82.4
1992/93	121.2	59.8	85.8	84.6	91.5	81.1
1993/94	129.5	53.4	86.7	73.6	92.0	80.0
1994/95p	122.3	42.4	86.0	74.6	91.8	78.9

Note 1994/1995 figures are provisional

Source: HSE, Health and Safety Statistics, 1994/95

Figure 3.3
Over 3 day injuries, incidence per 100,000 employees, 1986/7=100



Source: HSE, Health and Safety Statistics, 1994/5

Table 3.3
Incidence of Over 3 Day Injuries to Employees by Industry Sector, 1986/87-1994/95

Over 3 day injuries per 100,000 employees

	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	331.7	3771.8	1061.9	1701.8	471.1	761.1
1987/88	438.7	3188.3	1035.5	1660.9	478.1	748.9
1988/89	494.1	2889.5	1093.1	1632.3	478.6	747.7
1989/90	526.8	2595.3	1176.5	1614.2	485.4	743.4
1990/91	477.0	2318.8	1130.3	1616.2	489.5	726.5
1991/92	528.2	1965.1	1158.3	1588.7	482.9	708.5
1992/93	554.0	1656.0	1105.1	1328.8	475.6	670.0
1993/94	523.9	1379.6	1046.7	1095.4	474.3	640.4
1994/95p	524.5	1136.5	1074.6	1097.8	478.8	644.5

Over 3 day injuries per 100,000 employees, 1986/7=100

	Agriculture forestry and fishing	Energy and Water supply Industries	Manufacturing Industries	Construction	Service Industries	All Industries
1986/87	100.0	100.0	100.0	100.0	100.0	100.0
1987/88	132.3	84.5	97.5	97.6	101.5	98.4
1988/89	149.0	76.6	102.9	95.9	101.6	98.2
1989/90	158.8	68.8	110.8	94.9	103.0	97.7
1990/91	143.8	61.5	106.4	95.0	103.9	95.5
1991/92	159.2	52.1	109.1	93.4	102.5	93.1
1992/93	167.0	43.9	104.1	78.1	101.0	88.0
1993/94	157.9	36.6	98.6	64.4	100.7	84.1
1994/95p	158.1	30.1	101.2	64.5	101.6	84.7

Note 1994/1995 figures are provisional

Source: HSE, Health and Safety Statistics, 1994/95

3.3.3. Trends in Injuries to the General Public

RIDDOR also requires employers to supply HSE with data on injuries to the general public. The very large majority of such injuries are sustained in connection with the activities of the services sector. For example, in 1993/4, the latest year for which detailed analysis is available, the service sector as a whole accounted for nearly 97% of all major injuries and nearly 90% of fatal injuries to members of the public. Within the service sector, education and recreational services accounted for nearly 60% of injuries. It follows that the incidence of injuries to the general public caused by the activities of any non-service industry is, on average, very low, and potentially erratic from year-to-year.

After declining by more than 40% between 1986/7 and 1990/1, the overall level of major and fatal injuries to the general public recorded in the RIDDOR statistics has since

increased, although the 1994/5 level was still approximately 20% below the level recorded in 1986/7. Within the overall total, fatal injuries represent less than 1% of all fatal and major injuries.¹⁵

3.4. The Accuracy of HSE Data on Injuries to Employees

The HSC has conducted research into the extent to which non-fatal injuries to employees may be under-reported by employers.¹⁶ By comparing data on occupational injury collected in the Labour Force Surveys (LFS) in 1989/90, 1993/4 and 1994/5 with its own RIDDOR statistics, the HSC has concluded that there is significant under-reporting of non-fatal injuries, and that the extent of under-reporting varies widely between employers in different sectors. However, as shown in Table 3.4, the LFS evidence suggests that the degree of under-reporting has diminished between 1989/90 and 1994/95. An important implication of this finding is that the "true" incidence of non-fatal major and over 3-day injuries has been declining more rapidly than indicated in the RIDDOR statistics reported earlier.

Table 3.4
Reporting Rate of Non-Fatal Injuries by Employers in Main Industrial Sectors, 1989/90, 1993/4 and 1994/5

Percentage Reported	1989/90	1993/4	1994/5
Manufacturing	42	49	54
Construction	40	39	45
Services	27	33	37
All Industries	34	38	44

Source: HSC: see footnote 16.

¹⁵ The overall incidence of fatal injuries to the general public has shown little change since the mid-1980s.

¹⁶ The findings of the research are summarised in a recent HSC publication. *Health and Safety Statistics 1994/95*; see p1. See also, Stevens, G, "Workplace Injury: a view from HSE's trailer to the 1990 Labour Force Survey", *Department of Employment Gazette*, December 1992.

4. THE SAFETY PERFORMANCE OF PRIVATISED FIRMS AND INDUSTRIES

4.1. Introduction

This chapter summarises our findings on the performance of privatised firms and industries in protecting employees, consumers and the general public from accident and injury. Full details are contained in the set of seven industry case studies appearing in the companion volume to the report.

The overall picture emerging from the review of safety performance in the privatised firms and industries can be summarised as follows:-

- on employee safety as measured by the incidence of injuries per employee, we find that in five of the seven cases, the privatised firms or industries concerned have performed as well as or better than the performance of the economy as a whole since they were privatised; because the economy-wide incidence of all types of injury to employees has been declining, this implies an even stronger decline in the incidence of injuries in the privatised firms and industries. In the case of ABP, the number of injuries incurred by employees has fallen strongly over the entire period, but employment has fallen even more rapidly.
- The nature of the industry is such that there are potentially significant concerns relating to safety or health of consumers and the general public in the gas, electricity, and water industries. In each case, the performance of the businesses concerned has improved very significantly since privatisation. BA, which faces strong external competitive pressures, has for many years had an excellent safety record.

4.2. Employee Safety in Privatised Firms and Industries

Our discussion of the performance of privatised firms and industries with respect to employee safety considers the following issues:-

- First, how has the incidence of injuries to employees changed since privatisation?
- Second, what has been the incidence of injuries to employees before and after privatisation?
- Third, how does the performance of privatised firms and industries compare with the change in the incidence of injuries in the economy as a whole?

4.2.1. The Data

In the case of gas, electricity, water and air transport, the data have been supplied by HSE and relate to the relevant three or four digit Standard Industrial Classification (SIC) industries. The privatised businesses, such as BG, whose performance most directly concerns us, account for 90% or more of total employment in the gas, electricity and water industries, and around 45% in air transport. In the other three cases, we have obtained RIDDOR data directly from BS, BT and ABP:

- ABP has supplied data covering all injuries (fatal, major non-fatal and over 3-day) by calendar year;
- BS has supplied separate data for major non-fatal and over 1-day injuries; the latter definition is considered by BS to be closely equivalent to the over 3-day series produced by HSE;
- BT has supplied separate data for the major non-fatal and over 3-day injuries for the period from 1989/90 to date. Data for the period 1986/87 to 1988/89 are not available because they were not collected centrally within BT until a major reform of internal reporting procedures in 1989.

4.2.2. The Change in the Incidence of Injuries since Privatisation

The incidence of fatal injuries to employees in the privatised firms and industries covered in the study has been extremely low throughout the period from 1986/87 to 1994/95, averaging around 10 fatalities per annum in total. Because of the very low average incidence, and the fact that the series for each industry is erratic from year to year, it is not possible to identify a meaningful trend for any of the individual cases. Our discussion therefore focuses on trends in the incidence of non-fatal major and over 3-day injuries per 100,000 employees between 1986/87 and 1994/95 in the privatised firms and industries, shown in Tables 4.1 and 4.2 and the accompanying charts.

The data show that in four of the seven cases (gas, electricity, water and BS) there has been a decline in the incidence of both non-fatal major and over 3-day injuries in the post-privatisation period. The decline has been most consistent in the gas, electricity and water industries. In BS, the incidence of major non-fatal injuries has fallen since privatisation with a somewhat erratic year-to-year pattern, and there has been a steady decline in the rate of over 1-day injuries.

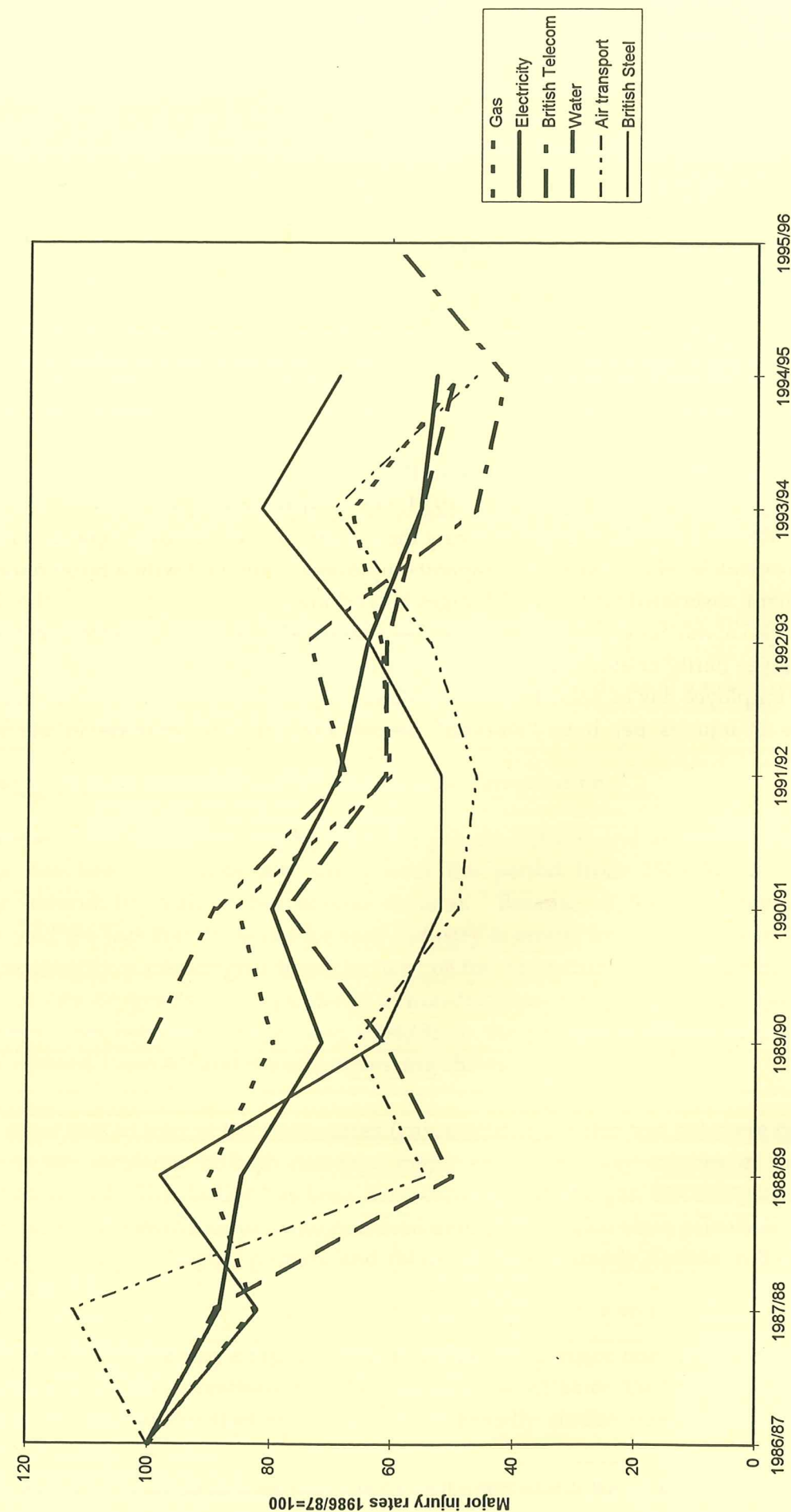
In the airline sector, there was a rapid decline in incidence of major non-fatal injuries in the period shortly after BA privatisation. The rate has varied since the late 1980s but has remained lower than at the start of the period. A broadly similar pattern is observed in respect of less serious injuries.

In BT, where data have only been collected centrally since 1989, the rate of major non-fatal injuries declined rapidly in the early 1990's; the over 3-day injury rate increased marginally over the same period. BT has told us that the reduction in the incidence of major injuries can be attributed partly to changes in corporate policy, which have put increased emphasis on employees health and safety. The company has recently adopted a formal risk assessment process to enable a more structured approach to workplace safety issues, and has launched a major new initiative, known as Health and Safety 2000, aimed at developing long term solutions to occupational safety problems. BT also believes that technical changes, in particular, the replacement of analogue by digital exchange equipment and the use of optical fibres, have reduced the number of situations in which employees are at risk of injury.

In ABP, there was a significant increase in the incidence rate per 100,000 employees of all types of injury between 1986/87 and 1990/91, since when the rate has fallen.¹⁷ The increase in the incidence rate in the period following the introduction of RIDDOR reflects a relatively constant overall level of injuries to company employees, combined with a rapid reduction in employment, associated with major changes in working practices even prior to the abolition of the Dock Labour Scheme in 1989. ABP has suggested that the increase in incidence rate per employee partly or even wholly reflects the fact that the amount of productive working time per employee has increased. In effect, there may have been little or no changes in the incidence of injuries per hour "worked" despite the apparent increase in the rate per employee.

¹⁷ As shown in Table 4.2a, the ABP data for 1995 indicate a further reduction in the incidence rate, to below the level in 1986/87.

Figure 4.1
Non-Fatal Major Injuries per 100,000 Employees 1986/87=100



Source: HSE Unpublished Tabulations, BS, BT

Table 4.1a
Non-Fatal Major Injuries per 100,000 employees

Year	Gas	Electricity	British Telecom**	Water	Air Transport	ABP***	British Steel*
1986/87	146.8	174.2	n/a	183.0	119.9	n/a	n/a
1987/88	121.1	153.8	n/a	156.0	134.6	n/a	n/a
1988/89	132.3	147.5	n/a	92.0	65.0	n/a	n/a
1989/90	116.9	124.6	104.6	110.0	79.2	n/a	n/a
1990/91	125.6	139.2	93.4	135.0	58.9	n/a	n/a
1991/92	88.7	119.9	70.8	110.0	55.4	n/a	n/a
1992/93	90.9	111.9	77.3	112.0	64.7	n/a	n/a
1993/94	98.4	96.8	48.7	99.0	83.5	n/a	n/a
1994/95	72.1	92.3	43.6	89.0	56.0	n/a	n/a
1995/96	n/a	n/a	60.4	n/a	n/a	n/a	n/a

* Data supplied by BS give incidence rates in index form only

** Data for BT are unavailable prior to 1989/90

*** Data supplied by ABP cover all types of injury, and are used to proxy over three day injuries

Table 4.1b
Non-Fatal Major Injuries per 100,000 employees 1986/87=100

Year	Gas	Electricity	British Telecom*	Water	Air Transport	ABP**	British Steel
1986/87	100.0	100.0	n/a	100.0	100.0	n/a	100.0
1987/88	82.5	88.3	n/a	85.2	112.3	n/a	82.0
1988/89	90.1	84.7	n/a	50.3	54.2	n/a	98.0
1989/90	79.6	71.5	100.0	60.1	66.1	n/a	62.0
1990/91	85.6	79.9	89.3	73.8	49.1	n/a	52.0
1991/92	60.4	68.8	67.7	59.6	46.2	n/a	52.0
1992/93	61.9	64.2	73.9	61.2	54.0	n/a	64.0
1993/94	67.0	55.6	46.6	54.1	69.6	n/a	82.0
1994/95	49.1	53.0	41.7	48.6	46.7	n/a	69.0
1995/96	n/a	n/a	57.7	n/a	n/a	n/a	n/a

* Data for BT are unavailable prior to 1989/90

** Data supplied by ABP cover all types of injury, and are used to proxy over three day injuries

Table 4.2a
Over Three Day Injuries per 100,000 Employees

Year	Gas	Electricity	British Telecom**	Water	Air Tansport	ABP***	British Steel*
1986/87	2944.5	1806.2	n/a	2462.0	898.2	2800.0	n/a
1987/88	3014.4	1784.4	n/a	2224.0	897.2	3400.0	n/a
1988/89	2785.8	1623.1	n/a	2186.0	780.0	3500.0	n/a
1989/90	2506.5	1595.7	1016.0	1849.0	901.0	4100.0	n/a
1990/91	2506.2	1385.4	1141.0	1700.0	712.1	4700.0	n/a
1991/92	2007.6	1195.7	1156.0	1433.0	713.1	4500.0	n/a
1992/93	2096.1	1065.1	1095.0	1369.0	633.8	4300.0	n/a
1993/94	2016.6	789.8	1104.0	1202.0	712.4	4000.0	n/a
1994/95	1555.0	810.1	1197.0	1163.0	786.2	4800.0	n/a
1995/96	n/a	n/a	819.0	n/a	n/a	2400.0	n/a

* Data supplied by BS give incidence rates in index form only, and for over one day injuries, which we assume correspond closely with the HSE category of over three day injuries.

** Data for BT are unavailable prior to 1989/90

*** Data supplied by ABP cover all types of injury, and are used to proxy over three day injuries

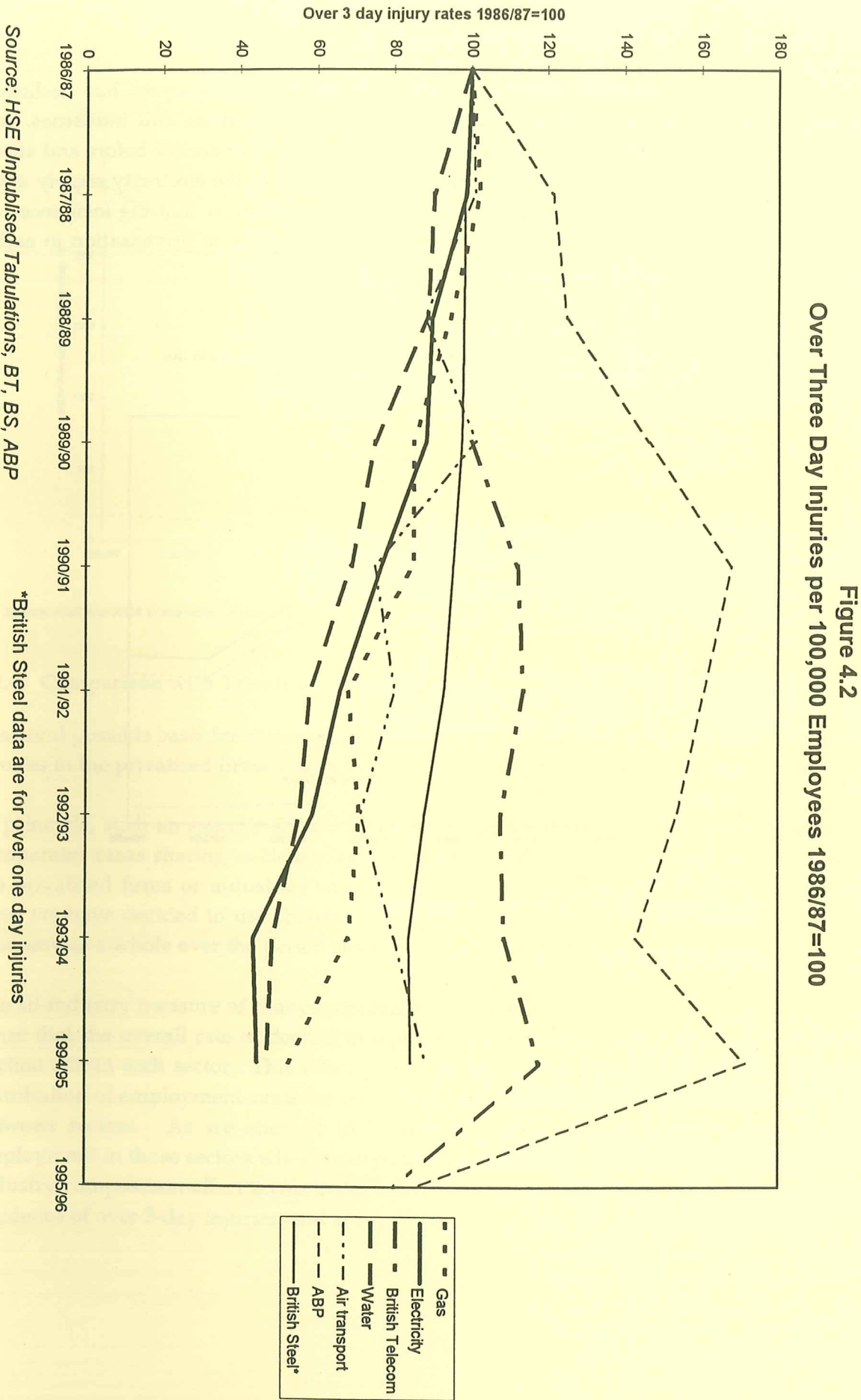
Table 4.2b
Over Three Day Injuries per 100,000 Employees 1986/87=100 (except for BT where 1989/90 = 100)

Year	Gas	Electricity	British Telecom**	Water	Air Tansport	ABP***	British Steel*
1986/87	100.0	100.0	n/a	100.0	100.0	100.0	100.0
1987/88	102.4	98.5	n/a	90.3	99.9	121.4	98.4
1988/89	94.6	89.9	n/a	88.8	86.8	125.0	98.2
1989/90	85.1	88.3	100.0	75.1	100.3	146.4	97.7
1990/91	85.1	76.7	112.0	69.0	79.3	167.9	95.5
1991/92	68.2	66.2	114.0	58.2	79.4	160.7	93.1
1992/93	71.2	59.0	107.0	55.6	70.6	153.6	88.0
1993/94	68.5	43.7	109.0	48.8	79.3	142.9	84.1
1994/95	52.8	44.9	118.0	47.2	87.5	171.4	84.7
1995/96	n/a	n/a	81.0	n/a	n/a	85.7	n/a

* Data supplied by BS give incidence rates in index form only, and for over one day injuries, which we assume correspond closely with the HSE category of over three day injuries.

** Data for BT are unavailable prior to 1989/90

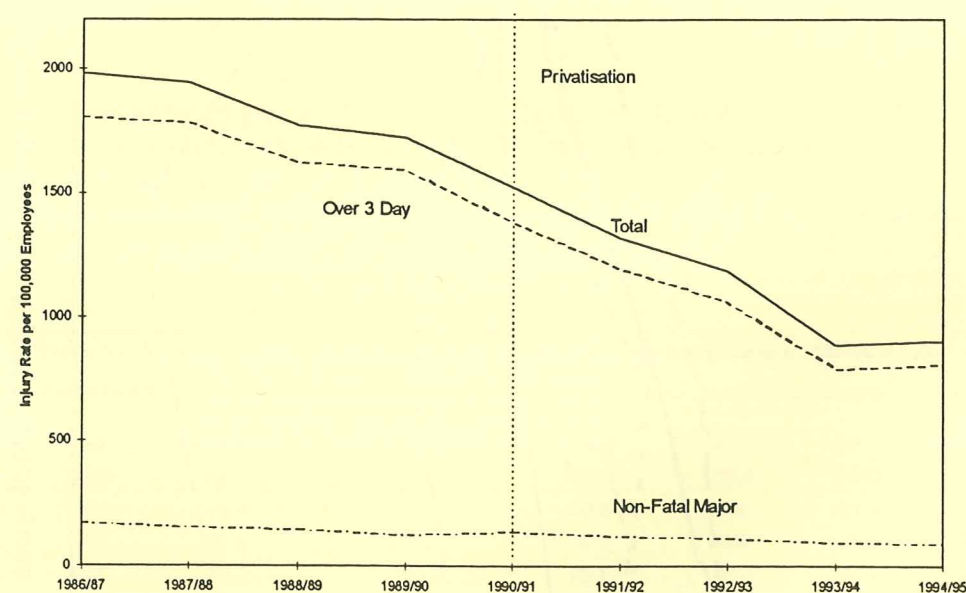
*** Data supplied by ABP cover all types of injury, and are used to proxy over three day injuries



4.2.3. Pre and Post Privatisation Performance

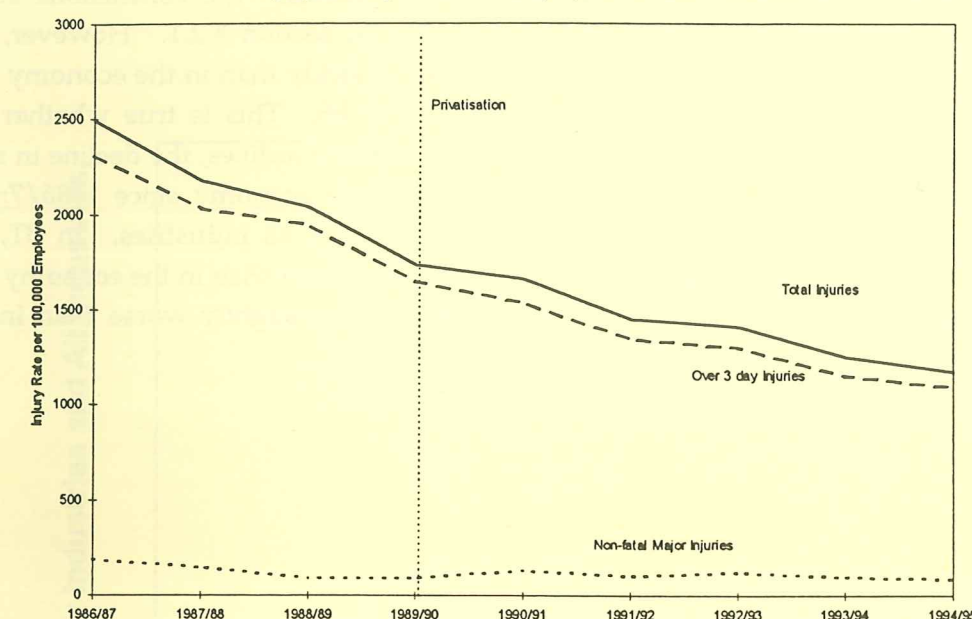
Although we have established that the incidence of injuries to employees has declined significantly since privatisation in the majority of the privatised firms and industries, an alternative measure of performance would be to compare the rate of decline before and after privatisation. Data restrictions mean that this is possible only in the electricity supply and water industry cases, shown in Figures 4.3 and 4.4. The data show that the incidence of both types of injury to employees was trending downwards prior to privatisation in each industry; and that the decline continued after privatisation.

Figure 4.3
Safety at Work in the Electricity Industry: Injury Rates per 100,000 Employees in the Production and Distribution of Electricity, 1986/87-1994/95



Source: HSE Unpublished Tabulations

Figure 4.4
Safety at Work in the Water Industry of England & Wales
Injury Rates per 100,000 Employees 1986/87 - 1994/95



Source: HSE and WSA Waterfacts, various years

4.2.4. Comparison with Trends in Other Industries

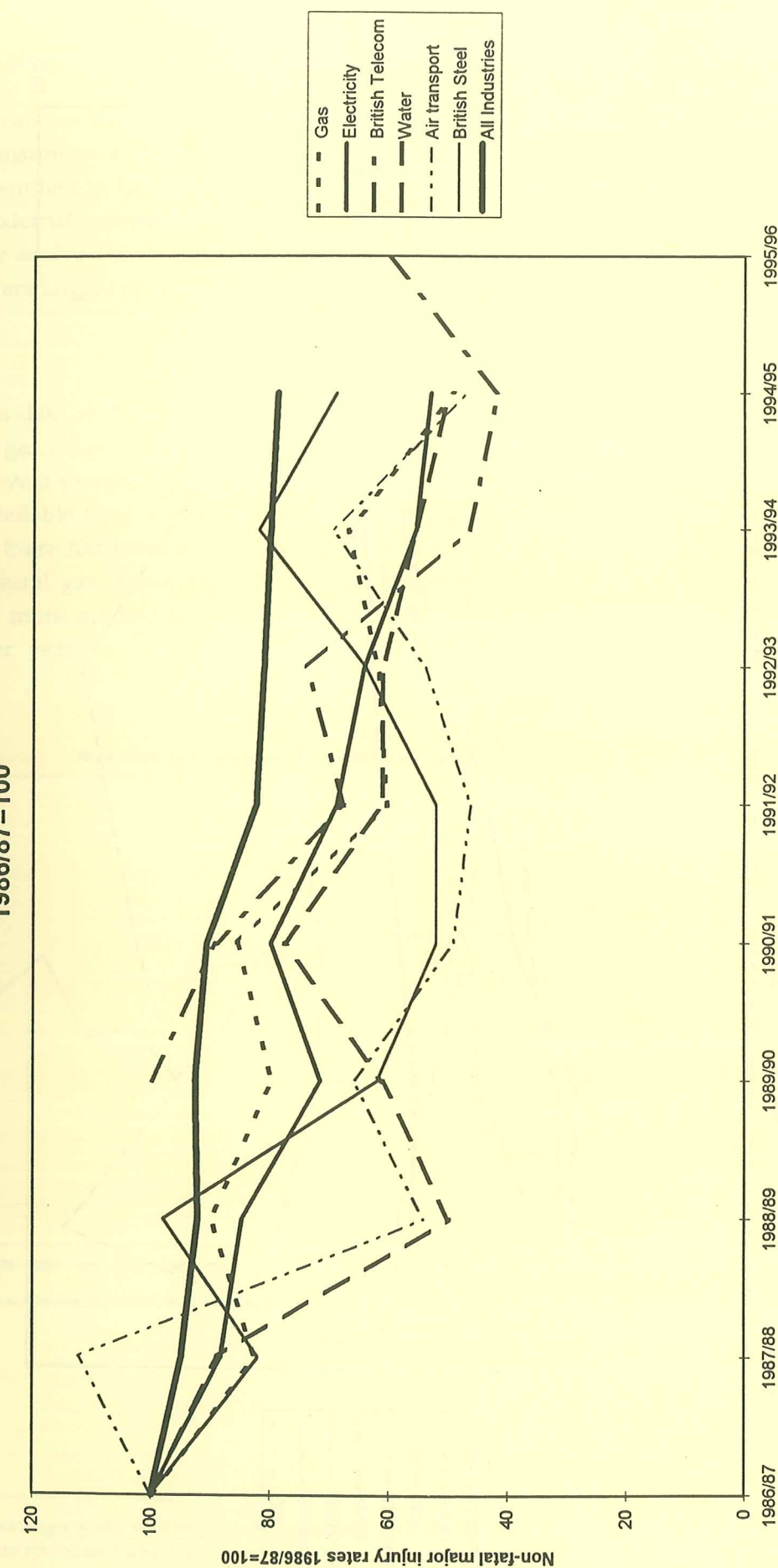
A second possible basis for assessing performance is to compare changes in the incidence of injuries in the privatised firms and industries with changes in the economy as a whole.

In principle, such an exercise should be based on matched comparisons, with the external comparator cases sharing as closely as possible the underlying production technologies of the privatised firms or industries whose performance was being assessed. Given limited time, we have decided to use changes in the incidence of injuries to employees in the UK economy as a whole over the period since 1986/7 as an external reference point.

The all-industry measure of change represents a relatively "demanding" comparator, in the sense that the overall rate of decline in injuries is greater than the average of the rates of decline within each sector. This effect occurs because of the changes in the inter-industry distribution of employment since the mid-1980s, and the differences in the rates of incidence between sectors. As we showed in Chapter 3, there have been large reductions in employment in those sectors where injury incidence rates are highest. We estimate that this industry composition effect accounts for nearly 60% of the reduction in the economy wide incidence of over 3-day injuries, and around 40% of the change in non-fatal major injuries.

The effect on the change in the incidence of fatal injuries is somewhat smaller.¹⁸ Figures 4.5 and 4.6 compare the trends in the incidence of major non-fatal and over 3-day injuries in the privatised firms and industries with those in all UK industries. The conclusions about comparative performance largely replicate those set out in section 4.2.1. However, the figures show that safety performance has improved more quickly than in the economy as a whole in the gas, electricity, and water industries and in BS. This is true whether the comparison is since 1986/7, or since privatisation. In the case of airlines, the decline in non-fatal major injuries has also been greater than in the whole economy since 1986/7; the decline in over 3-day injuries has been comparable to that in all industries. In BT, the decline in non-fatal major injuries since 1989/90 has been far faster than in the economy as a whole; performance on over 3-day injuries has however been slightly worse than in the whole economy.

Figure 4.5
Non-Fatal Major Injuries per 100,000 Employees, Case Study Industries and All Industries,
1986/87=100



Source, HSE Unpublished Tabulations, Health and Safety Statistics 1994/5, BT, BS

¹⁸ The estimates reported in the main text have been obtained by partitioning the change in the incidence of each type of injury between 1986/87 and 1994/95 between an industry structure and a residual component, the latter reflecting the change in incidence rates within each sector. The structural component is estimated by considering how the overall incidence rate would have altered between the base year, 1986/87 and 1994/95 given:-

- the 1994/95 distribution of employment by sector;
- the base year (1986/87) incidence rates by sector.

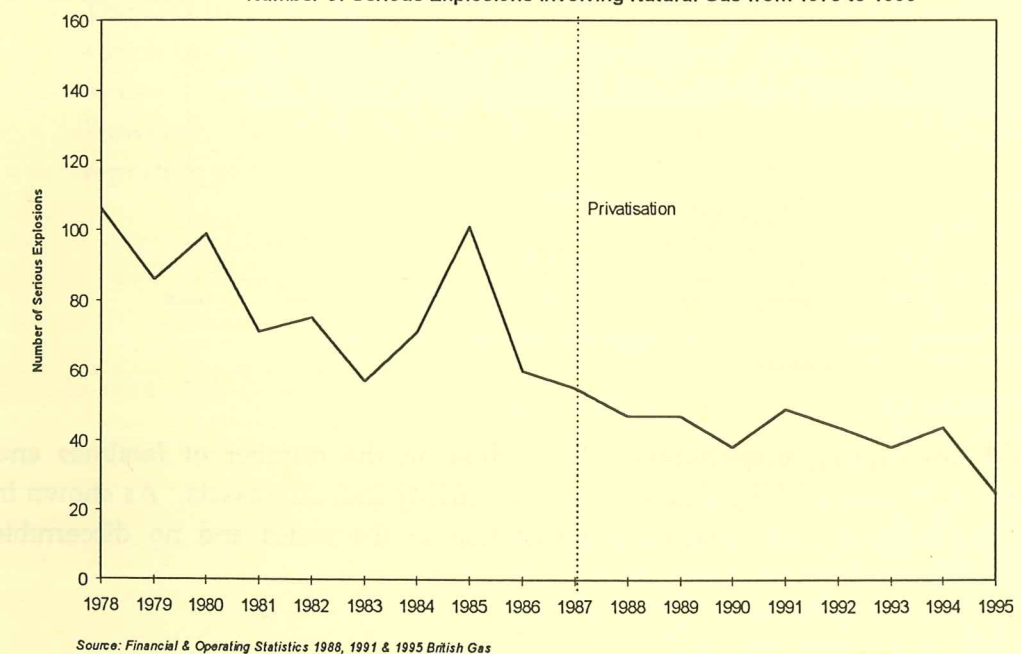
4.3. The Safety of Consumers and the General Public

We finally examine evidence on the performance of privatised firms and industries in protecting consumers and the general public from hazard. Attention is focused on the industries identified in Chapter 1 where these non-employee safety issues are significant, and where external competitive pressures to maintain and improve consumer safety are absent¹⁹. Our analysis reviews the industries on a case-by-case basis, since the measures of performance are largely specific to each industry.

4.3.1. Gas

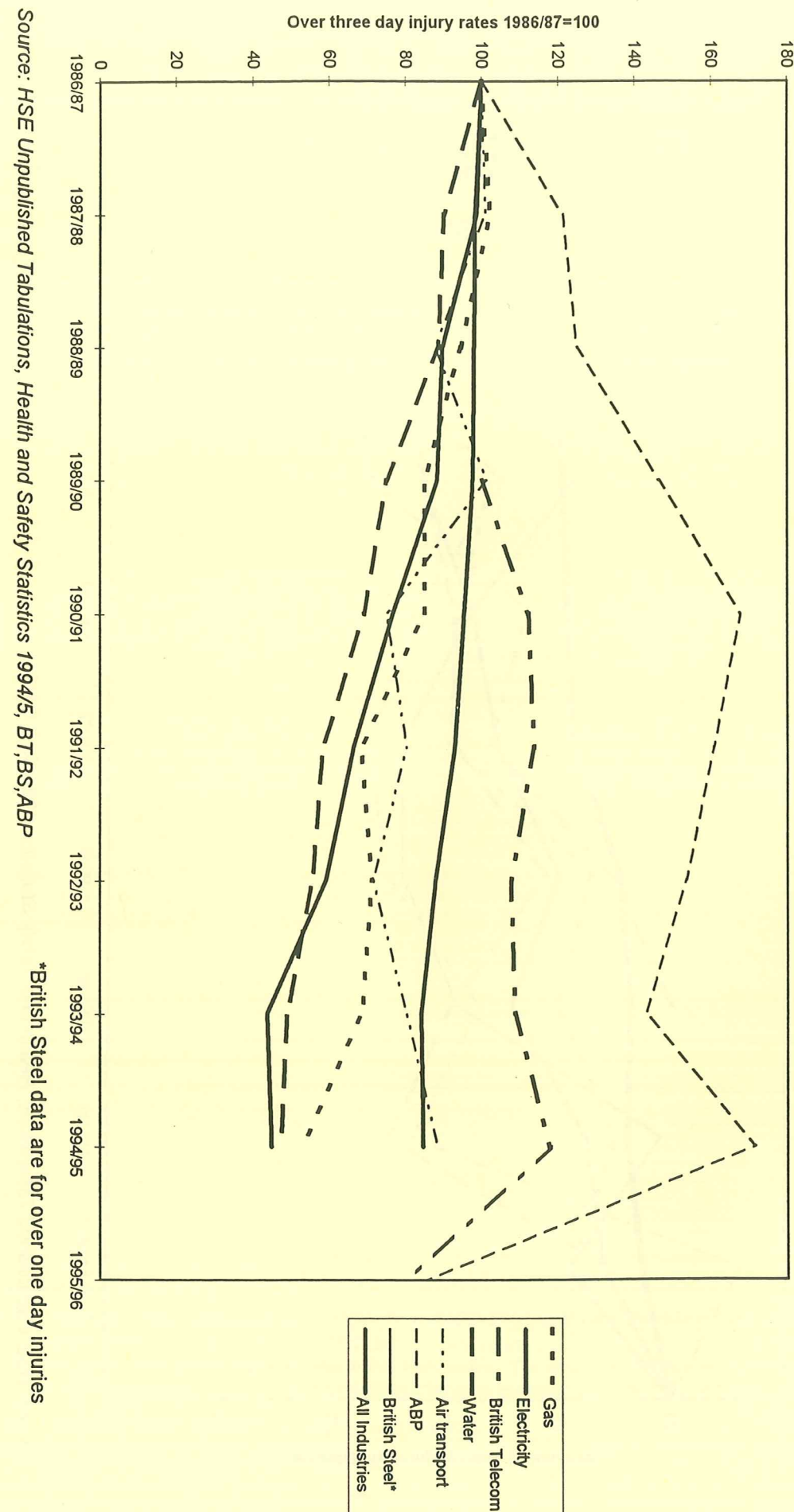
HSE produces data on the number of incidents, fatalities and non-fatalities due to explosion or fire in the gas industry for the period from 1986/7 to 1994/5. Although the data show some year-to-year variability, each series trends downwards over the period. Data collected by BG are available for a longer period from 1978 to 1995. As shown in Figure 4.7 these indicate that there has been a clear downward trend in the number of serious explosions involving natural gas throughout the period; however, the downward trend appears to have become more marked post privatisation. The BG data on fatalities due to accidents reveal greater year to year variation with no discernible trend either before or after privatisation.

Figure 4.7
Number of Serious Explosions Involving Natural Gas from 1978 to 1995



¹⁹ BA, where passenger safety is of paramount importance, and which faces strong external competition, has had an excellent safety record for many years.

Figure 4.6
Over Three Day Injuries per 100,000 Employees, Case Study Industries and All Industries, 1986/87=100

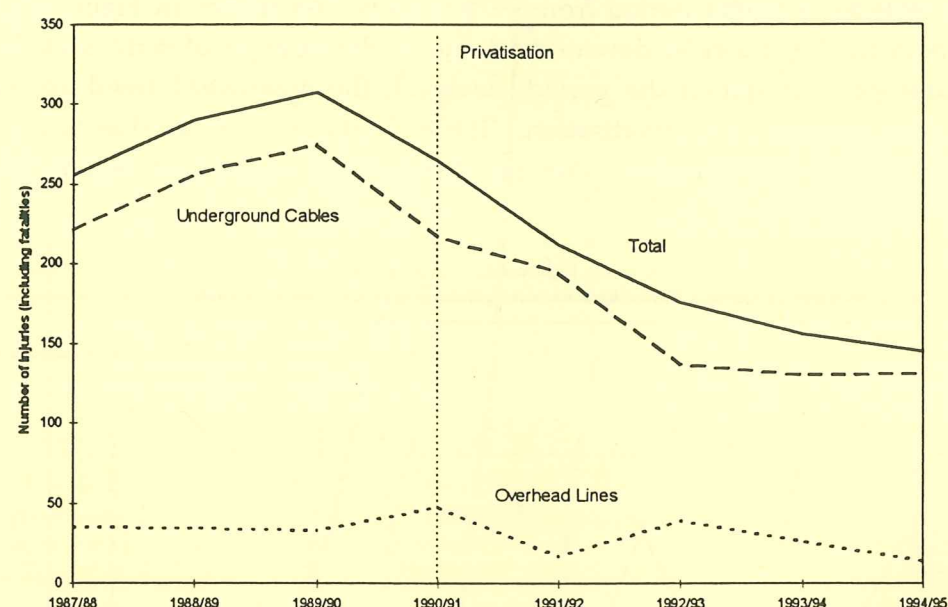


4.3.2. Electricity

Data are collected on several aspects of the performance of companies engaged in the transmission and distribution of electricity (the National Grid Company and the regional electricity companies) in protecting the general public and customers.

- HSE collects data on injuries to employed persons involving contact with overhead wire and underground cables, which provide a measure of the hazard faced by the general public when at work. As shown in figure 4.8, the number of such injuries has fallen since 1986/7.

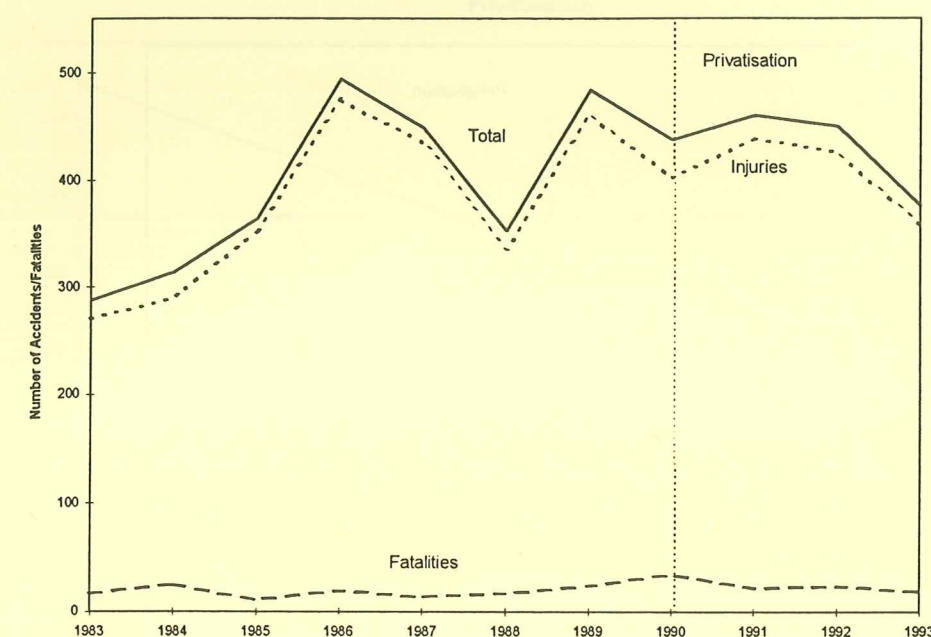
Figure 4.8
Reported Injuries and Fatalities to Employed Persons involving contact with electricity or an electrical discharge, arising from contact with underground cables or overhead wires



Source: HSE Unpublished Tabulations

- The DTI Engineering Inspectorate collects data on the number of fatalities and injuries to members of the public involving electricity industry assets. As shown in Figure 4.9, there is wide year-to-year variation in the series and no discernible overall trend.

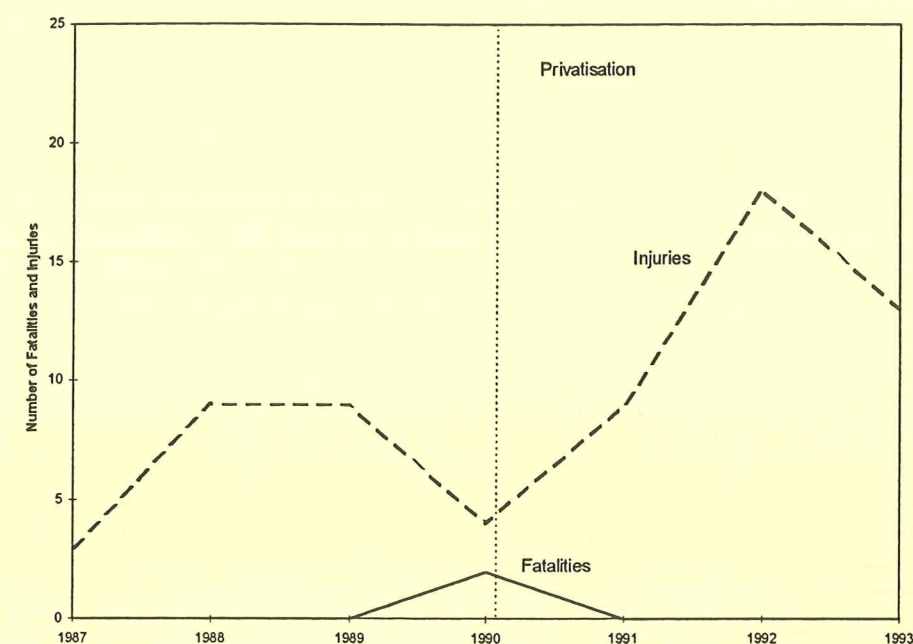
Figure 4.9
Fatalities and Injuries to Members of the Public Involving Electricity Transmission and Distribution Assets



Source: DTI Engineering Inspectorate

- The DTI Inspectorate also collects data on the incidence of cut out and meter fires, which provide a measure of the safety impact on consumers. The data shown in figure 4.10 record an increase in injuries, though not fatalities, since 1986/7. However, the numbers involved are very small, and could be influenced by reporting problems.

Figure 4.10
Injuries and Fatalities from Cut Out and Meter Fires Involving the General Public



Source: DTI

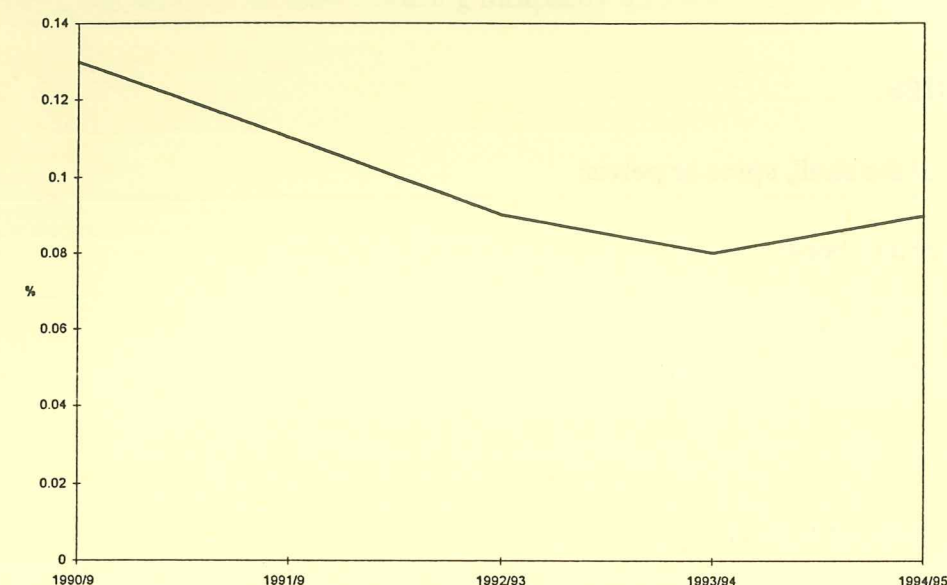
4.3.3. Water Industry

The nature of the products and the technology mean that the incidence of serious injury or harm to consumers and the general public arising from the activities of the water industry is extremely low. Incidents such as the water supply contamination at Camelford in 1988 may result in a serious public health hazard, but, like aircraft accidents, these happen very infrequently.

At the other extreme, issues such as drinking water quality, bathing water quality or reliability of supply are aspects of service quality.²⁰ More significant *public health* concerns arise in relation to sewer flooding. We have accordingly examined information published by OFWAT on the small proportion (approximately one-tenth of one percent) of properties in England and Wales that are considered to be at risk of flooding by sewers more than twice in any ten year period. This measure, for which only post-privatisation data are available, is shown in Figure 4.11 and records a sustained reduction in incidence since privatisation.

²⁰ These and other aspects of service quality performance in the water industry since privatization are to be discussed in a companion volume to the present report.

Figure 4.11
Percentage of Properties in England & Wales at Risk of Flooding from Sewers since Privatisation



Note: risk defined as flooding more than twice in ten years
Source: Ofwat Levels of Service for the Water Industry in England and Wales 1994-5

4.3.4. Ports

The main customer related safety issues in ports cover the safety of gangways leading to and from ships, the emergency evacuation of passenger terminals, ship collision or grounding in areas where ABP is responsible for navigation, and general safety at the terminal. According to HSE data, injuries to members of the public in UK ports are highly infrequent averaging approximately two per year over the period 1986/87 to 1994/95. There is a high degree of year-to-year variability in the incidence of injuries and no discernible trend.²¹

²¹ Technically, the HSE data relate to the set of activities defined as "Supporting Services to Sea Transport", which covers a number of services such as salvage, lighterage and buoy maintenance, in which ABP itself is not engaged.

APPENDIX CATEGORIES OF MAJOR INJURY COVERED IN RIDDOR²² REPORTING FORMS.

MAJOR INJURIES

- (a) fracture of the skull, spine or pelvis;
- (b) fracture of any bone:
 - (i) in the arm or wrist, but not a bone in the hand, or
 - (ii) in the leg or ankle, but not a bone in the foot;
- (c) amputation of:
 - (i) a hand or foot, or
 - (ii) a finger, thumb or toe, or any part thereof if the joint or bone is completely severed.
- (d) the loss of sight of an eye, a penetrating injury to an eye, or a chemical or hot metal burn to an eye;
- (e) either injury (including burns) requiring immediate medical treatment, or loss of consciousness, resulting in either case from an electric shock from any electrical circuit or equipment, whether or not due to direct contact;
- (f) loss of consciousness resulting from lack of oxygen;
- (g) decompression sickness (unless suffering during an operation to which the Diving Operations at Work Regulations 1981 (a) apply) requiring immediate medical treatment;
- (h) either acute illness requiring medical treatment or loss of consciousness, resulting in either cases from the absorption of any substance by inhalation, ingestion or through the skin;
- (i) acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to a pathogen or infected material;
- (j) any other injury which results in the person injured being admitted immediately into hospital for more than 24 hours.

²² Reporting of Injuries, Diseases and Dangerous Occurrence Regulations, 1985.

OVER 3 DAY INJURIES

An over 3 day injury is an injury causing incapacity for *normal* work for more than 3 days.

The Performance of Privatised Industries:

A Report by NERA for the Centre for Policy Studies

Volume 1: Safety

National Economic Research Associates (NERA) was commissioned by the Centre for Policy Studies to examine aspects of the economic record of privatised companies in the UK. The results of this work are intended for publication, as a contribution to policy debate.

This report focuses on safety, and examines the performance of privatised firms in protecting employees, consumers and the general public from accident and injury. Our findings are based mainly on official data supplied by the Health and Safety Executive (HSE), supplemented by information collected from other government agencies. We have also sought information from privatised firms, from industry bodies and from trade unions with significant membership in the industries concerned.

Privatised firms are widely perceived to face greater pressures to reduce costs of all kinds in order to improve shareholders' returns, compared to public sector organisations with more diverse objectives. Our analysis suggests however that the "privatisation effect" is more complex than this. In particular, because improvements to employee safety yield cost reduction benefits to the firm, firms' willingness to pay for such improvement may actually increase as a result of privatisation. Our findings broadly support this hypothesis.

This report draws on the detailed evidence for each of the individual firms and industries presented in the set of case studies appearing in the comparison volume to this report "Safety Performance of Privatised Firms and Industries; Technical Appendix", available on application from CPS, price £50.

This volume is the first in a series commissioned by the Centre for Policy Studies investigating various aspects of the performance of privatised firms in the UK.

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