THE WORLD BANK GROUP WASHINGTON, D.C.

TRANSPORT PAPERS TP-2 SEPTEMBER 2004

Privatizing British Railways
Are There Lessons for the World Bank and its Borrowers?

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ACKNOWLEDGEMENTS

This has been the most difficult paper I have ever written. The restructuring and privatization of the old British Railways was enormously complex, and it touched on nearly everyone in the U.K. It had explicitly political, even ideological, aspects that ensured that its faults would be magnified and its merits devalued in the public eye: even though BR's past performance and its situation as of the early 1990s were not acceptable, there could be no fully agreed program of changes, either. Moreover, there has rarely been a stable point in the system's evolution at which I could feel at all comfortable in hoping that the outcome as of the writing would resemble the outcome as of publication.

The deeper challenge is that there remains no consensus as to either what has happened or what should be done. Distilling an unbiased review based on a wide series of contradictory, but passionately held, professional views and comments is not a recipe for keeping friends. This is especially true when personal views are at variance with official positions.

For these reasons, I cannot identify and thank individually most of those who have helped in this paper. You all know who you are, and I appreciate your help. I do want to thank one person who, paradoxically, probably disagrees the most strongly with much of what I have written. John G. (Jack) Smith is a former BR executive. He was a valued consultant on the Northeast Corridor Improvement Project, where we spent many hours discussing the right way (as opposed to the FRA and Amtrak way) of building and running a passenger railroad. Through his efforts, I was able to meet many of the BR executives during the Peter Parker and Robert Reid (I and II) eras. His ideas and perspectives were important in understanding how BR used to work and what its culture valued. His assistance on this paper was invaluable. He was, and is, a mentor on what a good railway ought to be.

I thank my colleagues at the World Bank, also: Richard Scurfield for his belief that I would (eventually) finish the paper, and Paul Amos, Robin Carruthers and Simon Thomas for their review and comments, and Barbara Gregory for her usual terrific job in turning a draft into a publication. Countless evening hours on Bank trips with nothing to do but argue about railway issues with (sometimes barely) interested colleagues were also essential in formulating ideas: there are no better debating opponents than World Bank economists or engineers.

Lou Thompson

PREFACE

The last twenty years have been marked by major changes in the railway industry worldwide. In Latin America and Australasia, most railway activity moved to private provision. In the European Union, a new railway agenda was advanced in a series of directives and regulations aimed at revitalizing the largely state-owned industry. In Asia, rapid economic growth in China imposed physical and economic challenges on the railway system that have resulted in a burst of new railway building not seen in the west since the nineteenth century. In the former Soviet Union and Yugoslavia, political fragmentation has led to the emergence of over twenty new national railway organizations, some facing crippling financial problems as they try to adapt to the challenges of managing railways in a market economy.

During those changes, and still today, numerous ideas contend for Governments' attention about how they should decide the structure and organization of the railway industry. During the debates one voice has always rung true and clear. From 1986 to 2003 Lou Thompson served the World Bank as its Railway Adviser with dedication and distinction. Never seduced by the notion that complex challenges are likely to have simple solutions, or that one size might fit all, Lou's advice to both Bank staff and Client countries was always notable for being based on combining hard analysis of the facts of each case with the most relevant lessons of international experience. As a result, his was always among the most influential of the contending voices.

When in 2003 the Bank decided to initiate a general review of railway concessioning and privatization it was natural that it should turn to Lou, recently retired, to see what lessons Britain's experience of rail privatization might have for the Bank's client countries. Arguably the most complex, radical and contentious railway restructuring program of any country it is important that those Governments who are contemplating alternative policy options have access to an independent and authoritative account of what those policies were and what happened as a result of them. This paper, marked by the intellectual rigor for which Lou is so highly recognized by the international railway community, provides such an account.

Paul Amos
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PRIVATIZING BRITISH RAILWAYS: ARE THERE LESSONS FOR THE WORLD BANK AND ITS BORROWERS?

EXECUTIVE SUMMARY

The privatization of British Railways (BR) has been deeply controversial. Having concluded that the old BR had run out of financial and managerial steam, the Conservative Government of John Major embarked in 1992 on a radical reform program involving the breakup of the formerly unitary system into over a hundred parts and their subsequent privatization. The most important parts were an infrastructure company (Railtrack), 25 operating passenger franchises (the TOCs), several freight operating companies, and three rolling stock ownership and leasing companies (the ROSCOs). In addition, the system has three regulators: one for franchise award and regulation of the TOCs (OPRAF, later the SRA), one to regulate Railtrack's access charges and access agreements (ORR), and one to regulate safety. The entire system was radically restructured and then privatized over a period of five years.

The result was a complex and costly mixture of successes and failures. Passenger and freight traffic grew rapidly—faster than economic growth alone could explain. The safety record of the privatized railway system is better than the old BR ever achieved, and is better than an extrapolation of BR's favorable trends before privatization. Investment in, and delivery of, new rolling stock is at record levels, and a massive repair and renewal program on infrastructure is underway. But, Railtrack failed, in part because it was given an impossible set of conflicting objectives to manage by successive Governments and Regulators. Government policy to deal with Railtrack's failure and the dilemma of network congestion caused by rapid traffic growth has been slowly and painfully fashioned. The regulatory challenges of a vertically separated system, especially the implementation of infrastructure access charges that successfully align the incentives of the TOCs and Network Rail (Railtrack's successor agency), are still not fully met. Public and political impatience with the difficulty of making tangible progress have forced a series of changes that have an uncertain outcome, though further evolution in the current approach continues.

There are lessons to be drawn from the U.K. experience. The approach was overly complex, involving radical reforms both in structure (vertical separation) and ownership (privatization): moreover, both reforms were undertaken simultaneously and within an unusually compressed period of time. Vertical separation can be made to work, and is not unsafe: it is, however, expensive and poses difficulty in reconciling the incentives of all parties. It remains to be seen whether the benefits are worth the costs. Privatization had some results that exceeded expectations (the TOCs and ROSCOs) and some (infrastructure provision) that fell well short. The transition from public to private and from integrated to separated was rough, and suffered from the haste of the process.

World Bank client countries can draw some useful conclusions from the U.K. experience. Both restructuring and private sector involvement remain viable options; but, neither is a panacea and implementing either requires care. In retrospect, the need for continuing public funding meant that there never would have been a totally private sector solution to the needs of the British rail sector, nor is there one for any of the Bank's clients: railways raise inherently social as well as commercial objectives, and mixed public/private solutions may be the best way to achieve them. Finding the correct balance of risks and responsibilities at the public/private interface requires care and long-term vision on the part of the public sector: quick fixes do not work, and they often make the original problem even more complex. Bank clients should aim at simpler solutions than in the U.K. and, if possible, they should take more time in reaching them. Bank clients that are not compelled to adopt the vertically separated approach should consider other options

(notably leaving infrastructure integrated with the dominant operator and allowing smaller, complementary or, at least non-competitive, services to be provided by tenant operators). Choosing among the alternatives is not simple, and the particular conditions and objectives in each country will weigh heavily in the result.

The report also suggests some broader issues for consideration. If expectations are not well defined and clearly presented, then the outcome will never be, or be judged, a success. Governments should develop the best possible definition of the needs and objectives for reform before starting a program. Ideology, rather than perfection, is the enemy of the good: the approaches that work are often mixtures of structure and ownership that do not satisfy the purists. Reform programs should not be too complex—simpler programs can more easily be adapted to changes of circumstance than overly complicated ones. Railways can rarely be separated from the public interest: Governments should plan for deep and continuing involvement in a rail reform program. There is, in fact, a conflict between what railways need (a stable definition of objectives and a reliable source of long term capital investment) and what Governments can often provide (conflicting and short term definition of political and social priorities): few Governments have been able to resolve this conflict successfully.

PRIVATIZING BRITISH RAILWAYS: ARE THERE LESSONS FOR THE BANK AND ITS BORROWERS?

"If there is light at the end of the tunnel … order more tunnel." (Murphy)

1 INTRODUCTION

The restructuring and privatization of the former BR beginning in the early 1990s has been among the most contentious of all railway system restructuring efforts. There was no real consensus on the problem to be solved at the outset of the restructuring, there was no agreed set of options to be pursued, and the objectives and means were in dispute. The general approach adopted—breaking up the former monolith, separation of infrastructure from operations and privatization of everything—was without precedent in the world's rail restructuring experience. It flew in the face of a deep divide in the U.K. over the broader issue of privatization (which had been proceeding under the Conservative Government of Prime Minister Margaret Thatcher) and challenged the traditional railway notion of a unitary management model. In addition, the process was dramatically accelerated for political reasons, amplifying both the opportunity for errors and the effect of those errors when they did occur.

The reform and privatization process was subjected to severe attack before it commenced and criticism has been unrelenting since. Some of the opposition was and is openly ideological, based on hostility toward privatization of the "commanding heights" of the economy: all of the large U.K. privatizations encountered the same resistance. Some opposition was based on the BR employees' resistance to change, particularly toward the idea of breaking up the railway into its constituent parts. At least some of the criticism springs from the status of the U.K.'s railways as the system that people "love to hate," with much of the press coverage of the newly privatized rail services sounding very similar to articles published about BR in the years preceding the reforms.

There was, and is, legitimate concern over the implications for efficiency and safety of the separation of infrastructure ownership and control from passenger and freight operations on the infrastructure. Criticism has been cogently directed at the cost of the restructuring process, and at the fragmented nature of the services that resulted. There have been manifest managerial failures, and the projected costs to put the system into good condition have exploded. The system has not yet reached a stable organization, with the Government making a number of major changes in the last three years, and with further significant change proposals on the table or in the wings.

Throughout the controversy, though, passenger and freight traffic have grown rapidly, with passenger demand at levels higher than at any point since the end of World War II. The safety record has improved significantly under the new system, and investment levels in equipment and infrastructure are higher than they have ever been. Public policy has changed significantly as well, with the current system reflecting a much larger public role than originally intended. The work **in** progress has at least been **making** some progress—but the end may not be in sight quite yet.

2 WHAT WAS THE PROBLEM?

Rail privatization in the U.K. was not a sudden political inspiration emerging from nowhere. Almost from its creation in 1948 by the nationalization of the four formerly private British railway companies, the new British Railways began to run into trouble.[1] Governments rapidly realized that the system, already weakened before the war by rising road-based competition, had been sadly debilitated by its intensive World War II operations. In addition, the pre-war traffic levels and patterns were changing, and competition was rapidly emerging. In fact, rail in the U.K. was facing exactly the same challenge as in continental Europe and elsewhere; economic growth and the end of wartime rationing were restoring the trend toward highway usage that had begun well before the war.

[1] The four railways were the Great Western, the London & North Eastern, the London Midland and Scottish, and the Southern. See T.R. Gourvish, 1986, for a definitive history of BR through 1973, and Gourvish, T., 2002 for a continuation of the BR history through 1997.

"Britain's railways became a pressing national problem during the second half of the fifties."[2] Faced with the evidence of growing losses (traffic and financial), the first attempt at reform, Lord Beeching's 1963 report "The Reshaping of British Railways,"[3] was a vigorous attempt to trim a number of the obviously financially unprofitable operations of BR to yield a smaller and more manageable set of activities. The Beeching reforms had some effect, both in reducing expenses somewhat and in creating at least a nascent realization that not all was well with BR. Beeching's reforms were never fully implemented because of labor resistance and a popular belief that carrying out BR's social role did not necessarily require efficient or commercial operation; perhaps more important, they were far ahead of the public perception of the issues that BR faced. Even so, the size of the network fell from 29,117 km in 1962 to 18,889 km in 1970 (mostly stable thereafter—see Figure P), mostly due to the rationalization approach recommended by the Beeching Report. In addition to its impact on the network, the Beeching Report is credited with helping to clarify the broader understanding of the role of the railway and introducing a more businesslike approach to railway management.[4]

A second attempt to do more or less the same thing, The Serpell Report on "Railway Finances" in 1983[5], offered a thorough criticism of BR's operations and efficiency and tabled a series of seven scenarios[6] (see Figure A). Serpell considered scenarios ranging from a severe cutback (Network Option A) that would have been nominally "profitable,"[7] (£75 million profit, 2,625 Km of line and 12,721 employees) up through an alternative (Network Option H) that reflected only a few economies (£1,767 million loss, 16,216 Km, 144,500 employees) on the system that existed in 1982 (£2,015 million loss, 16,699 Km, 163,800 employees).[8] The Serpell Report, as the Beeching Report before it, took place against a continuing backdrop of complaints about the costs of the system and of labor conflict. Neither resolved the problem because resistance from labor and from under-populated areas fearful of losing service prevented implementation of the full set of line closings and labor changes.

A short period of relative peace and accomplishment emerged in the 1980s during which the then Chairman, Sir Peter Parker, strengthened the concept of commercialized management of the railway in conjunction with a contract with Government (the Public Service Obligation, or PSO, which began in the 1968 Transport Act and was further elaborated in the 1974 Act)) to support the provision of socially needed, but commercially unremunerative services.[9] The PSO role of the railway played a significant role in changing the approach to social services: Government became a customer for a service, and much of the previously perceived stigma of unprofitability and subsidy (in the minds of the rail employees, at least) was reduced.

The management structure of BR had been typical of the traditional, monolithic and production-driven railway. The basic management unit was the Regional General Manager (RGM, of which there were five: Eastern, London Midland, Southern, Scottish and Western), who had essentially full operating control over their area of the railway, but who had a cost, **not** a net revenue, objective. Above the RGMs was the Headquarters, which included the Chairman, a Vice Chairman for subsidiaries (consulting and property) and a Vice Chairman and Chief Executive (oversight of the RGMs), and a series of functionally focused Board Members for Finance, Personnel, Marketing (Passenger, Freight and Parcels), Engineering and research and Operations & Productivity.[10] In the face of rising concern for BR's performance, this organization fell short in two, critical dimensions: there was no profit center short of the Chairman, himself; and, coordination between and among the RGMs and the various staff functions, especially Marketing, was not

[2] Pryke, R.W.S., 1975, pg 1.

[3] Lord Beeching, 1963

[4] Reid, Sir R., 1990, pg 2. See also Gourvish, 1986, page 414.

[5] Serpell Report, 1983

[6] Gourvish, T., 2002, pg 173 and Serpell Report, pg 80.

[7] The Serpell scenarios were meant to be indicative of average results over a period of years, and were not meant to reflect the initial years or any particular year.

[8] All £ values are in 2002-2003 year values. See Figure A for both 1982 and 2002-3 values.

[9] See Joy, S., 1991, page 37, and Gourvish, T., 2002, pg 3.

[10] Gourvish, T., 2002, pg 33.

effective because the RGMs were seen as too powerful and unresponsive.

It fell to the subsequent Chairman, Sir Robert Reid ("Sir Bob I"), to implement what was called "Sector Management."[11] The sector management approach aimed at shifting the organization of BR from a monolithic, national system (operated geographically by the "Regional Barons") to one based on five market sectors: InterCity (the long haul passenger systems); Network South East (the commuter system around London); Provincial (a diverse collection of low density services in the countryside); Freight, and Parcels. The sectors were profit centers meant to assign business responsibility below the single point of the Chairman's office.[12] Under agreement with Government, PSO support was to be limited mostly to Network South East and provincial services, with support to InterCity to be phased out within a few years. Sir Robert Reid I's successor, coincidentally also named Robert Reid (sometimes called "Sir Bob II") tried hard to strengthen the accomplishments of sector management and is given credit for doing so.

Figure B shows how the Sector Management approach evolved over the years. At the beginning of Sector Management, the Sectors mainly took responsibility for marketing and financial reporting, with almost all asset management and operating decisions remaining in the hands of the Regions. As management began to assign more importance to the sectors, more responsibility and authority was shifted to the sector managers, ultimately putting them in charge of rolling stock and train operations. The final phase of implementation creating fully-fledged business units and abolishing the Regions took place in the 1991-1993 period under the name of "Organizing for Quality." (OfQ). Interestingly, one of the underlying rationales for the OfQ approach was to create a set of vertically integrated business units that might have formed an alternative basis for privatization. Figure C gives a sense of the timing and degree of the transfers of power that took place.

There were (and remain) many who argued that the later stages of Sector Management had produced a rail system that was one of the more efficient in Europe and one which was evolving in the right direction. The working relationship between Government and BR management had been good. Losses appeared to be falling and subsidies had been confined largely to regional services and the London and Southeast commuters: InterCity and Freight were believed to be operating at breakeven or better.[13] Even though privatization had become a signature innovation of the Thatcher Government, privatizing BR was not initially a priority.[14]

Significantly for the discussion below, BR, in implementing the Sector Management approach, had developed a method of allocating infrastructure charges to the various sectors based on what was called the Prime User doctrine. The Prime User doctrine held that the primary user of a multiple use facility would be responsible for the total costs remaining after subtracting the avoidable costs imposed by other users. Because of the predominance of the Intercity sector over most of the main lines on the network, this approach had the effect of putting most of the fixed cost burden of the system onto the Intercity sector, and therefore had the unintended (and undesirable) effect of making **all** sectors appear unprofitable. Late in the day, BR developed (but did not fully implement) a variant of cost allocation called the Sole User doctrine that attempted to allocate network costs to each Sector as if it were the sole operator on the system, with a substantial amount of "surplus capacity" left over. Though this approach did make each individual Sector look better, it did nothing for the results of the consolidated system, and it raised a new question: "why so much surplus capacity that no user appears to need?" Clearly, the problem of setting access charges to the infrastructure had already existed, without agreed resolution, even before the privatization process.[15]

The improvements of sector management ultimately did not stabilize the railway financially (or, at least, politically). The era of relative peace of the mid-1980s ended in the labor conflicts of 1989 and the rail accidents at

[11] Reid, Sir R.,1989a and 1990.

[12] Reid, Sir R. 1989a, pg 20. Prior to Sector Management, there was only one profit center – at the Chairman's office. The objective was to hold managers below this level to commercial, rather than just cost, performance targets.

[13] Gourvish, T., 2002, pp 476 and 477

[14] Whether the lower priority for privatizing BR was an economic, or primarily a political, judgment is still a matter of discussion.

[15] Gourvish, T., 2002, pp 126 to 129.

Clapham, Purley and Bellgrove in 1988 and 1989. For the press, performance of the system remained a "frightful mess."[16] The Government (and public) view at the time was that BR "…suffered from poor standards of service, consumer relations and image, being widely regarded as dear, often dirty, overcrowded and unreliable."[17] The momentum of reform and privatization in the U.K. gathered force, and remaining candidates for privatization other than BR were few. Time ran out on BR as a public enterprise, and the Conservative Government of Prime Minister John Major decided in 1992 to privatize the system.

3 WHAT DID THEY DO?

The fundamental stated objective of the Major Government was to introduce "competition, innovation and the flexibility of private sector management [that] will enable the railways to exploit fully all the opportunities open to them."[18] In approaching the privatization of the railway,[19] the Government considered several broad options:[20]

- Selling BR as a single unit in a single package
- Breaking BR into Regionally integrated units, probably along the pre-existing lines
- Breaking BR into the various integrated Sectoral units (Intercity, LSE, Provincial, Freight) with controlled network access as needed by each (because there would always have been some need for interaction, particularly by freight services)
- Separating infrastructure from all operations and privatizing all parts separately.

Each option presented difficulties of cost separation, targeting of subsidies (which were recognized to be inevitable in all options), investment planning and system coordination. Sale as an integrated whole would have resolved the coordination issue, but would effectively have replaced a public monopoly with a private one, posing difficult and continuing regulatory problems. Selling regionally integrated units (as, in effect, was done in Japan) would have reduced the size of each unit (permitting sequential transactions and making each easier to sell), but would have left a series of (albeit integrated and coordinated) regional monopolies that might not have been much of an improvement on the single monopoly approach. Sale of the Sectoral units might have produced better market focus by each sector, but would have raised problems of track access rights that would have been complex, and it posed real problems of cost allocation. The infrastructure separation approach had appeal because of the possibility that competition on the network could be introduced while, at the same time, preserving the economies of scale in network planning and management: problems of coordination and interactions among all the pieces were not considered to be insurmountable. Since the Government's privatization of the electricity and telecom industries, along with airports and bus franchises, had generally adopted the model of a regulated infrastructure provider serving separated (sometimes competitive) operators, the argument to do the same for BR seems to have prevailed, without a full realization of the ways in which rail differs from the other network industries.[21] "This led to the model of competitive franchising of socially-necessary passenger services, complemented by open access and on-rail competition for commercial services such as freight. This model involved the separation of network infrastructure from train service provision."[22] The objective of promoting on-network competition, as well as competition in infrastructure maintenance and rolling stock supply and maintenance, thus had a significant impact on the approach chosen.

At the outset, the selected approach consisted of creating a group of operating franchises (collectively called the Train Operating Companies—TOCs) that would lease their rolling stock from a set of independent rolling stock leasing companies (ROSCOS) and would operate trains over separately managed infrastructure (owned by Railtrack Plc.). There were to be two new regulators (the safety regulator already existed), one for designing, awarding and funding the passenger franchises

[16] The Economist, 1991, pg 62.
[17] Freeman R., and Shaw, J., 2002, pg xi.
[18] White Paper, 1992, pg 2
[19] The approach to the non-rail operations appears to have been consistent across all options – divestiture.
[20] See Freeman R., and Shaw, J., 2002, Chapter 1 for a detailed discussion of the options considered and of the reasoning behind the choices made.
[21] Nash, C., 2002, pg 1. See also, Beesley, M., 1993, pp 2,3.
[22] Smith, J., 2003, pg 4.

(Office of Passenger Rail Franchising, or OPRAF) and one to oversee the performance and access prices of the infrastructure operator (Office of the Rail Regulator, or ORR). Figure D gives a schematic outline of the approach.

In all, the Government created 25 passenger franchises (See Figures E, F, G and H), all of which were competitively awarded (between December of 1995 through April of 1997) for 5 to 15 year periods on the basis of minimum financial contribution required from Government. Competition for the franchises was quite stiff (Figure I). More than 16 bidders were active, and all but one franchise (the tiny Island Line) received at least three, or as many as 8, short listed bidders (average was four). Thirteen (rapidly condensed to ten) bidding companies won franchises, basing their bids in significant part on the structure of access charges developed by Government and Regulator. One franchise (Gatwick Express) offered payments to the Government from the first year onward. Seven franchises required payments from Government at the beginning, but promised payments to Government before the end of the franchise period. The remaining franchises required payment from Government over the entire life of their franchises. Each franchise was offered including a stated set of access charges, but with the commitment that changes in the access regime would be compensated by adjusting the payments from Government (Government, in effect, retained the core risk of the cost of infrastructure). The first complete year of operation for all franchises involved a total support payment from OPRAF of £1.4 billion (Figure G).

There were initially to be 6 freight businesses (not franchises), each to be sold with all assets as going concerns, and each holding predetermined rights of access to the infrastructure. In the event, 5 were sold to a single purchaser, English, Welsh and Scottish Railway (EWS), for £250 million because the EWS bidders successfully made the case that the businesses were worth more in one group than in five, separate pieces, and other buyers were not forthcoming. One company (Freightliner, which mostly hauls containers to and from deep sea ports) was sold independently for £5.4 million.[23]

The infrastructure was transferred to a new company, Railtrack Plc., which was given the responsibility for owning and maintaining the tracks and fixed facilities. An independent regulator (discussed below) was created to control Railtrack's monopoly activities. Railtrack was originally expected to remain in Government hands, at least for a period well after the initial start up period, during which the rest of the system was being shifted to private control. Keeping Railtrack in public hands permitted the Government to institute an initial access fee regime for users that, in turn, made bidding for franchises (and the freight companies) possible. As a related part of the privatization effort, thirteen geographically based infrastructure maintenance and track renewal companies[24] were formed from within BR and sold for a total of about £166 million,[25] along with maintenance contracts with Railtrack worth around £1 billion annually.[26] In a step that had a crucial impact on the later performance of the system, these companies were given a set of pre-established track maintenance and rehabilitation contracts with Railtrack as a basis for their privatization. Railtrack did not determine these contracts, nor did Railtrack attempt to renegotiate them (in fact, there was a clause in the original contracts that protected them from renegotiation for a three year period).[27]

By 1995, the Major Government decided that the entire system should be privatized rapidly and totally (and irreversibly), at least partly because the end of the Conservative mandate appeared near and the Government feared that leaving Railtrack in public hands would raise the possibility of re-nationalization if the Labor Party won the next election.[28] The entire infrastructure was privatized in a single lot (Railtrack) through a public offering in 1996.[29] As part of the sale, Railtrack was provided an initial set of track access charges to be applied to the passenger franchises and to freight operators. These access charges were structured with a large annual fixed component (roughly 91 percent of expected access revenue was fixed, with the remaining 9

[23] Freeman, R., and Shaw, J., 2002, pp 195, 196.

[24] They have since been consolidated into the hands of four larger companies.

[25] Gourvish, T., 2002, pg 511

[26] Freeman, R., 2002, pg 52

[27] The Economist, July 3, 1999, pg 68, has a discussion of the adverse effects of the initial maintenance contracts for track maintenance. See also DfT, 2004b, pg 13.

[28] Freeman, R., 2002, pg 153.

[29] See SBC Warburg, 1996, for a thorough discussion of the Public Offering terms and conditions.

percent to be paid if train usage were operated at the expected level) in order to improve the prospects for sale of Railtrack by stabilizing and ensuring its income. The Railtrack offering was successfully completed, generating £1.9 billion for the Government.[30]

The Government realized early in the process that the desired length of the franchises (5 to 15 years), which was made short in order to create more frequent competition for the franchises and thus strengthen Government oversight, would probably be too short to permit the franchises to purchase or own rolling stock. Accordingly, the BR rolling stock fleet was allocated to three companies (ROSCOS) that would lease the coaches and passenger locomotives back to the operating companies. These leases can generally be transferred from one franchise to the next if franchise ownership changes. The ROSCOS were sold in October of 1995 for £1.717 billion.[31]

The Government, as planned, also set up two new regulators, the Office of Passenger Rail Franchising (OPRAF) and the Office of the Rail Regulator (ORR). OPRAF was charged with overseeing the franchising process, setting the initial fares and with managing the subsequent support payments to franchises. The ORR was charged with: approving infrastructure access agreements and establishing appropriate charges based on the expected costs of Railtrack; modifying and enforcing licenses awarded to the train operating companies (TOCs) and to Railtrack; overseeing the desired degree of competition among operators; and, protecting the interests of consumers of rail services. ORR was deliberately made independent in order to clearly insulate decisions about Railtrack from political interference.

Finally, after the rail-related functions of the old BR were transferred into the new system, the Government was left with a large collection (about 100 pieces) of miscellaneous assets and operations. For the most part, these operations were privatized. For example, the old BR equipment manufacturing company, British Rail Engineering Ltd (BREL) was sold to ABB. Others, such as Transmark (the BR consulting company) were sold to various independent purchasers.[32] In total, the British Government realized about £4.5 billion from the sale of the BR system.

4 WHAT HAPPENED?

4.1 The Passenger Franchises

As Figures H and J show, the performance of the private franchises has been one of the more positive aspects of the privatization. After a rough start-up due to the inexperience of the private operators (some of whom, for example, underestimated the number and skill level of drivers needed), passenger-km grew by about 41 percent and passenger trips grew by about 37.8 percent between 1994/5 and 2003/4. Passenger-km traffic is now higher than at any point since 1947 and passenger trips are higher than any point since the early 1960s. In constant 1999/2000 prices, average passenger revenue per passenger-km actually fell by 3 percent over the same period.[33]

For reasons covered in more detail in the safety discussion below (the Hatfield accident), service quality has not been a particularly positive story. Accurate service quality comparisons are difficult because the data reported are not consistent over time, and the time series is not long enough. Figure K

[30] See Freeman, R., 2002, pg 63. Note, though, that the sale occurred after the Government had forgiven £1,459 million of the £2,044 million debt that Railtrack had acquired from BR when the assets were transferred.

[31] Freeman, R., 2002, pg 104. One of the more sensational aspects of the ROSCO sale was that the initial investors were able to sell out to larger companies within a short time and make a significant profit. Eversholt, originally sold for £518 million was re-sold in August of 1996 for £726 million. Porterbrook, sold for £528 million, was re-sold in February of 1997 for £827 million. Angel, sold for £696 million was re-sold two years later for £1.1 billion. See Freeman, R., 2002, pg 109, and Gourvish, T., 2002 at pg 516.

[32] Gourvish, T., 2002, at pp 511- 515 (Appendix L), presents a detailed list of all of the miscellaneous asset sales. These miscellaneous sales (rolling stock maintenance companies, telecommunications, etc), over and above the maintenance and renewal companies and the freight an parcels sales, amounted to about £427 million.

[33] OPRAF followed by SRA regulate the "standard" fare (about 46 percent of revenues in 2003), which has been held to RPI-1%. At the same time, the franchises are allowed great freedom on demand-sensitive fares (First Class, off-peak, senior citizens, etc). The 1.6 percent total reduction in average fares (total revenue/total passenger-km) is a mixture of the regulated standard fares and the unregulated fare policies of the franchises.

shows[34] that one aspect of system service quality dipped in the start-up period, improved somewhat in the next three years, fell sharply in 2000/2001, and then has improved slightly in the last three years. The current performance of the system, at slightly above 81 percent, is certainly not high by international standards, and has generated significant complaints by the British public.

It is important to note, however, that the initial objective of competition between and among franchises in the same markets on the network was greatly curtailed before privatization. The Government team involved in the restructuring soon realized that competition in the various specific markets would highlight the cross-subsidies inherent in the franchise areas, and could well actually increase the total support required.[35] The franchising was thus based on competition **for** the various franchise areas, and made very limited use of competition **in** particular markets as a tool for promoting efficiency and attempting to reduce costs. In effect, the stated objective of promoting competition **in** the markets for passenger transport, which influenced the initial decision to separate infrastructure from operations and to create 25 franchises, had to be balanced against other objectives, which, had they been fully incorporated at the beginning, might have led to a different organizational structure.

4.2 Freight.

Freight traffic in ton-km has also recovered strongly, growing by about 45 percent between 1994/5 and 2003/4.[36] Interestingly, freight tonnage has actually declined, suggesting that the gains by the freight operators have largely been through development of longer haul traffic. Looking further in the past, it seems unlikely that rail freight in the U.K. will ever get back to the pre-1980s levels because of the loss of the massive tonnage of coal that BR carried in the days of nationalized coal mines and power companies, both of which were privatized by Prime Minister Thatcher. Rationalization and then privatization of coal led to a reduction of coal production in the U.K., and privatization of the electric power companies led to more economical choices of energy supply: both acted to reduce coal tonnage on the U.K. network, though the shift from domestic to imported coal actually increased the average length of haul for coal.

It is also significant that the largest freight operator (EWS) does not have any claim to exclusivity. Competition from the other, initial freight operator, Freightliner, is becoming significant. Freightliner itself now carriers over 1 million containers (TEU equivalent) per year as well as operating more than 1000 freight trains per week through its Freightliner Heavy Haul subsidiary. A new, "open access" operator, GB Railfreight, has emerged and has grown rapidly, with annual freight revenues exceeding £10 million. There are other specialized freight operators, such as Direct Rail, which was established to haul nuclear waste, but which does compete for other traffic in limited cases. Other operators are free to enter if they believe they can compete successfully. Access charges for freight operators have been adjusted in order to promote easy entry, and this has acted to promote freight traffic: increasing congestion of the network by passenger trains has acted to reduce the space available for freight trains.

In any event, and despite the progress so far, predicting the appropriate future of rail freight in the U.K. needs to be done with care. The U.K. is witnessing the same transition from production of basic commodities to higher valued products and services that has cause a shift from rail to truck transport in many other countries. The U.K. is also sufficiently small that all shipments tend to be too short for rail to generate the competitive advantage that it may have in North America or Russia. Congestion on the U.K. highways may generate an opportunity for rail (freight and passenger). Unfortunately, congestion on the rail network may well negate that opportunity, especially if freight operators are given a lower priority of access than passenger operators.

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[34] The "punctuality" measure is the older measure, which reports solely "on-time" performance (<10 minutes delay for long haul trains, <5 minutes delay for short haul trains). The Public Performance Measure is a composite of on-time and reliability (percentage of trains that actually make their end-to-end scheduled run). The three year overlap period shows that the measures have similar trends, with the new public performance measure consistently falling 3 to 4 percentage points below the old punctuality measure.

[35] Foster, Sir. C., 2004, pg 6.

[36] The percentage growth in freight traffic is exaggerated: BR tons and ton-km did not include haulage of materials (especially ballast) used for track maintenance, whereas this traffic is now hauled by the freight companies, and is counted in the totals. The exact impact of this change is not known, but it could be significant.

4.3 Safety

Accidents are rare on railways. When accidents happen, they inevitably receive considerable press coverage, and the privatized British system was no exception. Since 1994 there have been 7 accidents with 52 fatalities in the U.K. franchises.[37] Of these, the most serious was the accident at Ladbroke Grove in October of 1999 in which a passenger train passed a stop signal and collided with another passenger train, causing 31 fatalities. This accident was ultimately attributed to driver error related, in part, to reduced visibility of the signal head. By far the more notorious, though, was the accident at Hatfield in October of 2000 that caused only four fatalities, but which precipitated dramatic changes. The Hatfield accident resulted when a worn rail shattered beneath a passenger train traveling at 185 km/hr. Investigation suggested that the cause was lack of an appropriate inspection regime to identify significant rail flaws as well as a lack of a linked replacement program for dangerously worn rails. In response to the Hatfield accident, Railtrack immediately imposed a drastic set of slow orders that played havoc with train service—the cause of the collapse in on-time performance shown in Figure K. The system has not recovered from the loss of confidence caused by Hatfield, and it may not fully recover for years.

A paradox of the reaction to the accidents after privatization is the fact that, while attention has been riveted on the accidents, the system itself is demonstrably and significantly **safer** than it has ever been. Figure L shows that accident risks (measured by Signals Passed At Danger (SPADs), and by the rate of significant accidents per million train-miles) were steadily decreasing before privatization and they have continued to decrease after privatization to levels well below the best achieved under BR. Figure M shows the fatality rate per billion train-km and gives a similar picture: the U.K. system is safer now than it has ever been. Figure N compares the U.K. rail safety experience with that of the European Union railways: safety in the U.K. rail system is fully the equivalent of experience in the rest of Europe. Given the improving safety trends before privatization, it is possible to argue that BR could have achieved similar safety levels had it continued in operation: but, given the **actual** safety performance of the privatized system, there is simply no evidence to argue that the privatized system is any less safe than the old BR system was or would likely have been.[38]

The false perception of the safety record of the privatized rail system has had a number of harmful effects on the system. There is considerable evidence (for example, Railtrack's "nervous breakdown" reaction to Hatfield) that increased risk aversion has significantly slowed decision-making, reduced network capacity and increased operating and maintenance costs, and dramatically increased capital costs. In addition, political perceptions of public safety demands have dictated investments in safety equipment (the Train Protection and Warning System, for example) that has only limited payoff compared to the cost.

On balance, the passenger franchises and freight operators have demonstrated the ability to identify customer needs and to provide them effectively. The system is undoubtedly more complex than BR was, and the services can be confusing to use when a trip involves the territory of more than one franchise. On the other hand, passenger and freight demand have both grown significantly between 1994 and the present—in fact, more rapidly than any other European railway or the U.S. freight and passenger systems over the same time period. The performance of the franchises has obviously benefited from the strong performance of the British economy during the period, though Figure O suggests that there was definitely more to the growth in rail traffic than economic growth alone. Between 1963 and 1994, while the U.K. GDP (in constant terms) doubled, BR's passenger-km actually declined slightly (from 108 to 100 in index terms) and BR's freight ton-km fell steeply (from 192 to 100 in index terms). From 1994 to 2003, GDP grew by 27 percent whereas passenger-km grew by 43 percent and freight ton-km grew by 44 percent. BR had ups and downs in traffic before privatization, and the degree of freight growth after privatization is subject to the measurement of the impact of the change in treatment of the movement of track materials: this agreed, the difference

[37] See Evans, A., 2001 and Evans, A., 2003, pg 14

[38] Evans, M., 2004, argues that the privatized system is demonstrably as safe as the old BR system. In fact, he argues that safety performance has actually been better than an extrapolation of the progress being made by BR before privatization: the system is actually **safer** than it would have been. See Summary and pg 20 20, 21. He concludes (pg 23) "[I]t follows that safety is not now a compelling reason for restructuring the railway."

between the trend lines in traffic before and after 1994 as compared with the steady trend line in GDP is striking.

Congestion on the roads has no doubt also encouraged a shift to rail; even so, the ability of the new system to create traffic growth has been impressive.[39] Moreover, the traffic has been moved at levels of safety that are higher than ever before, even though the increased traffic has increased congestion on rails. From the viewpoint of the customers and the providers of service, this looks as much like the problems of success as it does the consequences of failure.

4.4 Railtrack

The experience with Railtrack was not positive, and it has undermined the credibility of the entire restructuring and privatization process. Though the full list of reasons is under continuing debate, it seems clear that Railtrack management never fully got control of its responsibility for track maintenance and rehabilitation. A number of factors contributed to this failure:

- In order to make the companies established from the old BR track maintenance activities into saleable companies, the Government decided to make Railtrack into a contract management operation in which essentially all infrastructure work (maintenance and rehabilitation) was carried out under contract. In order to promote the salability of these contracting companies, their maintenance contracts with Railtrack were established in advance and then presented by Government to Railtrack as a *fait accompli*. This meant that Railtrack had little control over the structure and levels of the contracts, and it was not able to ensure their manageability when the contracts came into force.[40] In fact, "the responsibility for determining the need for maintenance work [to meet a particular maintenance standard] was **given to the contractor** [emphasis added], further reducing Railtrack's control over its own business."[41] Railtrack did not cause these problems, though it is possible to argue that a vigorous attempt to revise or renegotiate the contracts (after the initial three year period) would have eased the problem had Railtrack attempted to do so.
- Given that the decision to contract out all planning and implementation of infrastructure work had been made and imposed on Railtrack, Railtrack underestimated the challenge of totally contracting out the work, misjudged the skills and resources needed to manage the contracting system and, as a result, never got effective control over its contractors. Instead, most of the former BR institutional skills for engineering and management of infrastructure work were transferred to the private sector companies when BR was split up. Moreover, Railtrack was slow to appreciate the need for specific expertise in rail management and technology, and never seems to have caught up on this deficit. Much that happened later can be linked to this series of early misjudgments.
- Railtrack inherited from BR a regional management structure[42] that it never fully adapted to a unified network management approach; indeed, Railtrack initially sought to set up profit centers based on the Regions inherited from BR. The regional fragmentation meant that Railtrack management faced a Region versus contractor matrix management problem in which contractors (and TOCs) often had to manage across disparate Regions. The result, in effect, was that each contractor had virtually a separate contract in each region, with all of the problems of cost, coordination and inconsistent decision-making that entailed. This multiplied the challenge of contract management, and its complexity increased costs and created delays in getting work underway.
- A particularly serious problem was the clash in the incentives faced by Railtrack

[39] Euan Cameron, a former Director of the Thameslink franchise, is quoted in Freeman, R., 2002, at pg 164 as giving three reasons for the success of the franchises in promoting demand: 1) the buoyancy of the London (and British) economy; 2) Government policy leading to a structural change in transport; and, 3) the marketing and flair of the private sector. Considering Figure O, clearly reason 1) is not the full explanation for the growth in rail system traffic.

[40] Mercer Management, 2002, pg 15. See also Foster, Sir. C., 2004, pg 7.

[41] See SRA, 2003d, pg 47.

[42] Sir Robert Reid I, in his presentation to the World Bank, called the Regional managers the "Barons". See Reid, Sir R., 1989b, pg 2.

versus the TOCs in the access charge regime. As with the maintenance companies, the Government wanted to ensure a successful flotation of the company. This objective, along with an economic analysis of the fixed versus variable aspects of rail infrastructure costs, led the Government (and then the ORR) to establish the initial access charge regime in a form that was meant to reflect underlying short-run variable costs, resulting in mostly fixed annual charges for each franchise along with a relatively small variable charge for actual use.[43] This access charge regime meant that the net profits of Railtrack were effectively insulated from traffic risks that it largely could not control, and guaranteed that the market value of the Railtrack shares would be relieved of these risks. The low additional access charges for additional trains within the initial access capacity agreed with each TOC caused the TOCs to want to run all trains that they had rights for, whenever added revenues would cover the additional costs of operation (including the low access fees). Railtrack, on the other hand, had insufficient incentive to meet extra traffic demands beyond the projected levels.[44] Added trains rapidly began to congest the system, with intercity train-km increasing by 46 percent between 1997/8 and 2003/4, and overall system train-km increasing by 19 percent (22 percent between 1996/7 and 2003/4)[45]—which caused increasingly serious problems with on-time performance and maintenance costs. This congestion problem was not the fault of Railtrack, though it is clear that Railtrack, the ORR and the TOCs were unable to work together to resolve it.

- In the face of manifest problems with control over cost estimates for network maintenance and operation, Railtrack management undertook new fixed price contracts with TOCs after privatization, the most serious of which was the upgrading of the West Coast Main Line (London, Manchester, Birmingham and Glasgow): initial cost estimates of the cost of this project (around £2.3 billion) were followed by rapid cost escalation (the total was reported to be estimated at one point to be as high as £13 billion, though SRA now believes that a functional—but slower and less enhanced—system can be delivered for £7.5 billion[46]). The cost escalation would have forced renegotiation to avoid bankruptcy, even had the Hatfield accident not happened.[47]
- The final blow to Railtrack's management of the system was the accident at Hatfield in October of 2000 caused by a rail fracture that, critics argued, should have been located and repaired before the accident. Railtrack's over-reaction to this accident shattered the service reliability of the entire system, and destroyed any credibility with the public or Government that Railtrack might have retained. A year after Hatfield, Railtrack was put into administration by the Government (bypassing the possibility of regulatory review of its income to ease its financial burdens) and eventually transferred its assets to a new company, Network Rail (discussed below).
- In Railtrack's defense, an underlying problem of deferred maintenance might have challenged the efforts of even the most effective management team. As is the case with many state-owned railways, investment in replacement and rehabilitation of infrastructure at BR had for years not been sufficient to replace worn-out assets. For example, an analysis of the causes of the Hatfield accident performed for the ORR by the Transportation Technology Center of the U.S. Association of American Railroads showed a continuous decline, essentially from the late 1950s until the mid-1990s, in the purchase of rail for rail replacement (see Figure P). The TTCI study concluded that "…[reduced rail purchases over the years have led to increasing rail age and a

[43] The initial regime resulted in approximately 91 percent of all charges being invariant with traffic, and only 9 percent varying with traffic up to the expected level of traffic contracted for.

[44] Indeed, Railtrack faced stiff penalties for delays on trains up to the contracted level, which meant that it had strong reasons not to allow traffic to go above the contracted level. At the same time, the regulatory regime did not allow Railtrack to deny access on the basis of congestion.

[45] See Figure H.

[46] SRA, speech to Rail Freight Conference by Richard Bowker, June 8, 2004.

[47] Overruns on railway capital projects were not a new phenomenon in the U.K. BR had the same problem, with consistent capital budget overruns and project scope reductions. See Gourvish, T., 2002, pg 228. See also Foster, Sir C., 2004, pg 11.

consequential increase in rail fatigue. That is, there has been a prolonged under-investment in rail."[48] This conclusion appears to be true even though BR, in the 1960s, did undergo a significant reduction in the size of the network (partly as a result of the Beeching reforms) and even though at least a part of the disinvestments that occurred in the 1970s and 1980s was targeted at low density lines (particularly freight) and did not affect the main lines. Though, as Figure P shows, Railtrack had begun to turn this trend around, there was clearly a deficit that had to be made up. The TTCI study concluded that "[g]iven the large amount of rail in track, however, making a significant change to the rail age distribution will take a long time"[49]—more time than Railtrack ultimately had available.

- The shortage of investment in rail was paralleled by a similar lack of investment in the rest of BR's assets (Figure Q).[50] In fairness to Railtrack, it is hard to avoid the conclusion that, even under the best of management efforts, implementing the required investment in infrastructure (to make up for past neglect) at the same time that system traffic (driven by rapid growth in the U.K. economy as well as the perverse industry incentives) was trying to grow rapidly, would have caused serious cost and operating reliability problems.[51]

- In October of 2001, The Government petitioned to place Railtrack into Administration; shares of Railtrack, originally floated at 390 p/share, at one point reached as high as £16.96/share. By October 10, 2001, they had fallen to 70 pence/share.[52] The reasons and timing for Railtrack's final demise are complex and are the subject of intense and continuing disagreement among the parties involved (Railtrack, DTI, ORR, and shareholder groups). Basically, after the Hatfield accident and the "nervous breakdown" that ensued at Railtrack, the Government gave up on Railtrack management and decided to seek an alternative approach.

- By mid-2002, the Government had decided to transfer the railway infrastructure management responsibilities to a new entity, Network Rail. Network Rail is a specific form of legal entity under U.K. law that occupies a "not for dividend" status. It was set up for the sole purpose of acquiring Railtrack and enabling the business to come out of administration. It is a company limited by guarantee, owned by members rather than shareholders, which does not pay dividends. The Board of the new company is accountable to and may be removed by the members, although the Board is involved in selecting the public members. Network Rail's members comprise the SRA, license holders (TOCs), and other interested organizations and individuals drawn from the general public. There are between 100 and 120 members, of which representatives of the public interest form a majority but no more than 75 percent of the total. SRA has special membership rights, including the right to appoint a member of the Board of Directors and the right to remove all other members in the event of fundamental financial failure.[53] Despite the unusual structure of Network

[48] See Sawley, K., 2000, pg A-25.

[49] Ibid.

[50] Sir Christopher Foster said "... it required massive investment, in this case to replace old rolling stock and restore and ancient, decayed infrastructrure, which had been under-maintained for decades." See Freeman, R., and Shaw, J., 2002, pg xi. SRA stated: "Britain's railway has been the subject of consistent under-investment for almost three decades." This was a result of "an environment of political disinterest" in the 1970s and 1980s "which in turn led to limited funding and investment, and declining passenger and freight market shares..." SRA, 2002e, pg 1, statement by Richard Bowker, Chairman. The Government has recently concluded that "the railways are suffering from historic under-investment stretching back for decades", and "... the problems of the railways, which have been caused by decades of under-investment..." Both quotes from DfT, 2004b, pg 9.

[51] There is continuing debate about the actual magnitude of the deferred investment problem, with some observers arguing that the main line tracks and the assets of major importance were in reasonable condition. Since neither BR nor Railtrack nor Network Rail had (or has) an asset register that comprehensively recorded the location and condition of the infrastructure, this debate is difficult to resolve. There is little question that Railtrack faced (and Network Rail faces) an under-investment problem and a related deferred maintenance catch-up challenge: the actual degree of the problem will never be resolved.

[52] Preston, J., 2002, Figure 2.

[53] Description of Network Rail taken from ORR, 2002, pg 5. See also, Railtrack, 2002, for a detailed description of the arrangements for Network Rail's proposed purchase of Railtrack assets.

Rail and its underlying government guarantees, it is still designated as a **private** company: it has not been formally re-nationalized.[54]

- The not-for-dividend structure is a revival of a model that was used in the past for other public utilities, and which survives with a small number of "Trust Ports."
- Network Rail has recently decided to end its reliance on contractors for work on the infrastructure by bringing all of its track maintenance under direct management: upgrading and construction will still be privately contracted.
- Overall, a reasonable conclusion is that Railtrack largely failed to overcome the very significant challenges that had been imposed on the company. Management did not understand the difficulty of the challenge it faced, and it never took the actions needed to acquire the skills needed to manage the company, nor to manage regulatory risk in such a publicly sensitive industry. It never understood or accepted the fact that, because it was perceived by many as an arrogant[55] monopolist in control of a vital piece of British infrastructure, it had to balance short term efforts to maintain or increase the value of its stock against the immediate and longer term needs of its real customers (Government and public), and it could not be seen to abuse its monopoly position. For unclear reasons, it took reckless financial risks, such as offering a fixed cost commitment for upgrading the West Coast Main Line[56], which could not be justified while, at the same time, neglecting some of its core responsibilities.[57] Ultimately, Railtrack lost control of its core business and its tenure was ended.

[54] One source of the hesitation to formally re-nationalize must be budgetary: so long as Network Rail is "private," the amounts guaranteed are off budget. Despite this distinction, Network Rail's accounts are consolidated with those of the SRA for Statutory reporting purposes.

[55] Mercer Management, 2002, pg 13

[56] It has been argued (author's personal communication with senior Railtrack official) that Railtrack was responding to pressure from Government, ORR, OPRAF, Virgin and media to agree to a deal. As Railtrack gained experience, it became much more reluctant to make this kind of commitment.

[57] Winsor, 2004a

4.5 Rolling Stock Companies (ROSCOs)

A basic challenge of the restructuring approach was that the franchises were to have periods of 5 to 15 years in order to strengthen the regulator's oversight of the performance of the franchises. Bad performance could be dealt with more readily if the franchises were put out for competition more frequently. This meant, however, that longer-lived assets, such as infrastructure and rolling stock (locomotives, coaches and freight wagons) could not reasonably be owned by the franchises. In the case of the infrastructure, creation of Railtrack was intended to permit investment in infrastructure with a time horizon much longer than 5 years. For rolling stock, the Government wanted both to create agents that could appropriately own and invest in rolling stock over a long life cycle, and it wanted to create competition for the supply of rolling stock to the franchises. The solution was to create three companies (ROSCOs) that bought the rolling stock previously owned by BR and then leased it back to the franchises.

The ROSCOs were almost as controversial as Railtrack, but for different reasons. A significant point of similarity between the ROSCOs and Railtrack was the impact of a large amount of superannuated equipment. The average age of a BR coach in 1994 was about 22.8 years—well beyond the age at which a significant replacement effort would normally be instituted. This problem was exaggerated by the existence in the fleet of a large number of "slam door" commuter equipment that must be replaced for safety reasons, and by the fact that no new rolling stock was ordered **at all** between 1993 and 1996.[58] Thus, at the beginning of franchise operations, the ROSCOs faced a large investment requirement that could only be digested over several years,[59] even if the capital had been immediately available. In practice, the ROSCOs have responded by rapid ordering of new equipment to the point that a significant portion of the fleet has already been replaced (by 2000, the average age of the fleet had fallen to 20.5 years) and the amount of new equipment on order is the highest in history (by 2005, the average age of the fleet

[58] SRA, 2002e, pg 33

[59] From design, to safety approval, to manufacture, to testing, to delivery, to final shakedown, a new type of rolling stock can take up to 5 years, sometimes longer.

will fall to about 14 years).[60] In addition, rolling stock manufacturers have been willing to bypass the ROSCOs and do some leasing directly to franchises (in the expectation that the leases could be rolled into a new franchise if the old franchise were replaced) and some franchises have been confident enough of retaining their franchise[61] that they have been willing to buy or lease rolling stock directly from the manufacturers.

There have been several significant criticisms of the performance of the ROSCOs. One is technical—the ROSCOs may have been ordering rolling stock that is not appropriately designed for operation on the infrastructure under the conditions that apply in the U.K.[62] This may be compounded by the fact that the access regime, both as initially structured and following the Regulator's extensive review in 2000, did not create automatic incentives for the ROSCOs or the franchises (or the freight operators) to control the quality of their wheels and bogies, especially flat and out-of-round wheels and poorly steering bogies, all of which can accelerate track wear.

A more politically serious criticism of the way the ROSCOs were established is the accusation that their first investors exploited them to make a number of personal fortunes. In the run-up to privatization, some of the existing industry managers realized the profit potential for the ROSCOs much more rapidly than did outside investors. As a result, some of the ROSCOs were sold to groups including ex-BR managers for relatively low prices.[63] When the system began operating, and after the political risk of renationalization subsided, the profit potential of the ROSCOs became more evident and the original owners were able to sell their positions for substantial profits. Though this was entirely legal and in accord with a fair and transparent bidding process, the unusual scale of the profits involved, and the short time-frame of the turnovers, caused a great deal of press attention and criticism, and further weakened the public acceptance of the rail privatization process overall.

The SRA and DfT also remain concerned about the degree of competition in the supply of rolling stock. Although there appears to be vigorous competition in the market for newly built equipment (albeit with a reliability problem in commissioning), the markets for rebuilding and leasing of existing coaches and locomotives are not so competitive, especially in situations where the rolling stock is specialized for a particular service or application. There is also concern for the degree of actual competition in the rolling stock maintenance business. SRA and DfT have announced an intention to review leasing prices of existing equipment to ensure that any market power on the part of the ROSCOs is not abused.[64]

Despite the criticism, and despite delays and the commissioning problems as the new equipment has come on line, the ROSCOs and the franchises (through direct contacts with manufacturers) have been successful in initiating the renewal of the British passenger rail fleet. Unfortunately for the process so far, the inevitable time lag between initiation of a new concept and delivery of usable equipment has meant that the new equipment is only now coming on line, well after the frustration and unreliability of the old equipment had extracted a cost in the credibility of the restructuring and privatization process. To aggravate the situation, a significant number of new, third rail EMU commuter coaches remain unusable because the power demand they create exceeds the capacity of the existing power supply.[65]

4.6 The Government

Though the British restructuring and privatization have focused attention on the performance (better and worse) of the private sector, the role of the Government in the process has probably been far more important.

[60] See SRA, 2003c, pg 15 for estimates of the age of the fleet at various points. At page 24 of the same document, SRA notes that, by the end of 2003, the TOCs had ordered over 4,500 new vehicles, about one-third of the fleet at privatization, with a value of £4.2 billion. This rapid replacement program created "congestion" in the rolling stock supply market that was equivalent to the congestion on the infrastructure caused by the massive infrastructure investment program.

[61] Or, presumably, of selling or on-leasing their rolling stock if they lose their franchise.

[62] Specifically, the bogie yaw stiffness for high-speed rolling stock may be too high for the track in its current condition. See Sawley, K., 2000, pg A-31

[63] Though the impact is hard to assess, the threats by Labor and the Liberal Democrats to renationalize the system clearly depressed the sale value of parts of the system, particularly the ROSCOs. See, e.g., Foster, Sir C., 2004, pg 9.

[64] SRA, 2003c, pg 4. See also DfT, 2004b, pg 70.

[65] Nash, 2003, pg 3.

More important, the **evolution** in the role of the Government as the restructuring and privatization developed deserves particular attention.

The stage for the BR privatization was set during the Government of Conservative Prime Minister Margaret Thatcher when most of the "commanding heights" of the British economy were privatized and deregulated. This effort included many of the major enterprises in the infrastructure area, particularly electricity, water and telecommunications. By the time Prime Minister John Major took over from Prime Minister Thatcher, the most obvious target remaining was BR.[66] It was, in fact, the last of the large privatizations to be completed.

Not only was the potential privatization a substantial challenge in itself, it also took place under substantial time pressures. The Government of John Major had been widely expected to lose the election of 1992, after 17 years of Conservative rule. In a substantial surprise, the Conservatives survived, but were aware that the odds against their winning the election in 1997 would be long. Thus, the entire privatization process began to operate under a timetable that required completion—policy development, structure and approach, legislation, sale and transfer—within a five-year period. Anything less posed the risk that the privatization might be reversed if the Labor Party won in 1997. This was a realistic concern since both the Labor Party and the Liberal Democratic Party strongly opposed BR privatization, and both declared that they would undo the process if elected.[67] The opposition, especially by Labor, had an inevitable impact on the willingness of private investors to bid and invest, particularly in the later stages of the process when the electoral chances of the Conservatives dimmed further.[68] Inevitably, the focus of the Government shifted toward the short-term completion of the process, and away from careful planning for what would happen after the process was complete (knowing, as well, that a Labor Government would probably have to deal with the consequences anyway).

Moreover, the Major Government took an essentially static view of the future of the rail industry, with the focus primarily on enhanced efficiency, reduced operating deficits needing public funding, and a shift of investment from the public to the private sector, but with little expectation that private operation would in fact lead to increased traffic requiring additional public funding. For example, Sir Christopher Foster, Adviser to John McGregor (Cabinet Minister responsible for privatization of BR in its initial phases), argues that "[s]imilarly, since trends in rail traffic had declined from the mid-1950s, **no one foresaw, or could have been expected to foresee, the degree of increase in rail traffic since privatization** which nevertheless has led to over crowded trains, posed problems for reliability and has necessitated a huge increase in planned investment as well as being and extra challenge for the railway regulators." [emphasis added].[69]

Because the Major Government did not foresee that the privatized industry would succeed in rebuilding demand on the rail system so effectively, no real provision was made for continuing—and certainly not for expanding—the future public role in planning or funding for the system. [70] The Conservative Government's expectation for privatization was in effect that the system, once privatized, would require only limited Govemment attention to oversee declining operating deficits and access to the infrastructure. The Labor Party view at the time seems to have had an essentially short-term focus: opposition to privatization and a public undertaking to re-nationalize the system if they returned to power.[71] Neither party established a policy or financial framework for what actually happened—a system that could not realistically be re-nationalized, which grew traffic at an unexpected rate, but which also rapidly exposed the damage done by years of limits on investment in railway rolling stock and infrastructure. As a result, the shift to

[66] Reportedly, Margaret Thatcher had decided not to take on the challenge of privatizing British Rail. See, for example, Jon Shaw in Freeman and Shaw, 2002, pg 1. The reasons are not clear, but could have been rooted both in the political cost benefit equation as well as in the respect that she reportedly had for Sir Robert Reid I.

[67] OPRAF, 1996, pg 44, contains a description of the opposition statements and positions.

[68] John Prideaux in Freeman R., 2002, discusses this issue in some detail, at pg 111.

[69] Freeman, R., 2002, pg xi

[70] "Privatization's fundamental premise of a static railway has been thoroughly confounded." SRA, 2001e, pg7

[71] It is not clear whether the Labor Party leadership really expected to renationalize the rail system. The formal statement was that the Party would "restore a publicly accountable railway" using regulatory powers as the tool.

Labor control in 1997 meant that there was a significant period of time in which the new Government (which had strongly opposed the privatization) had to develop a realistic approach to support for rail services. The unexpected growth in demand posed the new Government with both an opportunity for positive involvement, and a challenge to decide how to do so, in a context that was not to its liking and for which it was not prepared.

4.7 The Emergence of the Strategic Rail Authority

The first problem to emerge was the lack of a point of focus for looking at the future.[72] Railtrack (which arguably could have done so in its Network Management Statements—see, for example, Railtrack 1998 b and 1999 b)[73] was too consumed by the short range fire fighting involved in trying to get an infrastructure maintenance and rehabilitation program started for it to be able to look at the needs for British public transport in future decades: in any case, Railtrack's private status made it an inappropriate place to look for definition of public transport needs. Railtrack could do strategic plans for the infrastructure, but Railtrack could not define the overall needs for British transport, and the role of the railways within the network. At the same time, OPRAF's initial remit was mainly that of a regulator and administrator of public funding, though it did have powers to support financially the provision of new infrastructure and rolling stock. In the first years after privatization, these powers were not used for infrastructure investment, leaving the private sector to define the scope of investments (such as the West Coast main Line upgrade). When it became clear that demand on the U.K. rail system would be increased under private management, a broader perspective was needed to determine the benefits, and costs, of a longer range and expanded role for the rail network within a British transport system that is increasingly congested across all modes.[74]

The response of the Labor Government was to transform OPRAF into the Strategic Rail Authority (SRA). The SRA was initiated in "shadow" form in late 1999 (the sSRA), in advance of the legislation required for full establishment. Following delayed legislation, the SRA was officially established in February of 2001. The SRA took over the functions of OPRAF (designing and awarding the Franchises and administering the subsidies paid) and some of the functions of ORR (passenger interests) and some of the residual functions of the old British Railways Board. In the process, the SRA acquired the explicit responsibility for developing a strategic view of the rail system. In conjunction with the Department for Transport (DTI, now DfT), SRA has had the responsibility for planning the future role of railways and for identifying the public funding that will be required.

The SRA developed a number of analyses and reports detailing a new strategic view of rail in the U.K. There have been a series of strategy documents, including:

- The "Strategic Agenda"[75], which set up the framework for the SRA's development of strategy for the system;
- The "Strategic Plan: The Way Forward for Britain's Railway",[76] which looked forward

[72] John Welsby said, in 1997, "…overall strategic responsibility is missing." Welsby, 1997, page 7. Bonavia (Bonavia, 1985, pg 7) had said earlier, "…it is high time that BR's proprietor – meaning the nation, as represented by the Government – finally decides what is to be done about this immensely valuable property which it owns." The Serpell Report, 1983, stated "…a Command Paper should be published setting out the Government's policies and strategies covering the role of the railway in public transport, objectives for the business sectors, the extent of the network to be supported or excluded from support, and guidance on closure policy" (Serpell, 1983, page xv). Pryke and Dodgson said in 1975 (Pryke, R.W.S., 1975, page 276) "…the Government alone is in a position to bring about the necessary changes in railway management and to start altering the climate of opinion. It is therefore **imperative that the Government should reappraise its present policy towards the railways**." [emphasis added] The Beeching Report (page 1) quotes the Prime Minister in 1960 as saying "…the industry must be of a size and pattern suited to modern conditions and prospects. In particular, the railway system must be remodeled to meet current needs, and the modernization plan must be adapted to this new shape." The need for a coherent and agreed strategy was hardly a new issue.

[73] Bill Bradshaw, former BR executive, argued, "[I]t [Railtrack] could have sketched out a vision of a railway which could have seized the imagination of the public and could have established a lead in formulating railway strategy." Bradshaw, B., 1998, pg 8.

[74] See, e.g., SRA, 2003 e, pg 11 for a discussion of road congestion in the U.K. See also DfT, 2004c, for an extensive discussion of the issues of road congestion in the U.K.

[75] Strategic Rail Authority, 2001e

to significant growth in rail capacity and usage (passenger traffic up by 50 percent and rail freight traffic up by 80 percent by 2010) and foresaw a much expanded, direct public role (and £33.5 billion over ten years) in supporting it: total reliance on the private sector was replaced with partnership. This plan was underpinned by the more active Government policy announced in the DETR's own transport plan for the 10 year period to 2010.[77]

- The "Capacity Utilization Policy",[78] which stated the SRA's approach and principles to allocating capacity on those parts of the network that are congested. This, along with the more detailed Route Utilization Strategies, guided the SRA's attempts to develop more efficient use of the network and to define the service specifications for each franchise.
- The "Strategic Plan 2003: Platform for Progress,"[79] reflecting further development in the proposals for system development, particularly reflecting a much more sober view of the affordability of the ambitious enhancement programs such as the West Coast Main Line upgrading;
- The "Franchising Policy Statement"[80] that significantly changed the nature of the relationship between Government and the TOCs. In essence, the Statement said that the SRA would: 1) reduce the number of TOCs, concentrating many of them on the major London terminals; 2) put the SRA into a much more direct role in specifying service quality and quantity; 3) institute a risk-sharing regime between SRA and the new TOCs; and, 4) set franchise terms at 5 to 8 years, with possibilities for extension given satisfactory performance. In addition, the SRA and ORR reviewed both the structure and the levels of the infrastructure access charges in order to harmonize the incentives faced by operators and infrastructure provider (in practice, to lower the fixed access charges and raise the variable usage charges).
- The "Rolling Stock Strategy,"[81] which assessed the progress of the ROSCOs and TOCS in acquiring and installing new rolling stock and stated the SRA policy toward accelerating the incorporation of new and enhanced rolling stock capacity. As with the Strategic Plans, this document shows SRA asserting a role in an area—rolling stock design and finance—that had previously been left entirely to the private sector.

Soon after the sSRA was established, the agency began an effort to change the structure and the time period of the franchises. Initially, the objective was to create a smaller number of longer-term (up to 20 year) franchises that would have enhanced controls over performance and (because of the longer franchise period) would promote investment in upgrading the network and rolling stock by the franchisee. Developing and negotiating these longer-term franchises turned out to be complex, because the sSRA did not offer any clear definition of its expectations. As a result, time was lost, and the sSRA had difficulty in choosing between competing bidders with different visions for long-term investment. The difficulty was exacerbated by the uncertainties introduced by the turmoil after Hatfield.

More recently, the SRA has instead focused on negotiating extensions in existing franchises (though would otherwise expire in early 2004) with an emphasis on gains in performance. With many of the extensions achieved, SRA has returned to the process of re-awarding franchises where appropriate, with an aim to try to consolidate London area franchises around the major stations they serve. Figure R shows the original franchises as compared with the present, revised franchise structure.

4.8 The Office of the Rail Regulator (ORR)

The ORR was one of the two new rail regulators, with the responsibility for ensuring: 1) that Railtrack's revenues in total were adequate to permit it to be financially stable; 2) that the access charges instituted by Railtrack were appropriate in level and structure to encourage efficient use of the infrastructure and provide appropriate incentives for users and Railtrack to promote effective performance; 3) that Railtrack did not discriminate among its users unfairly and that it accorded all a high quality of service; and 4) that the present and future capacity needs of the rail network in total were met, particularly when the needs of multiple users were

[76] Strategic Rail Authority, 2002e
[77] DETR, July 2000.
[78] Strategic Rail Authority, 2002a
[79] Strategic Rail Authority, 2003d
[80] Strategic Rail Authority, 2002b
[81] SRA, 2003c

involved. In doing so, the ORR had to regulate both the behavior of Railtrack in its management of the infrastructure and the performance of Railtrack and the franchises under the terms of their licenses.[82]

The relationship between ORR and Railtrack was fraught with contention and, at times, outright hostility. Tom Winsor (the Rail Regulator from 1999 until July of 2004), argued in a presentation in early 2004[83] that, in the 1994 to 1999 period, the ORR was "weak and inactive," and allowed Railtrack to be "hostile to its train operator customers." He also noted that the Regulator's job was complicated by "constant political intervention, to the severe detriment of investor confidence… engendered by media firestorm re accidents and poor performance."

Despite the difficulty of the challenge, the ORR and Railtrack engaged in a series of reviews and hearings on Railtrack's finances and access charges that are, by any standard, impressive in their scope, substance and conduct. Some aspects of the hearings—asset valuation, the efficiency and effectiveness of Railtrack's management, the required rate of return to be permitted—are the typical regulatory questions that consume regulators everywhere. An unusual issue that received considerable attention was the level and structure of access charges.

As discussed above, Government initially set the level and structure of the access charges with the objective of ensuring relatively stable earnings for Railtrack and limiting uncontrollable volume risk so that the Railtrack share flotation would be successful. The ORR then sharply reduced these levels before privatization. The subsequent performance of the system indicated that the initial regulated access charges were not successful in ensuring adequate earnings because Railtrack's costs were significantly higher than the Regulator had assumed, and they were rising (in part because of regulatory and political pressures to increase the investment levels).

More important, the access charges were generating perverse incentives in which the franchises wanted to run more trains than Railtrack was able (or wanted) to accommodate in the short run and for which Railtrack was not being compensated to add capacity in the longer run. Government and the Regulator then decided that Railtrack should negotiate any additional charges it needed for providing additional capacity.

Figure S illustrates the problem: the initial access charge structure provided very little added revenue to Railtrack no matter how much track usage was demanded, and the franchises derived very little benefit if they managed to reduce their use of track. Figure S also shows the shape of the revised proposal—make the access payments somewhat more closely related to use. This reflected both the additional short run marginal costs identified following the initial charge structure review, and new volume incentives paid by the SRA. The original balance of remuneration (about 91 percent fixed, 9 percent related to use) was shifted toward a 70 percent fixed, 30 percent variable approach in order to create better incentives for the franchises to use capacity efficiently and for Network Rail to develop and implement improved methods of scheduling and capacity delivery.

It is important to emphasize the fact that the Regulator and Railtrack faced this complex problem primarily because Railtrack was established as a private, unsubsidized (directly) entity that had to recover its full costs from charges to users.[84] As a result, Government, and subsequently Railtrack and the ORR, had to devise a set of charges that covered not just the economic marginal costs of the system (the most efficient economic pricing approach), but also the average financial costs (or Railtrack would go bankrupt, not a good idea for a private company floated by the Government). This became especially serious when the system began to approach capacity (defined in the railway case as the point where delays began to increase rapidly with traffic levels) so that the variable access payments actually began to fall below

[82] See Winsor, 2004a, for a discussion of the role of the ORR and how it evolved.

[83] Winsor, 2004a

[84] E.U. policy recommends (see Directive 2000/14/EC) that rail infrastructure providers set their access charges based only on social marginal cost, with Government paying fixed costs. This could, in principle, avoid the Railtrack dilemma; but, of course, it assumes that Governments will actually fund the difference between access charges based on marginal costs and the full costs of the infrastructure agency. It also implies that, when marginal costs rise above average costs, that Governments will pay that difference as well.

Railtrack's short run marginal costs (including congestion).[85]

Relating railway costs to usage is a notoriously complex problem, and the actual analytical support for the original 91/9 ratio was not strong—nor is the move toward a 70/30 ratio necessarily precise, though it is probably closer to the actual long-run cost variability. In addition, the SRA has moved toward more direct public involvement in financing a share of the ongoing renewal work as well as the **investment** costs of added capacity, so the need to get the ratios exactly right may have been reduced. In practice, the system will probably need continual tinkering over time in order to keep the usage incentives in balance with investment availability and congestion outside the rail mode. At the same time, there is a continuing problem of balancing the desire for sophistication in the access charges with the need to have a system that is simple and robust enough to understand and implement.

Another outstanding aspect of the ORR's role was the effective authority to commit Government to pay. This occurs in the "no net loss, no net gain," pass-through aspect of the treatment of access charges in the franchise contracts: the franchises cannot be held responsible for the level of access charges since they do not manage the infrastructure and they do not set access charges (freight and open access operators do not enjoy the same protection). As a result, an ORR-authorized change in the allowed costs for maintenance and construction by Railtrack, now Network Rail, are reflected directly in a change in access charges, which passes directly though to Government (SRA or its successors) in the form of higher support payments that they have agreed to make to the franchises,[86] or in other payments made directly to Network Rail by Government. This has become increasingly important since the allowable costs for the Network operator have risen quickly, from £14 billion for the first six-year control period (1996-2001) to an initial £16.7 billion for the second five-year control period (2002-2006). After the Hatfield accident, Railtrack had raised this number to £28.5 billion. Network Rail subsequently reduced the estimate slightly, to £27.1 billion. The ORR actually approved a total for the second control period of £22.2 billion, although there were many elements that remained undefined. The uncertainties, and the upward pressures, are unsettling.[87]

Though the role of the ORR was more stable than those of the OPRAF and SRA, the Government apparently decided that the power vested in the Regulator needed to be subject to more checks and balances. The single Regulator will be replaced with a Board of at least five and up to nine persons appointed by Government, but continuing (for the time being) the independence enjoyed by the Regulator.[88]

5 THE FUTURE

The latest step in the evolution of the strategic involvement of the Government in the rail system began in January, 2004, when the Secretary of State for Transport, Alistair Darling, announced a "major review of the structure of Britain's railway" with the objective of developing a "streamlined structure and organization with clear lines of responsibility and accountability."[89] The review, "The Future of Rail,"[90], along with a much broader White Paper on U.K. Transport Policy ("The Future of Transport: A Network for 2030")[91] was issued in July of 2004. The review states that the "key priorities for the rail industry are to control its costs and live within the level of public funding available to it, and to improve its performance for passengers and freight users." The "new blueprint … is built on the principle of public and private partnership, and it recognizes rail's status as a public service, specified by Government and delivered by the private sector."[92] The review proposes a set of six key changes:

[85] Railtrack simulations had estimated that a one percent increase in train-km produced a 2.5 percent increase in delays. See Jack, A., 1999, slide 10.

[86] This authority has been misconstrued to imply that the Regulator has the authority to set Government budgets. On the contrary, Government set the terms of the contract between SRA and the TOCs and the terms can be changed (with appropriate consideration) by agreement between Government and the TOCs. The Regulator's mandate is to determine how much Network Rail's services **should** cost, and thus how much the TOCs owe under the terms of the contracts.

[87] Nash, 2003, table 1.

[88] Winsor, 2004c, pg 16, and ORR press announcement of 22 June 2004. The new ORR will be the Office of Rail **Regulation**.

[89] Department for Transport, 2004a

[90] DfT, 2004b

[91] DfT, 2004c

[92] DfT, 2004b, pg 6

- The SRA will be abolished, and its strategic and funding responsibilities incorporated directly into the DfT. This change reflects the realization that public objectives will have to be set by Government, and that priorities for public funding will have to be clearly injected into the planning for the rail system. DfT and Network Rail will have a direct contract for the provision of rail capacity and network management services deemed to be needed. At the same time, and significantly, the independence of the ORR in deciding on the compensation needed by Network Rail for the work it performs will be respected.
- Network Rail will have the clear responsibility for planning and operating the infrastructure network in accord with Government requirements (and subject to adequate compensation). Network Rail will then work with the operators to set up timetables and manage operation of the network, including recovery from operating disruptions.
- Relations between TOCs and Network Rail should be improved by new agreements and clearer incentives. The number of franchises will be reduced and the franchise structure more closely aligned with the regional structure of Network Rail. The nature of the "clearer incentives" is not defined, nor is the policy of the Government on the share of infrastructure investment and operating costs to be recovered from passenger and freight operators stated.
- There will be an increased role for local authorities (Scotland, Wales and the London Mayor, and the PTEs) in system planning and funding.
- The ORR will be expanded to include safety as well as the existing performance and cost oversight.
- Freight operators will be given clearer access rights, especially on specific routes in the system that are expected to carry most of the rail freight traffic.

The broad outline of the new structure can be seen in Figure T. The details of the new initiative will only emerge with the implementation, especially the new legislation that will be introduced. This said, the broad thrust has a number of significant aspects.

- The Government role in strategic planning is now explicit, as is the need to fit rail system planning and funding into the broader context of other public priorities.
- The Government has chosen a much more direct relationship with Network Rail by eliminating SRA as an intermediary. On the one hand, this merely recognizes the reality of the Government's role as the spokesman for the public interest: on the other hand, it will have the longer run effect of putting the Secretary of State for Transport directly in the hot seat. Moreover, it raises the question of whether future Governments will somehow do a better job of funding system requirements than past Governments have done.
- The enhanced "clarity" of the newly contracted Network Rail role in infrastructure management will need to be contrasted with the issue of how Network Rail will actually be held accountable if it does not meet the terms of its contract. If Network Rail does have difficulties in contract performance, the issue of "who is really in charge and what are their real incentives" is likely to come to the fore, and pressures for even more Government control are likely.
- The shift in the role of the passenger TOCs from entrepreneurial and market-based businesses toward management contractors providing specified capacity levels may have an effect on the effort and creativity expended on business development. This seems likely to weaken the linkage between demand and pricing or service design.
- The increased role of local and regional authorities in service planning and funding is clearly needed, especially because of the disproportionate costs and deficits of the local and regional services. Whether this will provoke a better set of decisions as to (for example) bus versus rail tradeoffs remains to be seen.
- Putting safety regulation under the ORR aegis along with system planning and cost oversight may well (as claimed) reduce bureaucracy and improve the linkage between safety decisions and system planning, but it may also raise at the same time the question of whether the new regulator's concern for costs might not be

affecting decisions on safety. Rightly or wrongly, the degree of "independence" of the safety regulatory decisions can be questioned.

Taken together, the SRA's actions, the creation of Network Rail, and the July, 2004 review lay the groundwork for a continuing evolution in the structure of the U.K. rail network. If not a repudiation of privatization, there is certainly a significant mid-course correction underway toward a deeper **partnership** between public and private sectors, with significantly greater reliance on public support and direction than was envisioned (however credibly) at the beginning of the process. The verdict on structural change is also mixed, though the basic elements of the system will likely remain.

- The system will have a more unified, and hopefully better managed, infrastructure provider (albeit non-profit and with enormous direct public involvement) which will remain separate from the TOCs. Network Rail could, by virtue of more Government involvement in capacity enhancement and operating costs, be able to develop more efficient access charges.[93] In effect, the system will come closer to a publicly owned and directed railway with passenger operating services and rolling stock ownership provided under contract by the private sector.
- Network Rail may pose an unusual regulatory challenge because it will not face the pressure of shareholders to improve its performance (its members will, of course, be in a substantial position to lobby for good performance): some external discipline will come primarily from regulation, whereas the contract between DfT and Network Rail could significantly expand the ability of Government to demand more effective planning and provision of infrastructure (subject, obviously, to the need to pay for what the Government demands).
- The system will continue to have private leasing companies for rolling stock, though the role of direct financing by manufacturers may continue.
- There may be an increased role for direct Government involvement, especially for the regional service providers (Passenger Transport Executives—PTEs, as well as the Scottish Executive).
- The renegotiated TOCs will continue as privately owned and managed companies, though the word "partnership" with Government should be stressed because the Government intends to get much more deeply involved in service specification and will thus have to assume more risk for the commercial outcome of the franchises. In recent years, as franchises have expired and as a result of weak financial performance, the SRA has converted about a third of the franchises into cost-plus management contracts, with the announced intention of re-awarding the franchises in the near future. One of these, South East Lines, is being operated directly by SRA because of the continuing uncertainty about the service pattern to be operated after the opening of the second stage of the Channel Tunnel link. Direct operation is considered to be an exception and not a precedent for wider involvement by SRA or DfT in direct operation: a new franchise will be awarded when the new service pattern is defined. Another question is whether more and more TOCs will effectively be shifted to cost-plus contract arrangements, which would strengthen the government role, but would also transfer most commercial risk to the government as well.
- Oversight and involvement of Government will be much more pervasive, partly because the proposed financing will be so much larger (upwards of £40 billion in the next decade) and partly because the power of political appointment will be increased. As John Welsby, former BR Chairman, put it: "Playing trains has always been seductive for politicians."[94] Having said this, the commitment of the Government to rail development is strong, and there is little doubt that rail will have a high priority in the transport sector.[95] At the same time,

[93] SRA has recently proposed that up to 80 percent of Network Rail's costs should be funded by Government grant rather than being generated by access charges paid by train operators. If this is implemented, then the eventual access charges will be much closer to the 20 percent of infrastructure operating costs that some E.U infrastructure agencies are charging under the E.U. recommended policy that only marginal costs should be paid by users, with the remainder paid by Governments.

[94] Welsby, J., 1997

[95] See, for example, SRA, 2003 eand Dft 2004b, pg 9

a primary objective of the "Future of Rail" report was to establish the Government's ability to set financial limits on the rail system in the light of other transport funding choices. The rail system will have a high priority, but it will not have a blank check.

- A generally understated aspect of the system is that the operating burden is related disproportionately to the low-density and little used regional services. This is not new: in the 1985/1986 year, BR lost £116 million on Intercity services, £214 million on London and South East/Network South East services, and £507 million on Provincial and Regional services. By 1994 (the last year of BR operations), these had changed to a £98 million surplus on Intercity, a £71 million surplus on LSE/NSE services, and a £443 million loss on the Provincial/Regional services.[96] In the 2000/2001 year, the subsidies paid for Intercity services amounted to about £190 million, LSE/NSE subsidies were about £245 million, and support to the Provincial/Regional services had risen to £855 million. Intercity services accounted for 34 percent of passenger-km, LSE/NSE for 49 percent, and Provincial/Regional services for only 17 percent.[97] Thus, two-thirds of the PSO requirements and about 28 percent of the annual maintenance and renewals costs[98] are being generated by 17 percent of the service, a result that has traditionally been politically driven, but which will clearly pose a challenge for the future as the total funding requirements of the system grow and Governments are forced to make decisions on economic benefit grounds.[99]
- The subsidy issue will also be aggravated by the increasing shift of the support burden from the passenger to the taxpayer as a result of the regulatory controls on tariffs and the increasing contributions from the SRA. In 1996, the taxpayer paid about 25 percent of the cost of providing rail services: by 2003, this had risen to just under 50 percent, and even this percentage may rise further as the future implications of currently rising costs flow through to the rate base of Network Rail.[100] It is also possible, however, that devolution of some of the services, and the support required for them, to regional authorities (the Passenger Transport Executives, or PTEs), as has occurred with the Merseyrail services, will yield a better balance between central and local governments and ensure the continuance of at least some services that have limited national significance.

6 LESSONS FROM THE PROCESS

It is virtually impossible to draw uncontested lessons from the BR privatization experience. In fact, the Government did two things simultaneously—a radical change in structure from unitary to separated, along with complete privatization of all of the pieces—and they did them in a drastically compressed period of time. It is difficult to disentangle the effects of structural change from those of ownership change, and the great speed of the process had an effect on the way in which both were done. In many cases, critics[101] seem to have blamed some the results of structural change on privatization, and vice versa: this seems particularly true of those who oppose privatization on ideological grounds. Even with the benefit of hindsight, the critics rarely acknowledge the effect of the compressed implementation time frame on the outcome.

In addition, the UK Rail Network is unusually complex and intensively used. Parts of the Japanese network have more frequent services but they do not have the same degree of inter-working between high speed, medium speed commuter trains and freight running on different routes across the network. Trains run faster on a few routes in Germany and France, but generally with lower service frequencies and on dedicated tracks. As a further challenge to the railway engineers, Britain's railways have a smaller loading gauge (lower bridges, tracks closer together), which makes it more difficult to fit reliable, European standard equipment within each coach and engine. The

[96] Gourvish, T., 2002, pp 476, 477

[97] SRA, 2001e, pg 58. In the view of John Welsby: "... the distribution of subsidy between the businesses is becoming ever more skewed towards the markets in which the railway has a poor market share and little transport impact." Welsby, J., 1997, pg 15

[98] Nash, C., 2003, Table 4.

[99] The Economist, Jan 19, 2002, pg 47 discusses the economics and politics of the lightly used provincial lines.

[100] SRA, 2003f, pg 13.

[101] See, for example, Wolmar, C., 2001, for a scathing analysis by a determined critic of the program.

UK was inherently a difficult place to apply any changes to the railway industry structure,[102] but also one where the possible benefit from effective restructuring was great.

The following conclusions are listed with acknowledgement of the danger:

- 25 franchises were too many. Given that the Government never attempted actually to promote full, on-rail competition in the passenger sector, the number of franchises could have been simplified and possibly reduced.[103] The Government's announced policy to do so now may reduce costs and the confusion of passengers trying to use the system.
- Separation of infrastructure from operations did cause problems of complexity and cost (transaction costs). It did **not** cause increased accidents and it did support an increase in demand. Whether it yielded benefits in the British context worth the added costs is still debatable. Alternative approaches, such as creation and sale of a limited number of market-defined, integrated franchises might have worked equally well, or better. A mixture of these approaches, with some integral franchises (for example, Scotrail or some of the third rail systems) and some degree of infrastructure separation (for example, the West Coast Main Line), might also have worked
- Privatization, for the most part, worked reasonably well (or, at least, it certainly did not uniformly fail) in its early days. The TOCs (after their start-up period) have shown the results of aggressive, private market development, and the Government has not attempted to abandon the general approach, albeit with some simplification of franchise structure. The ROSCOs have succeeded in rapidly bringing new investment and technology in rolling stock though they have also had problems with commissioning new equipment,[104] and there are continuing concerns about the actual degree of competition for rolling stock supply. Railtrack management did not succeed (albeit, at a task that may have been impossible), but it would be ridiculous to argue that the private sector cannot or should not maintain rail infrastructure: after all, the North American and Japanese cases show that some of the most successful and intensively operated railways in the world (freight and passenger) are privately owned and managed. The further step—having maintenance and rehabilitation services provided by private contractors—is becoming more common. Contractors provide all maintenance services on the Japanese Shinkansen (high-speed) lines; but, since these lines are closed for maintenance for 4 to 6 hours per day, the interaction between contractor and operations is easier to manage. Many E.U. railways make extensive and successful use of private contractors for infrastructure maintenance. The U.S. railways are attempting contract maintenance of operating lines: the experience is still limited because of safety and coordination concerns. Interestingly, though both North American and Japanese rail systems are vertically integrated, they also have tenant operators (Amtrak, VIA and Japan Rail Freight Company) that are vertically separated and pay for access.
- Given the continued improvements in safety in the privatized U.K. system (and in the private U.S. freight system after deregulation and the outstanding safety record in Japan after privatization) it is just indefensible, even irresponsible, to argue that the private sector does not care as much about safety as the public sector. It is strange that the U.K. accidents have sometimes been blamed on the private sector when the more serious accidents that have occurred on the publicly operated E.U. railways over the same period are not blamed on public ownership. As Figure N shows, the privately operated U.K. system has been fully as safe as the publicly operated E.U. systems. There is no conflict between safety and profits in the real world: just the reverse, safe systems

[102] The DfT called it "the haphazard Victorian network." DfT, 2004b, pg 13.

[103] The original set of 25 franchises appears to have been largely based on a pre-existing set of internal sub-lines of business established under Sector Management by British Rail. Given the need to move quickly, the Government planners adopted the structure already available. See Freeman, 2002, page 37.

[104] BR had had rolling stock successes (HST) and failures (APT) as well. See Gourvish, T., 2002, pg 223.

tend to be more profitable than unsafe systems, for obvious reasons. In fact, poor safety practice is just bad **management**—whether ownership is private or public. Neither the public nor the private sector has an apparent monopoly on, or predilection for, bad (or good) safety management.

- Whatever the merits of the eventual structure, the **transition** from public to private in the U.K. was rough in most cases, and it would be worthwhile to ask if there was (or is) a way to make the change smoother. For example, leaving the infrastructure in public hands (as was the original, stated intention), at least until the privatization and implementation of the franchises and the ROSCOs had been digested, might have significantly reduced the disruption that the process caused.[105] In particular, this would have permitted the access charges and the wider incentive-matching problems to emerge and be dealt with in a way that could have made the eventual access charges inherited by a privatized infrastructure operator more stable.
- Network Rail can learn lessons from Railtrack's woes and, with enhanced Government funding and policy guidance, strike a more sustainable balance between public and private objectives. A critical challenge for Network Rail and the ORR will be developing an acceptable access charge and incentives structure: these issues will be particularly difficult to resolve to the extent that Network Rail is expected to cover more than its social marginal costs through its access charges, and they will be simpler if Government does fund up to 80 percent of Network Rail's operating and investment costs directly.
- By and large, the objective of the Conservative Government of transferring a significant degree of **risk** (demand, operating cost and investment scheduling and cost) to the private sector turned out to be unrealistic and was not achieved. The creation of Network Rail has almost wholly brought capacity and investment risk back to the public side, though it has also given public authorities a stronger ability to find a balance between (more realistic) investment costs and other public priorities. The enhanced role of the DfT and Network Rail role in defining and providing capacity, and the terms of the new franchises, have gone a long way toward transferring demand and operating cost risk back to the public as well. Whether the new balance is either "better" or more sustainable remains to be seen.
- The record is replete with arguments that the U.K. Government had not properly funded rail system development before privatization: indeed, one of the objectives of privatizing Railtrack was to improve the stability of infrastructure funding through private investment not subject to political priorities. It remains to be seen whether Government, in the long run, will do a more reliable and sufficient job of investment support than it did in the past.

7 LESSONS FOR THE BANK FROM THE U.K. EXPERIENCE

The Bank's railway borrowers often react to the U.K. experience (and the similar policies in the E.U. requiring infrastructure separation) by arguing either that the situation in the U.K. was so particular that it has little application anywhere else, or by asserting that the U.K experience was a "failure" and should be ignored: this report argues that neither assertion is true. Opponents of change may find the assertions convenient, but governments cannot ignore their railways for all the reasons outlined in a long series of World Bank reports on railway restructuring. Aside from the sheer financial and economic burden of an inefficient railway, the non-market benefits of rail services in urban transport, in relieving highway congestion and pollution management, and in accident reduction, mandate government intervention if they are to be maximized. Accepting the specifics of the U.K. conditions, and with the acknowledged benefit of hindsight, there do seem to be some useful conclusions to draw:

- Neither privatization nor infrastructure separation failed, *per se*. Safety did **not** suffer, and the improved efficiency[106] and enhanced market focus of the private sector franchises and the freight operators

[105] Indeed, the infrastructure might never have been privatized at all.

[106] Efficiency did improve from inception through the Hatfield accident (see Pollit, G., 2001), but has suffered from the "nervous breakdown" (Alastair Morton in SRA, 2001e, pg 14) that occurred thereafter.

did yield benefits. This has to be balanced by the failure of the Railtrack model for the privatization of infrastructure, and the clear difficulty in adjusting incentives in the infrastructure area so that the private manager's objectives are parallel to those of the public agency paying the system's support. Both restructuring **and** enhancing the role of the private sector remain entirely viable options for the Bank's railways, but neither is a panacea, and implementing either requires care.

- The initial concept of the Conservative Government—that rail demand requiring public support was at best static and that the new system could focus on efficiency with support only for franchise deficits—turned out to be manifestly short sighted. There was no sustainable, totally private sector solution to the needs of the rail sector in the U.K., nor will there be a totally private outcome in any of the Bank's client countries. In all cases, there will be a need for public policy, planning and funding, as well as regulation, if only because many of the potential system benefits, such as congestion reduction or safety enhancement, are not market-derived benefits. The converse, that there does not have to be a totally **public** solution, either, can also be persuasively argued. The private sector can bring enhanced efficiency and reduced costs, as well as focused market development, which could be valuable in many of the Bank's client countries. The clear challenge is to avoid ideology on either private or public side, and seek the right balance of both.
- If the British approach was, in retrospect, too complex and costly[107] for the U.K., it is surely too complicated even to think about in many of the Bank's countries. In Bank countries where infrastructure separation is to be implemented (because, for example, it is happening in E.U. accession countries or because a country wishes to follow the generalized E.U. model in order to improve its compatibility in connecting with E.U. countries), a much simpler structure will make sense. There might, for example, be a single intercity passenger operating company, along with separate franchises for each of the suburban services in the major urban areas and for the low-density services in major regions. In many of the Bank's borrowing countries (Russia, China and India would be exceptions), market size and strong road competition suggest that freight markets will not be able to sustain more than one major rail freight operator. Infrastructure access charge regimes should be simple, where full costs are not collected from users, should be based partly on a government contribution to the fixed costs of the infrastructure (which will rarely require system expansion as will be required in the U.K.).
- Although it is clear that the U.K. privatization did produce benefits on the operating side, it is arguable whether immediate privatization of Railtrack was the best solution (indeed, the E.U. approach says nothing about ownership, either on the operating or on the infrastructure side other than in the context of non-discrimination and limitation of state aids). The Bank's borrowing countries should think first about the options for private involvement in service delivery (passenger franchises or concessions with contracted public support where appropriate, and outright sale of the freight companies with public support for socially needed freight services on rural branch lines, if any) before worrying about private management, or ownership, of a separated infrastructure.
- The condensed time frame of the U.K. privatization had the unfortunate effect of denying the Government the benefit of a proper sequencing of the changes.[108] In particular, there are cogent arguments that Railtrack's privatization should have been delayed until the rest of the system changes had been digested. If possible, Bank borrowers should undertake restructuring and private involvement over a period of time that will permit a more carefully developed, step-by-step approach. This will be particularly

[107] Estimates of the costs of developing the approach and actual legal documents involved in the privatization range from £453 million (Joy, 1997, pg 46) to upwards of £600 million (Freeman, R., 2002, pg 231).

[108] "The rail privatization inherited by the [Labor] Government from the conservatives was flawed in a number of crucial aspects. Its design and implementation had been rushed and regulatory roles and relationships were confused, some of the contractual arrangements were badly designed and incentives were misaligned." Foster, Sir. C., 2004, pg 1.

important in countries (China and Russia, for example) where the economy cannot accept the risk of a disruption in rail services.

- Bank clients that are not compelled to adopt the E.U. mandates to separate infrastructure from operations should carefully explore the alternatives before adopting the U.K., or E.U. approach. The vertically integrated (infrastructure and operations) freight and passenger concessions in Latin America furnish a very valuable alternative model where traffic is heavily freight or heavily passenger oriented, and where on-rail, intramodal competition is not an important objective. The model in which the dominant user is integrated with infrastructure, but other, sometimes competing, sometimes complementary, users are permitted access as tenants, also deserves strong consideration where there is a strongly dominant user and an effective regime of independent economic regulation to assure fair access terms for the tenants. For example, the North American approach of having the national passenger operator as a tenant on the infrastructure of the freight railroads should be of interest to countries (China, 80 percent freight, and Russia, 90 percent freight—both measures based on ton-km and passenger-km) where freight is dominant: moreover, competitive track access rights similar to those in the U.S. and Canada can be used to generate a useful degree of rail vs. rail competition on the same line where competition between parallel lines is not feasible.
- Choosing among these alternatives, either for structure or for ownership, or a mixture of both, is not a simple process for which there are cookbook examples for any country. The key variables for the structural choice appear to be the balance (among freight, intercity passenger and suburban passenger traffic) and density of the use of the network as well as the need for intramodal (as opposed to intermodal) competition as a constraint on operator behavior, especially where competition can be used to replace regulation. The key variables for the role of the private sector, aside from the ideological acceptability of private ownership, are the degree to which efficiency and market focus are objectives of the reform process, the relative amount of public support to be required by the system on a continuing basis, and the degree to which demand, cost and investment risk are to be shifted from public to private sector. Where enhanced efficiency and market development are paramount, and/or where the system can be expected to operate with an easily definable level of public support, then the private sector deserves strong consideration in the reform process. If the existing public railway is seen to be both efficient and market-driven (examples do not leap to mind) and/or if the degree of public support will be large and hard to predict, then the private sector may have less to offer. If the process is being driven by a desire to shift risk to the private sector, then a fundamental review and definition of public needs and expectations must be undertaken: risks can only be transferred if the private sector can be afforded the time and freedom to make and implement its own commercial decisions and, indeed, be free to fail.
- The U.K. had three regulators: infrastructure access (ORR); franchise oversight and payment (OPRAF and then SRA); and, safety (HMRI/HSE). The U.K. did not attempt to regulate most passenger tariffs (except for the "base" tariff, which generates about 46 percent of total passenger revenues[109]), and it did not need to regulate freight tariffs at all, given open freight access and the regulation of the underlying access charges for freight operators. Most of the Bank's borrowers would not need regulation of tariffs, either; but, some borrowers, particularly China and Russia, clearly would need to consider freight (and possibly passenger) tariff regulation because it is unlikely that either intramodal or intermodal competition for rail would adequately control the potential market power of the operating enterprises.
- The creation of three U.K. regulators appears to have been a result of the traditional independence of the safety regulator combined with a desire to keep infrastructure (and thus infrastructure regulation) quite separate from the various operators. It may also have been influenced by the approach to regulation followed by the other network industries (without fully considering the specific challenges posed by the new rail system structure). The recent proposals to combine the functions of the ORR and the

[109] SRA, 2003f, pg 48.

safety regulators may well integrate safety issues more directly into system planning; but, they also challenge the regulatory authority to find transparent, rational and consistent means within the context of a single agency to resolve conflicts between system safety and system economics. Bank clients will need to balance the need for the functions of regulation against the complexity of the system in their specific circumstances.

In a broader sense, the U.K. experience leaves an important question frustratingly unanswered: is there **any** approach to railway reform that actually works? Railwaymen's nostalgia to the contrary notwithstanding, the old BR had probably reached a dead end because the "… days of nationalization…" had "…involved almost perpetual capital starvation by the Treasury, patch-and-mend maintenance and severe operational limitations, with short-term political priorities taking precedence over efficient, economic engineering and operational judgments."[110] One could say the same of many of the publicly (and privately) owned and operated railways in developing, and developed, countries: exceptions, if any, have been achieved only at tremendous cost in public funding. And yet, the U.K. restructuring and privatization effort, based on virtually unlimited expertise and resources, has been painfully expensive and has yet to yield a stable or satisfactory ending. What are we to make of it?

There are several, perhaps unsatisfying, answers available:

- If there is no agreement or common understanding of the problem or of the objectives going into reform, there is unlikely to be uniform acceptance of the result. This is especially true when the actual outcome is compared with conflicting views of utopia, and not with a realistic view of what is a better outcome than what went before. Governments should expend a major effort to develop a realistic public understanding of, and expectations for, a railway reform program. It may be significant that two of the more astute observers of the current situation have argued, in March of 2004, that "[a]ny solutions must be based on an analysis of the causes of the industry's current problems and **yet there does not appear to be a consensus on precisely what has gone wrong and why**."[111] [emphasis added]
- It is surely ideology, rather than perfection, that is the enemy of the good in rail reform actions. The structure and ownership solutions that are workable are often mixed in form and ideologically ambiguous; these are hard results to reach when ideology overshadows the planning process.
- Railways pose extremely difficult challenges in reaching the right balance between sophistication and complexity (and cost) in structure and economic incentives versus workability. Getting the balance right is hard, and keeping it right in the face of rapid economic change is even harder. Reform programs in public enterprises are usually a contest between the political window of opportunity opening on the one hand, and the magnitude of the restructuring task on the other. It is quite often true (and a credible argument can be made in the U.K. case) that it is better to do **something**, even if it needs to be fixed later, than to do nothing. Where possible, though, rail reform programs should take a step-by-step approach and err on the side of simplicity. Ample room must be left for continuing evolution in the objectives and structures of the reform program: the more that structures can be devised that allow the industry to adapt itself to market changes, the better and more stable will be the eventual result
- Railways can rarely be separated from the public interest because of the possible social objectives that railways can serve. In addition, while the government that pays the piper **does** call the tune, it **also** has to face the music if the instruments do not play well together. There are thus no "fire and forget" solutions available to governments during railway reforms. Governments should plan from the beginning on being involved in reforms throughout the process—and beyond. If the eventual solution is to be a public/private partnership—almost inevitable in the case of rail services—then the institutions should be shaped accordingly from the beginning and illusions otherwise should be abandoned.

[110] Winsor, T., 2004c, pg 7.

[111] Foster, Sir C., 2004, pg 3.

- Because of their extremely high investment to revenue ratio, probably no industry has a greater need than railways for stable objectives and high and reliable investment programs—exactly the challenge governments find hardest to meet consistently. Year-to-year political priorities and good, long term railway management (public or private) can be in conflict, particularly when social objectives (for which government must pay) have changing or ill-defined priorities. This is an especially pernicious dilemma when governments are unwilling to pay directly and force their railways to attempt to cross-subsidize financially losing social services (usually passengers) from ostensibly profitable freight services. In practice, a lack of clarity of objectives and uses of public money effectively guarantees a lack of stable commitment from government. To their credit, the U.K. Governments involved have tried to follow a transparent and direct approach, as has the E.U. Commission in its rail policies: many E.U. governments and their railways, and many Bank clients, cannot say the same, and this can only add instability to the prospects for railways within the transport sector.

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* indicates a reference that is quoted in the paper. Other sources are included for interested readers.

LIST OF FIGURES

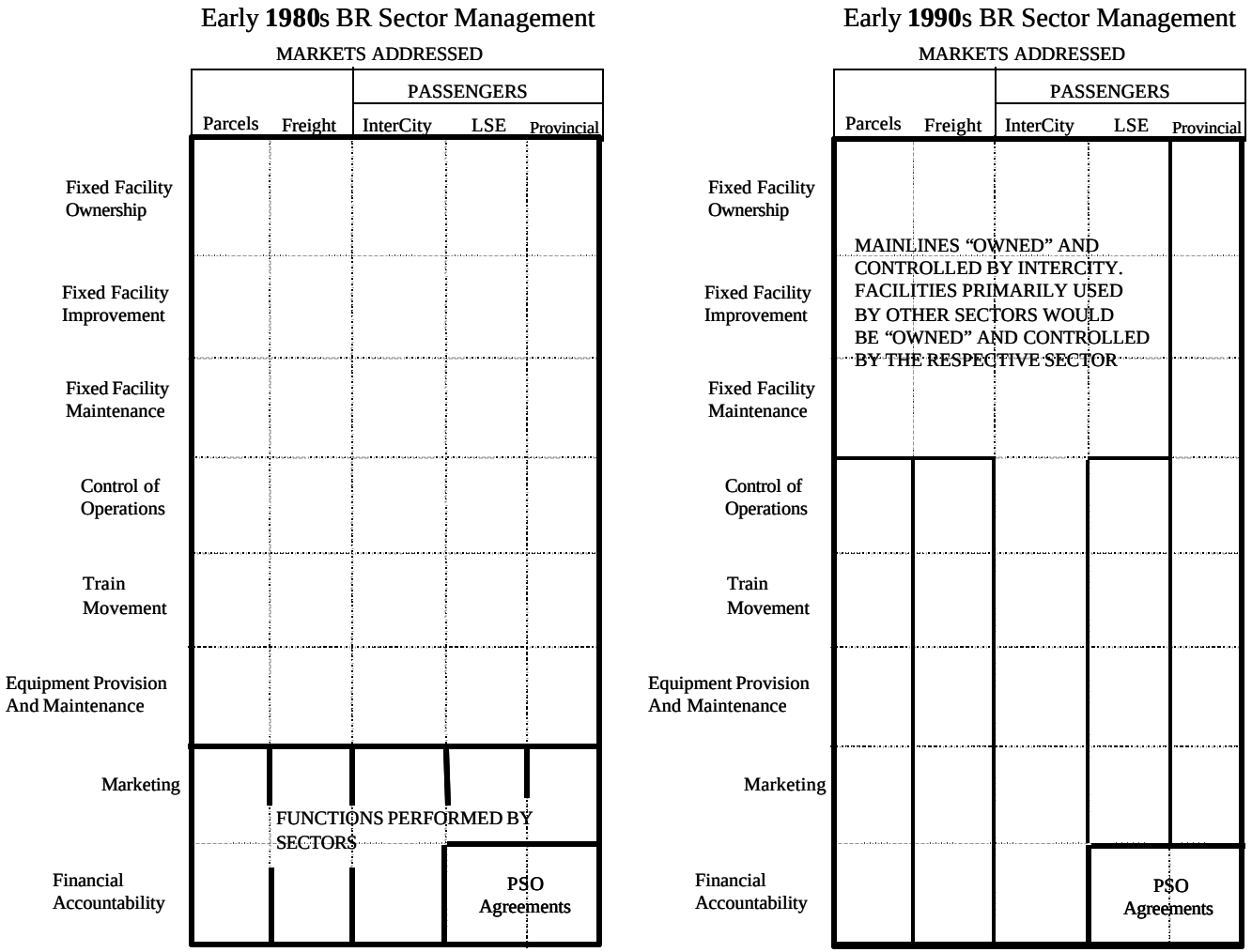
Figure A: The Serpell Scenarios

	1982 Actual	Reference 1	Reference 2	A	B	C1	C2	C3	D	H	2002/2003 Actual
Route Km	16,699	16,216	16,216	2,625	3,575	16,087	13,382	9,855	13,527	16,216	16,600
Passenger Train-Km (millions)	314	271	264	81	106	237	214	198	217	275	432
Passenger-Km (millions)	29,486	28,986	28,824	12,721	15,781	27,697	26,409	24,638	26,570	29,630	39,676
Employees	163,800	145,100	130,900	57,100	69,800	137,200	128,100	116,300	129,300	144,500	***116,000***
Freight train-miles	41	41	41	10	12	41	40	35	40	41	na
In 1982 Values											
Annualized Capital Inv. (1982 £millions)	163	237	232	76	98	221	204	185	206	300	
Annual Cost (1982 £millions)	2,647	2,802	2,639	727	954	2,597	2,391	2,125	2,416	2,645	
Annual revenue (1982 £millions)	1,731	1,821	1,817	761	935	1,780	1,724	1,590	1,731	1,842	
Pasenger deficit (1982 £millions)	(933)	(987)	(854)	(32)	(72)	(807)	(690)	(564)	(707)	(848)	
Total surplus/deficit (1982 £millions)	(916)	(982)	(822)	34	(19)	(817)	(667)	(534)	(684)	(803)	
In 2003 Values											
Annualized Capital Inv. (2003 £millions)	359	521	510	167	216	486	449	407	453	660	
Annual Cost (2003 £millions)	5,823	6,164	5,805	1,599	2,099	5,713	5,260	4,675	5,315	5,819	
Annual revenue (2003 £millions)	3,808	4,006	3,997	1,674	2,057	3,916	3,793	3,498	3,808	4,052	3,663
Pasenger deficit (2003 £millions)	(2,052)	(2,171)	(1,879)	(70)	(158)	(1,775)	(1,518)	(1,241)	(1,555)	(1,865)	*1,900*
Total surplus/deficit (2003 £millions)	(2,015)	(2,160)	(1,808)	75	(42)	(1,797)	(1,467)	(1,175)	(1,505)	(1,767)	na

Source: Serpell Report, 1983, page 80., and UIC, 2002, page 32,33, for employees.

Multiplier: 1982 to 2003 £ 2.1998812 (Source: http://www.hm-treasury.gov.uk/economic_data_and_tools/gdp_deflators/data_gdp_fig.cfm)

Figure B: BR Under Sector Management



Source: Moyer, Neil E., and Louis S. Thompson, "Options for Reshaping the Railways," WPS 926, June 1992, PP 13 and 14. World Bank, Washington, DC.

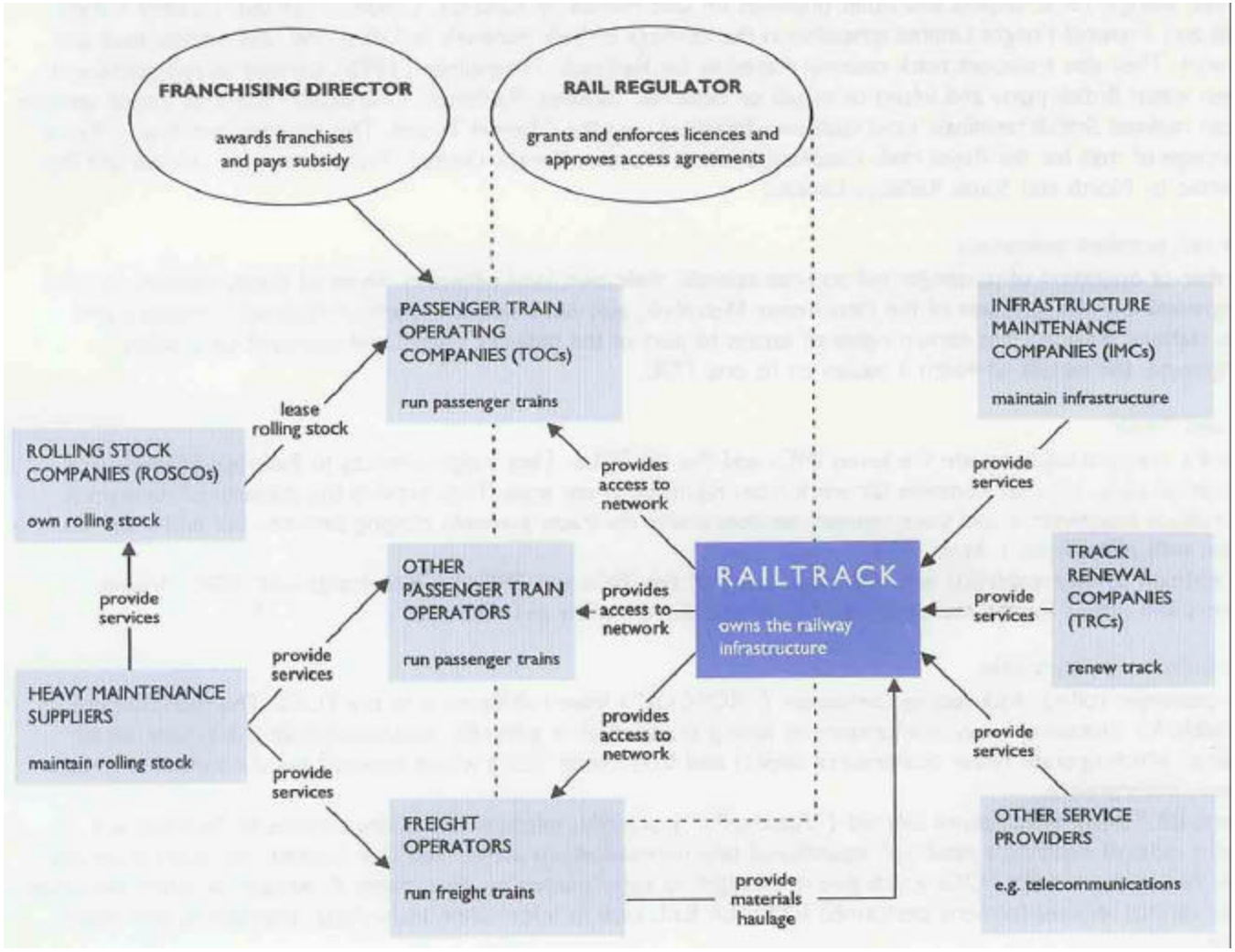
Figure C: Evolution of the BR Management Structure

Number of Managers Responsible to Sector Directors

			Passenger		
Date	**Freight**	**Parcels**	**LSE**	**Provincial**	**Intercity**
Jan-82	1	1	1	1	1
Jun-83	31	9	3	3	8
Jan-85	49	13	3	4	8
Jun-86	48	32	13	31	22
Aug-87	47	22	24	33	44
Nov-89	60	12	40	36	50

Source: Gourvish, T., 2002, pg 118

Figure D: The Privatized Railway Organization



Source: SBC Warburg, 1996, Page 21.

Figure E: Data on the U.K. TOCs

			National Rail- Passenger kilometres by TOC (millions)								Subsidy per Pass-Km (pence/pass-km)						
TOC	**Owner Franchise***	**Type**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**	**01/02**	**02/03**	**03/04**	**97/98 ******	**98/99**	**99/00**	**00/01**	**01/02**	**02/03**	**03/04**
Island Line	Stagecoach	Reg	5.0	5.0	5.3	6.0	6.0	6.2	6.3	6.6	40.1	37.1	36.5	33.6	36.9	39.3	47.3
Merseyrail	Merseyrail Services	Reg	250.0	264.1	256.4	228.0	254.6	255.3	274.9	99.8	25.8	23.3	21.5	27.4	21.2	23.1	20.5
North Western	FirstGroup Plc	Reg	728.0	776.2	813.8	826.0	839.8	824.7	789.4	923.7	23.4	21.1	19.5	16.5	20.5	22.6	24.0
Northern	Arriva Trains	Reg	1,271.0	1,333.3	1,385.3	1,450.0	1,425.1	1,374.4	1,374.1	1,424.3	16.3	14.2	12.9	13.0	15.2	14.5	16.9
Wales and Borders**	National Express	Reg	827.0	863.0	866.0	911.0	912.0	795.0	683.9	785.7	10.8	9.6	8.8	8.1	14.3	13.5	15.7
Wessex	National Express	Reg						183.3	398.5	435.4					12.9	13.6	17.9
Scotrail	National Express	Reg	1,671.0	1,745.1	1,817.6	1,919.0	1,939.9	1,968.7	1,944.0	2,081.8	13.7	12.7	12.1	11.9	8.7	9.9	12.9
Central Trains	National Express	Reg	1,099.0	1,149.3	1,224.3	1,292.0	1,321.1	1,342.2	1,293.0	1,363.0	15.0	13.3	11.9	11.9	8.6	8.2	10.8
Cross Country	Virgin Rail Group	LD	1,921.0	2,017.2	2,198.4	2,388.0	2,219.0	3,177.0	2,577.3	2,666.3	5.8	4.6	4.0	3.6	6.0	8.0	9.2
West Coast	Virgin Rail Group	LD	2,944.0	3,294.5	3,362.2	3,418.0	3,343.3	2,423.3	2,897.0	2,744.9	2.4	2.1	1.7	1.7	4.9	6.5	12.1
Silverlink	National Express	Lon	774.0	814.5	899.5	982.0	1,021.4	1,000.0	1,035.1	1,062.4	5.9	4.0	4.0	2.8	4.6	4.5	4.9
Chiltern	M40 Trains	Lon	386.0	360.9	427.5	517.0	546.4	535.9	584.8	635.7	3.9	3.0	2.4	1.8	2.6	3.2	3.8
c2c (LTS)	National Express	Lon	627.0	693.7	733.7	762.0	783.6	799.3	826.4	836.2	3.8	3.5	3.4	3.1	2.1	2.6	2.4
South Eastern	Connex UK	Lon	2,778.0	2,887.6	2,978.6	3,115.0	3,217.6	3,231.8	3,300.4	3,296.4	4.0	2.9	2.2	1.7	1.4	1.3	4.1
South West Trains	Stagecoach	Lon	3,265.0	3,489.5	3,690.2	3,915.0	4,170.0	4,076.4	4,184.4	4,290.4	1.8	1.7	1.6	1.4	0.8	0.9	2.7
Great Western	FirstGroup Plc	LD	2,045.0	2,227.2	2,328.0	2,400.0	2,402.7	2,428.1	2,556.1	2,610.0	2.7	2.4	2.2	1.9	1.4	0.4	1.2
South Central	GOVIA	Lon	2,053.0	2,213.2	2,310.8	2,525.0	2,592.4	2,624.3	2,665.7	2,726.8	3.4	2.5	2.1	1.9	0.7	0.2	3.3
Anglia	GB Railways	LD/Reg	531.0	571.8	635.7	656.0	666.7	774.2	827.6	860.2	6.3	4.2	3.7	2.9	(0.3)	0.2	0.5
WAGN	National Express	Lon	1,498.0	1,615.8	1,775.4	1,892.0	2,005.0	2,053.8	2,122.5	2,228.3	3.4	2.0	1.5	0.7	1.1	(0.1)	0.5
Great North Eastern	Sea Containers	LD	3,353.0	3,573.3	3,492.9	3,953.0	3,935.9	3,767.6	3,721.7	3,939.4	1.6	1.1	0.5	0.2	(0.8)	(0.7)	(0.6)
Thames	Go Ahead Group	Lon	757.0	810.0	888.6	939.0	1,012.2	1,006.8	1,020.1	1,004.3	4.2	2.9	2.0	1.5	0.0	(0.9)	(0.5)
Midland Mainline	National Express	LD	757.0	802.6	934.9	1,076.0	1,097.4	1,145.3	1,183.9	1,330.0	0.9	0.2	0.1	0.0	(0.6)	(1.2)	(0.3)
Great Eastern	FirstGroup Plc	Lon	1,496.0	1,587.8	1,626.1	1,771.0	1,803.7	1,785.5	1,838.4	1,835.4	1.8	0.9	0.6	0.1	(1.1)	(2.1)	(1.7)
Gatwick Express	National Express	Reg	170.0	170.5	197.3	183.0	201.3	185.0	184.2	197.9	(3.4)	(4.2)	(5.2)	(5.8)	(3.5)	(2.7)	(6.6)
Thameslink	GOVIA	Lon	926.0	1,018.7	1,143.0	1,214.0	1,291.6	1,340.0	1,387.1	1,368.9	0.2	(0.6)	(1.5)	(1.8)	(2.6)	(3.7)	(3.0)
Total			32,132.0	34,284.7	35,991.4	38,338.0	39,008.8	39,104.1	39,676.8	40,753.8	5.2	4.3	3.5	3.3	3.2	3.3	5.0
Grouped by Type of Service																	
	Long Distance (LD)		11,020.0	11,914.8	12,316.4	13,235.0	12,998.4	12,941.3	12,936.0	13,290.6	2.7	2.2	1.6	1.5	2.4	2.8	4.4
	Regional (Reg)***		6,552.0	6,878.3	7,201.7	7,471.0	7,566.4	7,709.0	7,775.9	8,178.4	14.6	12.8	11.6	11.4	10.4	11.4	13.4
	London and South East (Lon		14,560.0	15,491.6	16,473.3	17,632.0	18,444.0	18,453.8	18,964.9	19,284.8	3.0	2.1	1.5	1.3	0.8	0.4	1.9

* as of March 2003
** Initially included Wales and West, Cardiff and Wessex
*** Includes all of Anglia
**** calculated
Source: SRA: various issues of "Train Operating Company Data", and "On Track", and OPRAF, "Bulletin", various issues

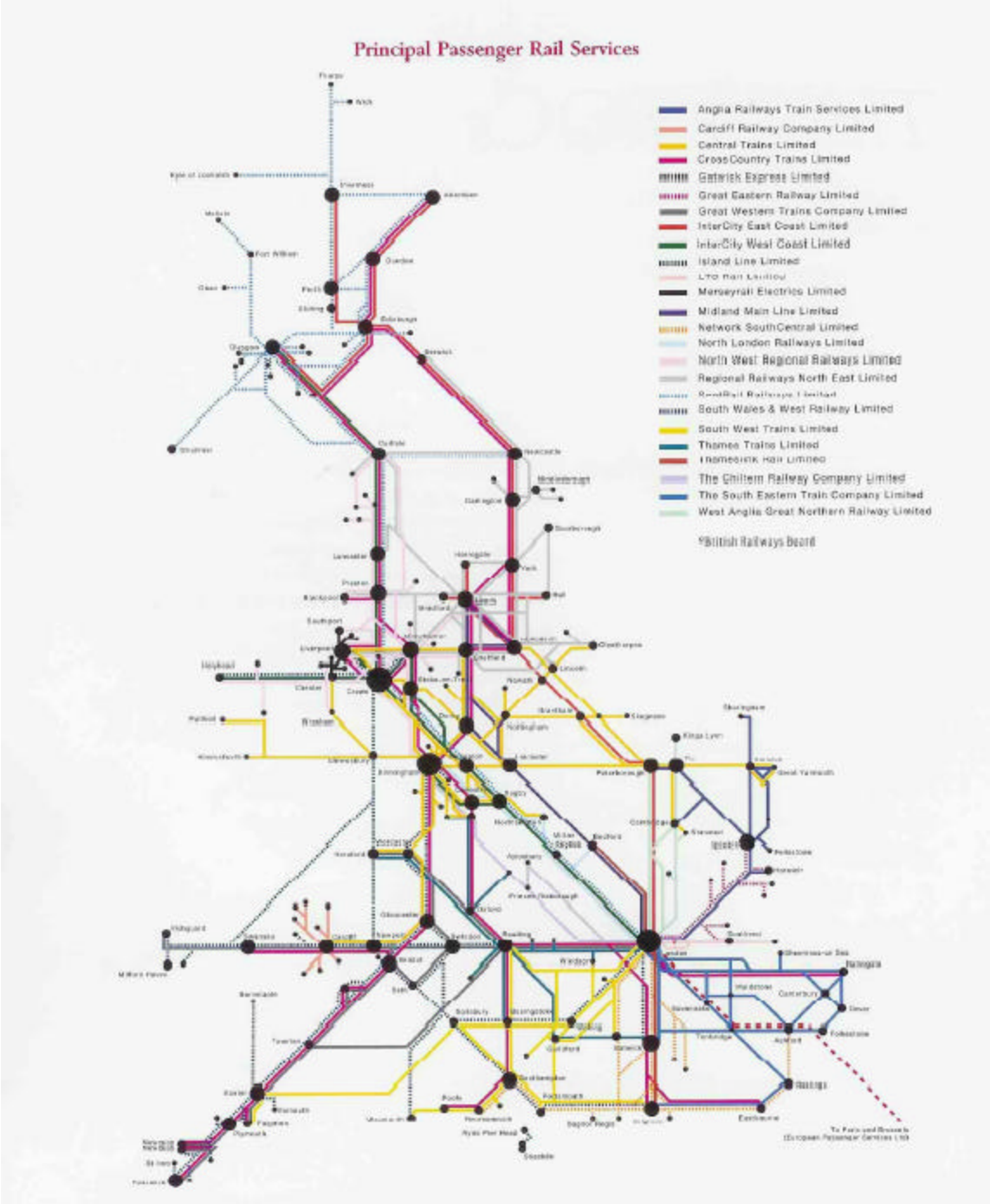
Figure E: Data on the U.K. TOCs (continued)

	Subsidy Payments (£ Millions)							Train-km		Pass.		Rte-km	
TOC	97/98	98/99	99/00	00/01	01/02	02/03	03/04 (calc)	02/03	03/04	02/03	03/04	02/03	03/04
Island Line	2.0	2.0	1.9	2.0	2.3	2.5	3.1	0.3	0.3	0.8	0.9	14	14
Merseyrail	68.1	59.9	55.0	69.9	54.1	63.5	20.5	5.4	5.9	24.9	27.8	121	121
North Western	181.7	171.2	161.4	138.6	168.8	178.2	222.0	24.9	24.0	28.1	29.8	2,103	2,103
Northern	217.8	196.3	180.3	185.2	208.2	199.7	241.4	34.6	36.3	41.7	45.3	2,055	1,552
Wales and Borders**	93.2	83.0	80.4	73.5	63.8	92.4	123.6	16.2	18.0	15.6	18.0	2,224	4,184
Wessex					23.7	54.1	78.0	12.0	11.0	9.8	10.9	1,275	792
Scotrail	239.5	230.3	225.4	230.3	171.5	192.6	268.4	34.9	37.1	57.4	62.3	3,043	3,043
Central Trains	172.0	162.3	146.2	157.6	115.3	105.9	147.1	30.4	29.8	36.5	38.5	2,145	2,145
Cross Country	117.8	101.4	86.8	80.0	118.5	206.3	246.1	25.8	26.2	17.8	19.2	2,707	2,503
West Coast	77.7	70.2	59.1	58.0	190.9	188.9	332.0	17.2	24.6	15.2	14.9	1,115	1,075
Silverlink	48.1	36.1	30.6	28.6	45.8	46.3	52.0	9.8	10.2	36.2	38.1	321	321
Chiltern	14.1	13.1	10.5	9.8	14.1	18.9	24.4	7.6	7.9	12.1	12.8	276	293
c2c (LTS)	26.3	25.4	24.9	24.5	16.9	21.4	20.1	6.2	6.3	28.8	29.9	129	126
South Eastern	114.8	87.8	64.0	54.6	45.3	43.8	134.2	27.4	28.7	132.6	132.8	774	774
South West Trains	62.8	63.9	57.4	58.7	31.0	36.0	115.8	39.8	37.6	141.1	143.5	975	977
Great Western	59.5	55.7	48.6	45.1	32.9	11.4	31.9	16.2	16.5	20.2	21.1	1,368	1,368
South Central	75.6	56.9	50.1	49.1	19.4	4.7	90.0	27.7	26.8	114.9	116.8	715	666
Anglia	35.9	26.9	23.6	19.1	(2.0)	1.8	4.4	8.9	9.5	9.5	10.1	669	669
WAGN	55.2	36.0	26.2	15.4	23.4	(1.9)	10.5	18.7	19.9	66.3	69.6	414	414
Great North Eastern	55.5	37.4	17.6	6.9	(28.9)	(26.9)	(22.4)	18.5	18.9	14.6	15.8	1,446	1,473
Thames	34.2	25.5	16.0	15.3	0.1	(9.2)	(5.2)	12.3	13.4	37.3	36.0	581	581
Midland Mainline	7.5	2.5	0.9	(0.1)	(6.3)	(14.7)	(3.5)	11.1	10.3	9.3	10.5	708	784
Great Eastern	28.6	13.9	8.8	2.8	(19.6)	(38.7)	(31.9)	12.8	13.1	58.5	59.7	264	235
Gatwick Express	(5.7)	(8.2)	(10.3)	(11.7)	(6.5)	(4.9)	(13.0)	2.1	2.6	4.2	4.5	43	43
Thameslink	2.5	(6.7)	(17.6)	(23.5)	(34.3)	(51.2)	(41.0)	11.4	11.3	41.6	42.5	203	203
Total	1,784.5	1,542.8	1,347.8	1,289.7	1,248.4	1,320.9	2,048.5	432.2	446.2	975.0	1,011.3	25,688	26,459.0
Grouped by Type of Service													
	317.9	267.2	213.0	189.9	307.1	365.0	584.1	88.8	96.5	77.1	81.5	7,344.0	7,203.0
	1,004.4	923.7	863.9	864.5	799.2	885.8	1,095.5	169.7	174.5	228.5	248.1	13,692.0	14,666.0
	462.2	351.9	270.9	235.3	142.1	70.1	368.9	173.7	175.2	669.4	681.7	4,652.0	4,590.0

Figure E: Data on the U.K. TOCs (continued)

	02/03 Performance Measures				03/04 Performance Measures			
TOC	**P-km/ pass**	**P-km/ Train-km**	**P-km/ Route-km**	**Train-km/ Route-km**	**P-km/ pass**	**P-km/ Train-km**	**P-km/ Route-km**	**Train-km/ Route-km**
Island Line	7.9	21.0	0.45	21,429	7.3	22.0	0.47	21,429
Merseyrail	11.0	50.9	2.27	44,628	3.6	16.9	0.82	48,760
North Western	28.1	31.7	0.38	11,840	31.0	38.5	0.44	11,412
Northern	33.0	39.7	0.67	16,837	31.4	39.2	0.92	23,389
Wales and Borders**	43.8	42.2	0.31	7,284	43.7	43.7	0.19	4,302
Wessex	40.7	33.2	0.31	9,412	39.9	39.6	0.55	13,889
Scotrail	33.9	55.7	0.64	11,469	33.4	56.1	0.68	12,192
Central Trains	35.4	42.5	0.60	14,172	35.4	45.7	0.64	13,893
Cross Country	144.8	99.9	0.95	9,531	138.9	101.8	1.07	10,467
West Coast	190.6	168.4	2.60	15,426	184.2	111.6	2.55	22,884
Silverlink	28.6	105.6	3.22	30,530	27.9	104.2	3.31	31,776
Chiltern	48.3	76.9	2.12	27,536	49.7	80.5	2.17	26,962
c2c (LTS)	28.7	133.3	6.41	48,062	28.0	132.7	6.64	50,000
South Eastern	24.9	120.5	4.26	35,401	24.8	114.9	4.26	37,080
South West Trains	29.7	105.1	4.29	40,821	29.9	114.1	4.39	38,485
Great Western	126.5	157.8	1.87	11,842	123.7	158.2	1.91	12,061
South Central	23.2	96.2	3.73	38,741	23.3	101.7	4.09	40,240
Anglia	87.1	93.0	1.24	13,303	85.2	90.5	1.29	14,200
WAGN	32.0	113.5	5.13	45,169	32.0	112.0	5.38	48,068
Great North Eastern	254.9	201.2	2.57	12,794	249.3	208.4	2.67	12,831
Thames	27.3	82.9	1.76	21,170	27.9	74.9	1.73	23,064
Midland Mainline	127.3	106.7	1.67	15,678	126.7	129.1	1.70	13,138
Great Eastern	31.4	143.6	6.96	48,485	30.7	140.1	7.81	55,745
Gatwick Express	43.9	87.7	4.28	48,837	44.0	76.1	4.60	60,465
Thameslink	33.3	121.7	6.83	56,158	32.2	121.1	6.74	55,665
Total	40.7	91.8	1.54	16,825	40.3	91.3	1.54	16,864
Grouped by Type of Service								
	167.8	145.7	1.76	12,092	163.1	137.7	1.85	13,397
	34.0	45.8	0.57	12,394	33.0	46.9	0.56	11,898
	28.3	109.2	4.08	37,339	28.3	110.1	4.20	38,170

Figure F: Map of the U.K. Franchises



Source: OPRAF, 1996, pg 236.
For more detailed descriptions of franchises, see SRA, 1999.

Figure G: Originally Committed Franchise Payments

Owner/Franchise	Group	Start Date	Franchise Period	1995/6	1996/7	1997/8	1998/9	1999/00	2000/1	2001/2	2002/3	2003/4
Merseyrail	Reg	Jan-97	7 yrs 2 mos		7,565	7,458	6,573	5,992	5,924	5,780	5,951	5,637
Northern	Reg	Mar-97	7 yrs 1 mo		12,319	141,654	128,273	117,356	110,680	105,141	101,191	97,867
Sub-total												
National Express												
c2c	Lon	May-96	15 yrs		25,439	27,668	26,153	24,883	23,729	22,251	20,884	19,609
Central Trains	Reg	Mar-97	7yrs 1 mo		11,506	134,647	125,184	115,676	111,704	107,949	104,667	101,608
Gatwick Express	Reg	Apr-96	15 yrs		(4,192)	(6,211)	(8,163)	(10,300)	(11,826)	(12,414)	(12,972)	(14,379)
Midland Mainline	Int	Apr-96	10 yrs		16,188	8,213	2,501	898	(716)	(2,805)	(4,744)	(6,763)
Silverlink	Lon	Mar-97	7yrs 6 most		4,266	49,362	35,908	30,628	28,545	24,893	21,574	18,280
Wales and West	Reg	Oct. 96	7yrs 6 most		38,309	73,528	63,906	62,379	55,540	51,346	47,586	42,325
Cardiff Railways	Reg	Oct. 96	7yrs 6 most		10,245	20,691	17,301	17,990	17,056	16,211	15,459	14,715
Wessex	Reg											
WAGN	Lon	Jan-97	7yrs 3 most		13,998	54,552	35,512	26,152	14,128	4,618	(15,764)	(27,530)
Sub-total												
First Group												
Great Eastern	Lon	Jan. 97	7yrs 3 most		5,689	28,686	14,394	8,848	3,013	(338)	(5,532)	(10,307)
Great Western	Int	Feb. 96	10yrs	9,437	61,870	58,909	53,257	48,620	43,697	36,689	29,533	19,072
North Western	Reg	Mar. 97	7yrs 1mo		12,577	100,389	92,650	88,593	80,909	77,453	74,533	72,105
Scotrail	Reg	Mar. 97	7yrs			135,977	130,904	125,795	115,504	108,322	102,868	99,544
Sub-total												
Stagecoach												
South West Trains	Lon	Feb. 96	7yrs	9,396	63,286	62,611	59,918	57,405	54,879	48,804	38,614	
Island Line	Reg	Oct. 96	5yrs		927	1,975	1,962	1,934	1,933	1,029		
Sub-total												
Govia (Go Ahead Group)												
South Central	Lon	May. 96	7yrs		75,798	76,090	57,988	50,082	46,964	41,414	38,786	5,688
Thames Link	Lon	Mar. 97	7yrs 1mo		1,300	2,534	(6,980)	(17,646)	(24,278)	(25,092)	(29,187)	(30,721)
Thames	Lon	Oct. 96	7yrs 6mos		18,726	33,540	23,270	16,011	14,629	8,246	4,153	
Virgin												
West Coast	Int	Mar. 97	15yrs		5,831	76,632	70,207	59,063	57,692	56,456	(4,197)	(56,943)
Cross Country	Int	Jan. 97	15yrs		30,675	115,927	101,447	86,782	79,894	73,198	54,559	43,732
Sub-total												
Sea Containers												
Great North Eastern	Int	Apr. 96	7yrs		61,468	55,050	37,401	17,367	5,900	2,154	147	
Connex South Eastern	Lon	Oct. 96	15yrs		57,772	114,665	86,195	63,950	53,041	43,596	35,211	29,820
Anglia (GB Railways)	Lon	Jan. 97	7yrs 3mos		8,814	36,203	27,207	23,579	17,269	14,039	9,273	6,795
M40 Trains												
Chiltern	Lon	Jul. 96	7yrs		11,630	14,365	12,806	10,515	7,217	5,069	3,607	472
Total all Franchises				18,832	552,006	1,425,113	1,195,774	1,032,553	913,028	814,011	636,199	430,625

of which
Long Distance
London & South East
Regional

Source: SRA, 1999, pages 44 and 45
Note: This represents the franchises as they were originally constituted and contracted.

Figure G: Originally Committed Franchise Payments (continued)

Owner/Franchise	Group	Start Date	Franchise Period	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12
Merseyrail	Reg	Jan-97	7 yrs 2 mos								
Northern	Reg	Mar-97	7 yrs 1 mo								
Sub-total											
National Express											
c2c	Lon	May-96	15 yrs	18,408	17,285	16,223	15,232	14,281	13,427	12,601	1,982
Central Trains	Reg	Mar-97	7yrs 1 mo								
Gatwick Express	Reg	Apr-96	15 yrs	(15,853)	(17,473)	(18,120)	(19,722)	(21,419)	(23,177)	(24,979)	(2,065)
Midland Mainline	Int	Apr-96	10 yrs	(8,845)	(10,979)	(886)					
Silverlink	Lon	Mar-97	7yrs 6 most	17,076							
Wales and West	Reg	Oct. 96	7yrs 6 most								
Cardiff Railways	Reg	Oct. 96	7yrs 6 most								
Wessex	Reg										
WAGN	Lon	Jan-97	7yrs 3 most								
Sub-total											
First Group											
Great Eastern	Lon	Jan. 97	7yrs 3 most								
Great Western	Int	Feb. 96	10yrs	9,180	(2,904)						
North Western	Reg	Mar. 97	7yrs 1mo								
Scotrail	Reg	Mar. 97	7yrs								
Sub-total											
Stagecoach											
South West Trains	Lon	Feb. 96	7yrs								
Island Line	Reg	Oct. 96	5yrs								
Sub-total											
Govia (Go Ahead Group)											
South Central	Lon	May. 96	7yrs								
Thames Link	Lon	Mar. 97	7yrs 1mo								
Thames	Lon	Oct. 96	7yrs 6mos								
Virgin											
West Coast	Int	Mar. 97	15yrs	(60,330)	(77,822)	(136,808)	(163,745)	(181,078)	(210,172)	(218,454)	(238,022)
Cross Country	Int	Jan. 97	15yrs	23,905	14,914	7,629	3,294	874	0	(5,537)	(11,105)
Sub-total											
Sea Containers											
Great North Eastern	Int	Apr. 96	7yrs								
Connex South Eastern	Lon	Oct. 96	15yrs	25,621	20,722	17,568	12,346	8,535	3,459	(1,406)	(1,677)
Anglia (GB Railways)	Lon	Jan. 97	7yrs 3mos								
M40 Trains											
Chiltern	Lon	Jul. 96	7yrs								
Total all Franchises				9,162	(56,257)	(114,395)	(152,596)	(178,807)	(216,464)	(237,775)	(250,888)

Figure H: Data on the Performance of Rail Franchises in the U.K.

		Pass-Km by Ticket Type (billions)			Pass-Km by Sector (billions)				Passengers by Ticket Type (millions)			Passengers by Sector (millions)				Revenue by Ticket Type (£ millions)			Revenue by Sector (£ millions)				
Fiscal Year	Called calendar year	Ord.	Seas.	Total	Long Dist.	LSE/ NSE	Reg.	Total	Ord.	Seas.	Total	Long Dist.	LSE/ NSE	Reg.	Total	Ord.	Seas.	Total	Long Dist.	LSE/ NSE	Reg.	Total	Total Revenue in 1999-2000 prices
82/83	1982																						
83/84	1983																						
84/85	1984																						
85/86	1985	21.8	8.6	30.4																			
86/87	1986	22.0	8.8	30.8					415	323	738					1,047	395	1,442					2,462
87/88	1987	23.0	9.4	32.4					434	364	798					1,168	454	1,622					2,628
88/89	1988	23.2	11.1	34.3					418	404	822					1,291	512	1,803					2,737
89/90	1989	22.4	10.9	33.3					404	408	812					1,357	550	1,907					2,699
90/91	1990	22.8	10.4	33.2					411	399	810					1,483	574	2,057					2,701
91/92	1991	22.4	10.0	32.4					400	392	792					1,514	603	2,117					2,618
92/93	1992	22.3	9.4	31.7					398	372	770					1,551	603	2,154					2,580
93/94	1993	21.3	9.0	30.3					385	355	740					1,577	616	2,193					2,559
94/95 **(Base)**	1994	20.7	8.0	28.7	10.1	12.9	5.7	28.7	407	328	735	54	502	179	735	1,559	611	2,170	734	1,059	378	2,171	2,498
95/96	1995	22.2	7.9	30.1	10.5	13.3	6.2	30.0	433	328	761	56	516	189	761	1,720	660	2,380	795	1,160	425	2,380	2,661
96/97	1996	23.4	8.7	32.1	11.0	14.6	6.6	32.2	459	342	801	59	542	200	801	1,870	702	2,572	859	1,257	456	2,572	2,788
97/98	1997	25.3	9.3	34.6	12.3	15.5	6.8	34.6	481	365	846	64	576	206	846	2,048	773	2,821	956	1,378	487	2,821	2,973
98/99	1998	26.4	9.8	36.2	12.6	16.5	7.2	36.3	508	384	892	67	610	215	892	2,242	847	3,089	1,052	1,513	523	3,088	3,162
99/00	1999	28.0	10.4	38.4	13.2	17.7	7.6	38.5	540	391	931	72	631	228	931	2,463	905	3,368	1,160	1,647	560	3,367	3,368
00/01	2000	27.2	10.9	38.1	12.1	18.4	7.6	38.1	549	407	956	70	656	231	957	2,463	950	3,413	1,109	1,732	572	3,413	3,338
01/02	2001	28.1	11.0	39.1	12.9	18.5	7.8	39.2	551	408	959	74	655	231	960	2,591	957	3,548	1,220	1,739	590	3,549	3,385
02/03	2002	28.4	11.3	39.7	12.9	19.0	7.8	39.7	561	414	975	77	670	229	976	2,693	970	3,663	1,279	1,787	596	3,662	3,389
03/04	2003	29.1	11.8	40.9	13.3	19.3	8.4	41.0	584	429	1,013	81	682	250	1,013	2,885	1,008	3,893	1,384	1,868	642	3,894	3,461
1994/1995 to 20032004 (train-km 1997 to 2003)		140.6	147.5	142.5	131.7	149.6	147.4	142.9	143.5	130.8	137.8	150.0	135.9	139.7	137.8	185.1	165.0	179.4	188.6	176.4	169.8	179.4	138.6

Sources: SRA, 2003a and SRA, 2001a, and Gourvish, T, 2002, page 466

* 2003 estimate based on data for 3 quarters extrapolated to the fourth quarter. This yields slightly different estimates for ticket-type and sectoral totals.

** The Public Performance Measure is a combined measure of punctuality (on time in %) and reliability (% trains that ran end-to-end).
Note that the Public Performance Measure for the system tended to be about 3 to four percentage points below the old punctuality measure.

Figure H: Data on the Performance of Rail Franchises in the U.K. (continued)

		Train-Km by Sector (millions)				Rev/Pass-Km by ticket type			Rev/Pass-km by sector (£/Pass-km)			
Fiscal Year	Called calendar year	Long Dist.	LSE/ NSE	Reg.	Total	Ord.	Seas.	Total	Long Dist.	LSE/ NSE	Reg.	Total
82/83	1982											
83/84	1983											
84/85	1984											
85/86	1985											
86/87	1986											
87/88	1987											
88/89	1988											
89/90	1989											
90/91	1990											
91/92	1991											
92/93	1992											
93/94	1993											
94/95 **(Base)**	1994					0.075	0.076	0.076	0.073	0.082	0.066	0.076
95/96	1995				*358.4*	0.077	0.084	0.079	0.076	0.087	0.069	0.079
96/97	1996				*365.5*	0.080	0.081	0.080	0.078	0.086	0.069	0.080
97/98	1997	66.0	154.5	155.8	376.3	0.081	0.083	0.082	0.078	0.089	0.072	0.082
98/99	1998	73.3	167.2	164.6	405.1	0.085	0.086	0.085	0.083	0.092	0.073	0.085
99/00	1999	78.7	171.9	167.8	418.4	0.088	0.087	0.088	0.088	0.093	0.074	0.087
00/01	2000	81.0	175.8	170.4	427.2	0.091	0.087	0.090	0.092	0.094	0.075	0.090
01/02	2001	85.6	178.1	172.2	435.9	0.092	0.087	0.091	0.095	0.094	0.076	0.091
02/03	2002	95.2	175.2	172.8	443.2	0.095	0.086	0.092	0.099	0.094	0.076	0.092
03/04	2003	96.5	175.2	174.5	446.2	0.099	0.085	0.095	0.104	0.097	0.076	0.095
1994/1995 to 20032004 (train-km 1997 to 2003)		146.2	113.4	112.0	118.6	131.6	111.8	125.9	143.2	117.9	115.2	125.5

note: ratios above are 2003/1997

Figure H: Data on the Performance of Rail Franchises in the U.K. (continued)

			Public Performance Measure**				Passenger Charter					
Fiscal Year	Called calendar year	Rev/Pass-km:99/00 Prices (£/Pass-km)	Long Dist.	LSE/ NSE	Reg.	Total	Punct. (% on time)	Reliability (% of trains making end-to-end trip)	Freight ton-km coal (billions)	Freight ton-km total (billions)	Freight tons of coal (millions)	Freight tons total (millions
82/83	1982						88		5.9	16.6	90.7	145.7
83/84	1983						90		5.5	16.8	81.6	139.0
84/85	1984						90		8.0	11.8	14.5	65.2
85/86	1985						89		5.0	16.0	81.9	139.7
86/87	1986						90		5.0	16.6	77.2	138.4
87/88	1987						90		4.6	17.5	78.8	144.4
88/89	1988								4.8	18.1	79.2	149.5
89/90	1989								4.6	16.7	75.8	143.1
90/91	1990								5.0	16.0	74.7	138.2
91/92	1991								5.0	15.3	75.1	135.8
92/93	1992						89.7	98.7	5.4	15.5	67.9	122.4
93/94	1993						90.3	98.8	3.9	13.8	48.9	103.2
94/95 **(Base)**	1994	0.0870					89.6	98.7	3.3	13.0	42.5	97.3
95/96	1995	0.0887					89.5	98.8	3.6	13.3	45.2	100.7
96/97	1996	0.0866					82.5	99.1	3.9	15.1	52.2	101.8
97/98	1997	0.0859	81.7	89.6	90.6	89.7	92.5	98.9	4.4	16.9	50.3	105.4
98/99	1998	0.0871	80.6	87.9	88.6	87.9	91.5	98.9	4.5	17.3	45.3	102.1
99/00	1999	0.0875	83.8	87.1	89.1	87.8	91.9	98.8	4.8	18.2	44.3	91.9
00/01	2000	0.0876	69.1	77.6	81.7	79.1	91.7	98.9	4.8	18.1	45.7	95.4
01/02	2001	0.0864	70.2	77.8	79.1	78.0			6.2	19.4	46.1	94.4
02/03	2002	0.0854	70.6	78.9	80.5	79.2			5.7	18.7	40.7	87.0
03/04	2003	0.0844	73.4	80.3	82.9	81.2			5.8	18.9	42.0	88.9
1994/1995 to 20032004 (train-km 1997 to 2003)		97.0							175.8	145.4	98.8	91.4

Figure I: Shortlisted Bidders in the Franchising Process

Franchise	National Express	Stagecoach	Prism	First Group	MTL	Go-Ahead	CGEA (Connex)	Sea Containers	Virgin
Island Line*		1							
Merseyrail		1	1		1	1			
North Western		1	1						
Northern					1				
Wales and West			1		1				
Cardiff		1	1						
Scotrail	1	1	1						
Central Trains	1	1		1			1		
Cross Country			1						1
West Coast		1						1	1
Silverlink	1	1					1		
Chiltern		1					1		
c2c (LTS)		1	1						
South Eastern				1			1		
South West Trains		1					1	1	
Great Western	1	1		1			1	1	
South Central	1	1					1		
Anglia	1		1	1					
WAGN			1	1					1
Great North Eastern	1	1					1	1	
Thames						1			1
Midland Mainline	1		1		1				
Great Eastern	1			1			1		
Gatwick Express	1		1						1
Thames Link									1
Total won	5	2	4	2	2	1	2	1	2

Note: Yellow shading indicates the winning bidder.

Figure I: Shortlisted Bidders in the Franchising Process (continued)

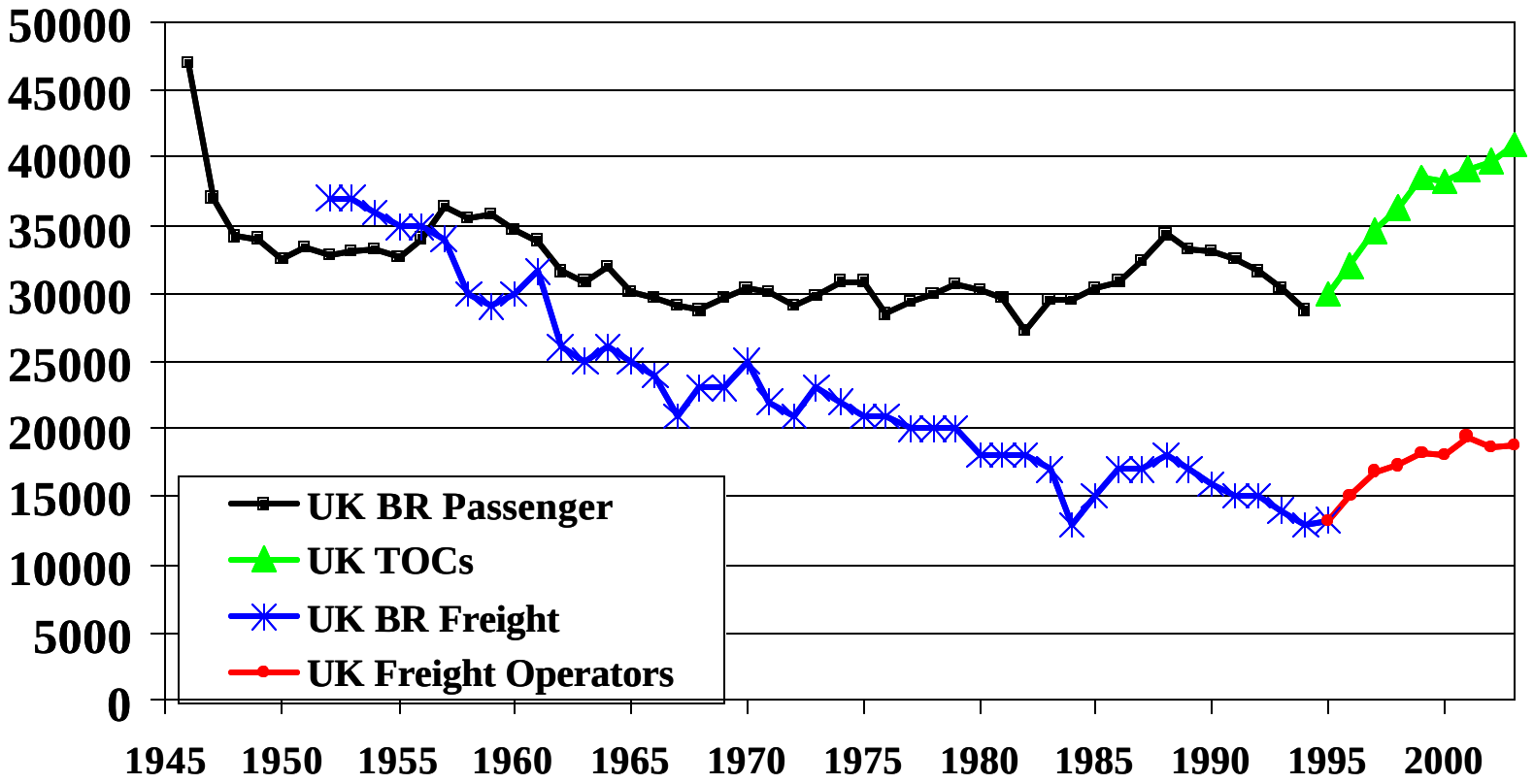
Franchise	GB Rail	Govia	Halcrow Cowie	Resurgence	GW Hold	M40	MBO team**	Total on Short List
Island Line*								1
Merseyrail								4
North Western					1			3
Northern		1					1	3
Wales and West					1		1	4
Cardiff			1				1	4
Scotrail		1					1	5
Central Trains							1	5
Cross Country				1				3
West Coast								3
Silverlink					1			4
Chiltern						1	1	4
c2c (LTS)	1						1	4
South Eastern	1						1	4
South West Trains							1	4
Great Western				1	1		1	8
South Central							1	4
Anglia	1							4
WAGN	1						1	5
Great North Eastern							1	5
Thames						1	1	4
Midland Mainline							1	4
Great Eastern							1	4
Gatwick Express	1							4
Thames Link	1	1	1				1	5
Total won	1	1			2	1	1	

*Short List not published Avg # of bids 4.08

**MBO bidders are hard to characterize. For most cases, they were individual teams, but they often had common members or common partners.

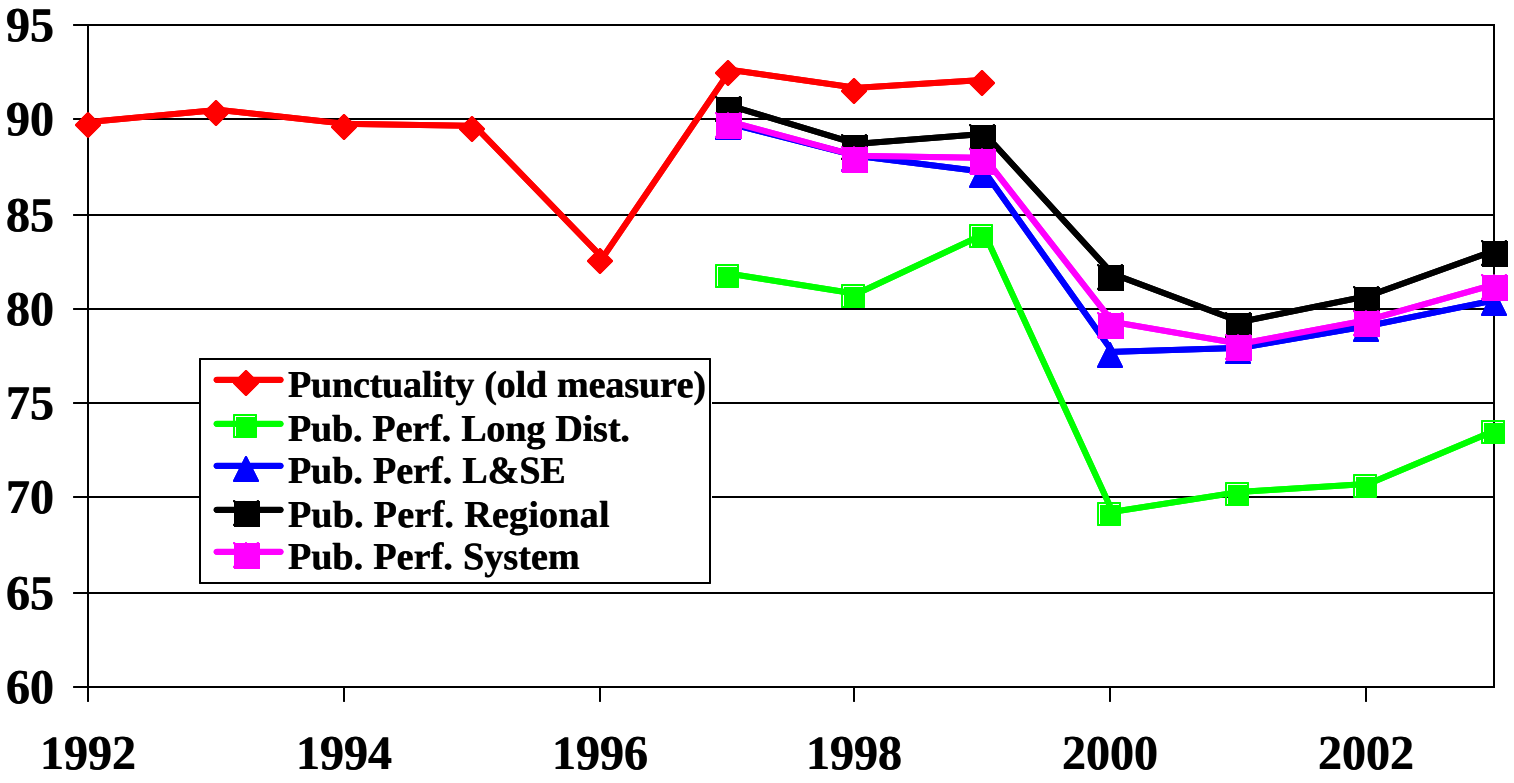
Source: Freeman, R., 2002, pg 151, taken from *The Railway Magazine* , April, 1997

Figure J: Rail Traffic in the U.K. (000,000 passenger-km and ton-km)



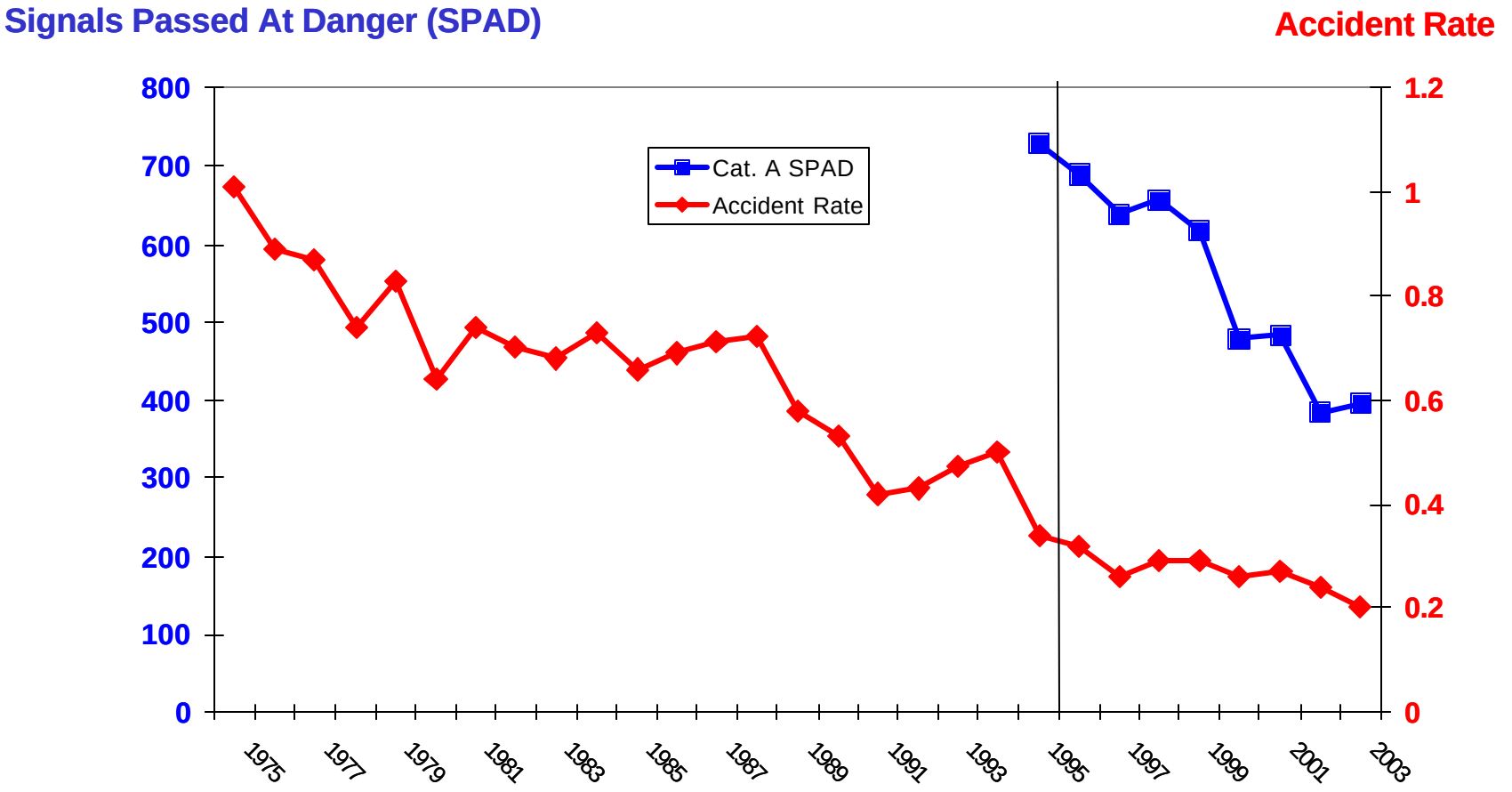
Source: SRA 2002c and SRA, 2003a

Figure K: Passenger Service Quality



Source: Figure H

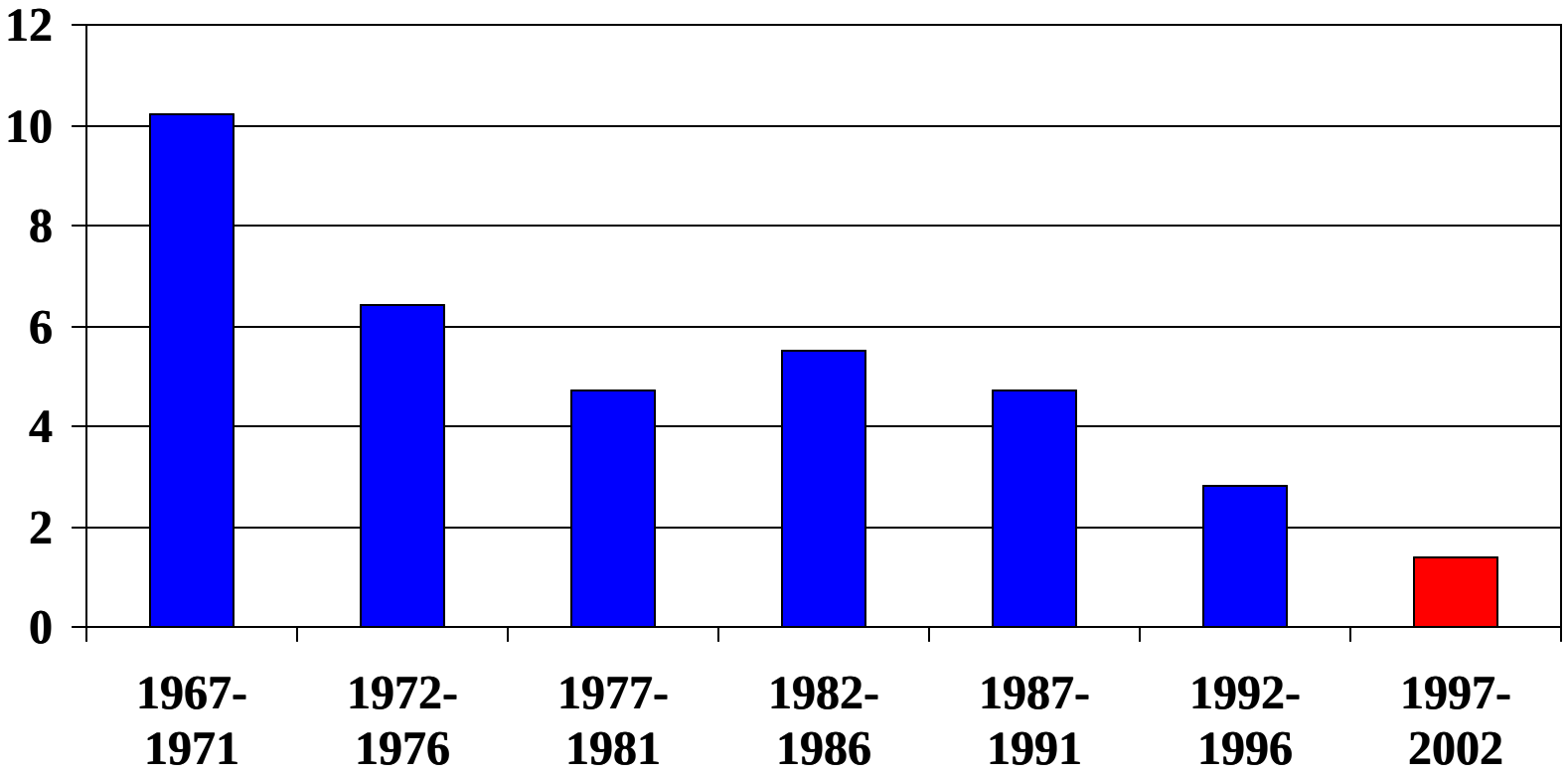
Figure L: U.K. Accident Risk Experience



Accident Rate is defined as Significant train incidents per million train-miles

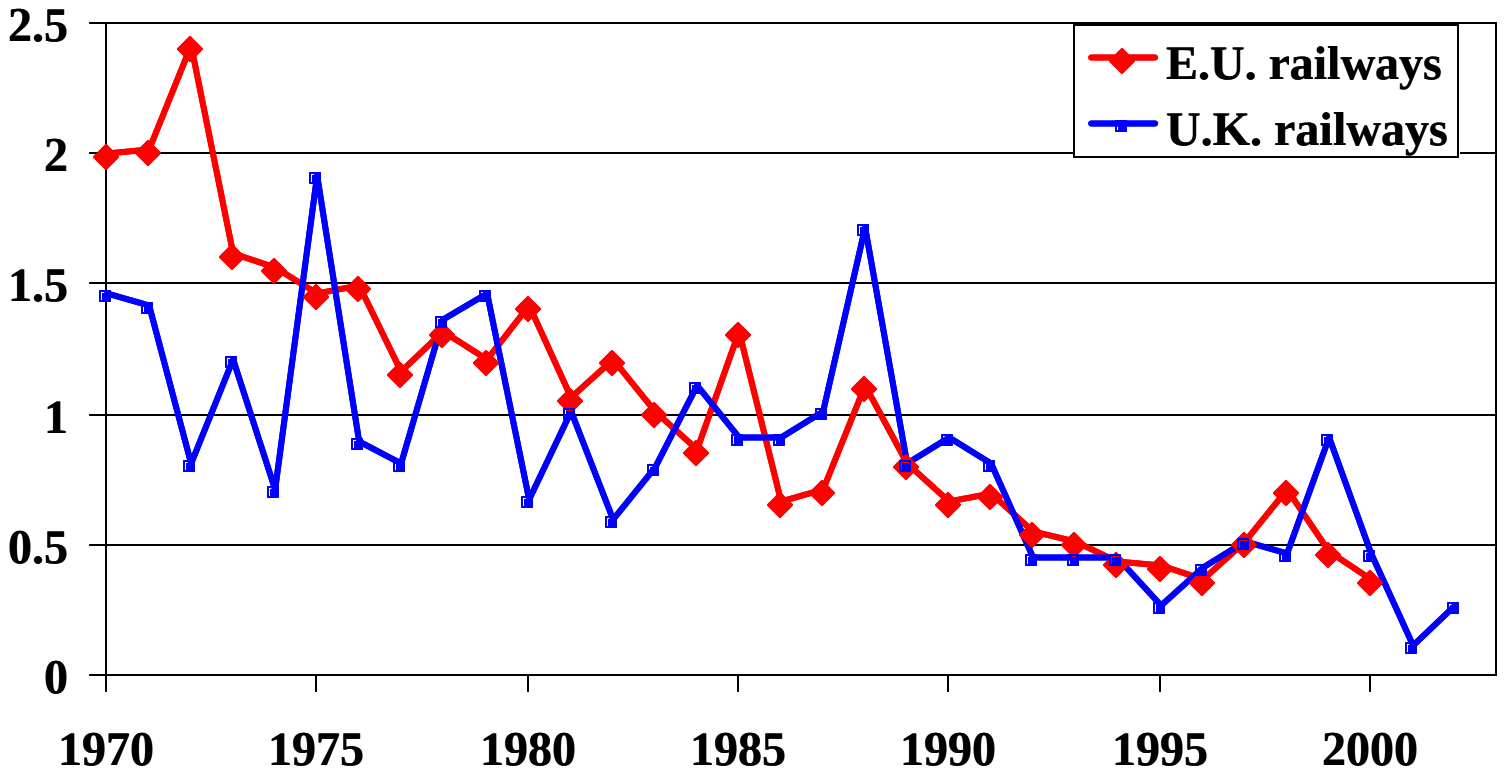
Source: RSSB, 2003, and RSSB, 2004.

Figure M: U.K. Fatal Accidents Per Billion Train-km Since 1967



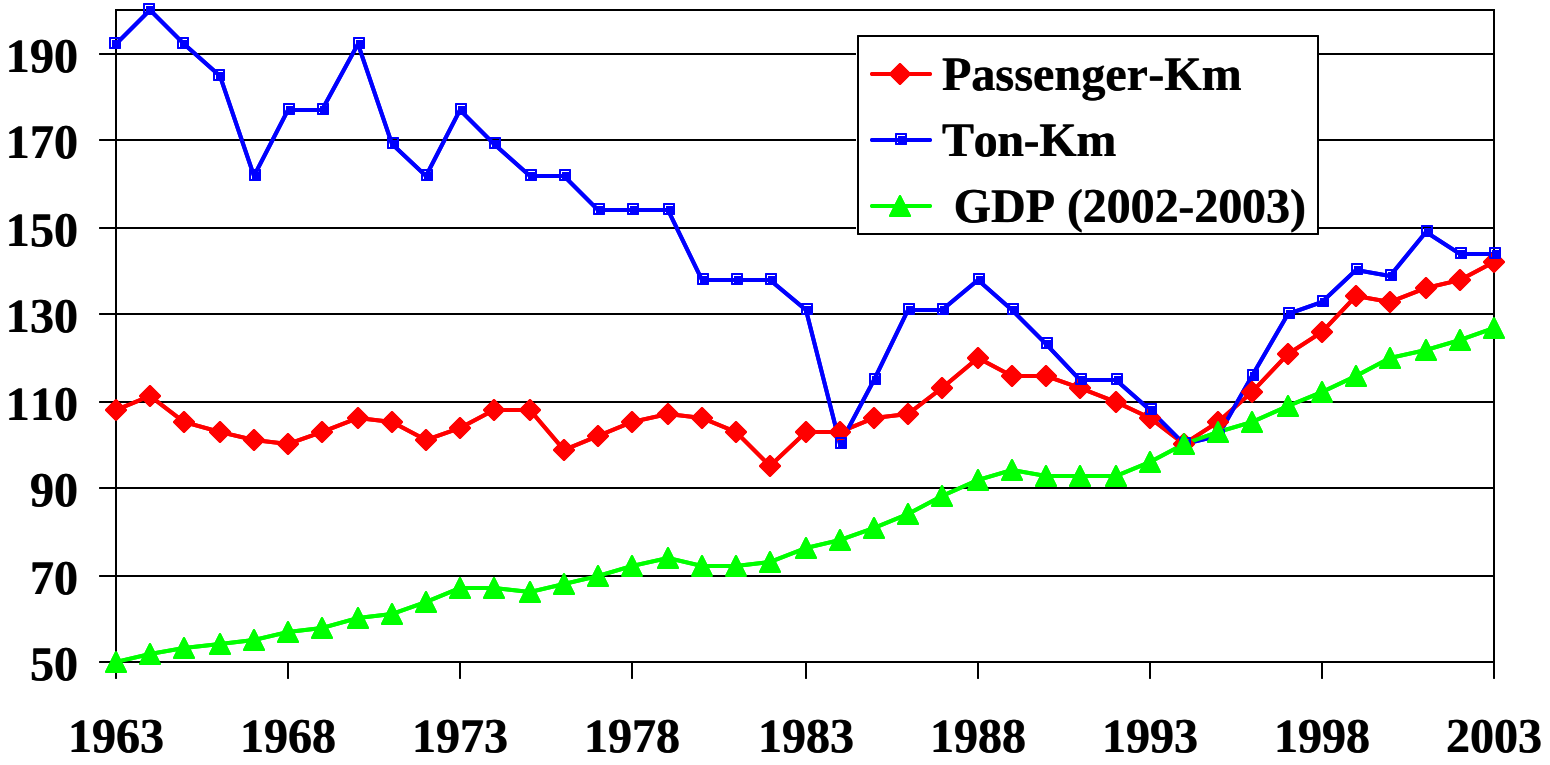
Note: Series averaged over 5 year intervals to smooth year-to-year variation. There were No passenger fatalities in 2003.
Source: Evans, 2003

Figure N: Rail Safety in the U.K. and in the E.U.(fatalities per billion passenger-km)



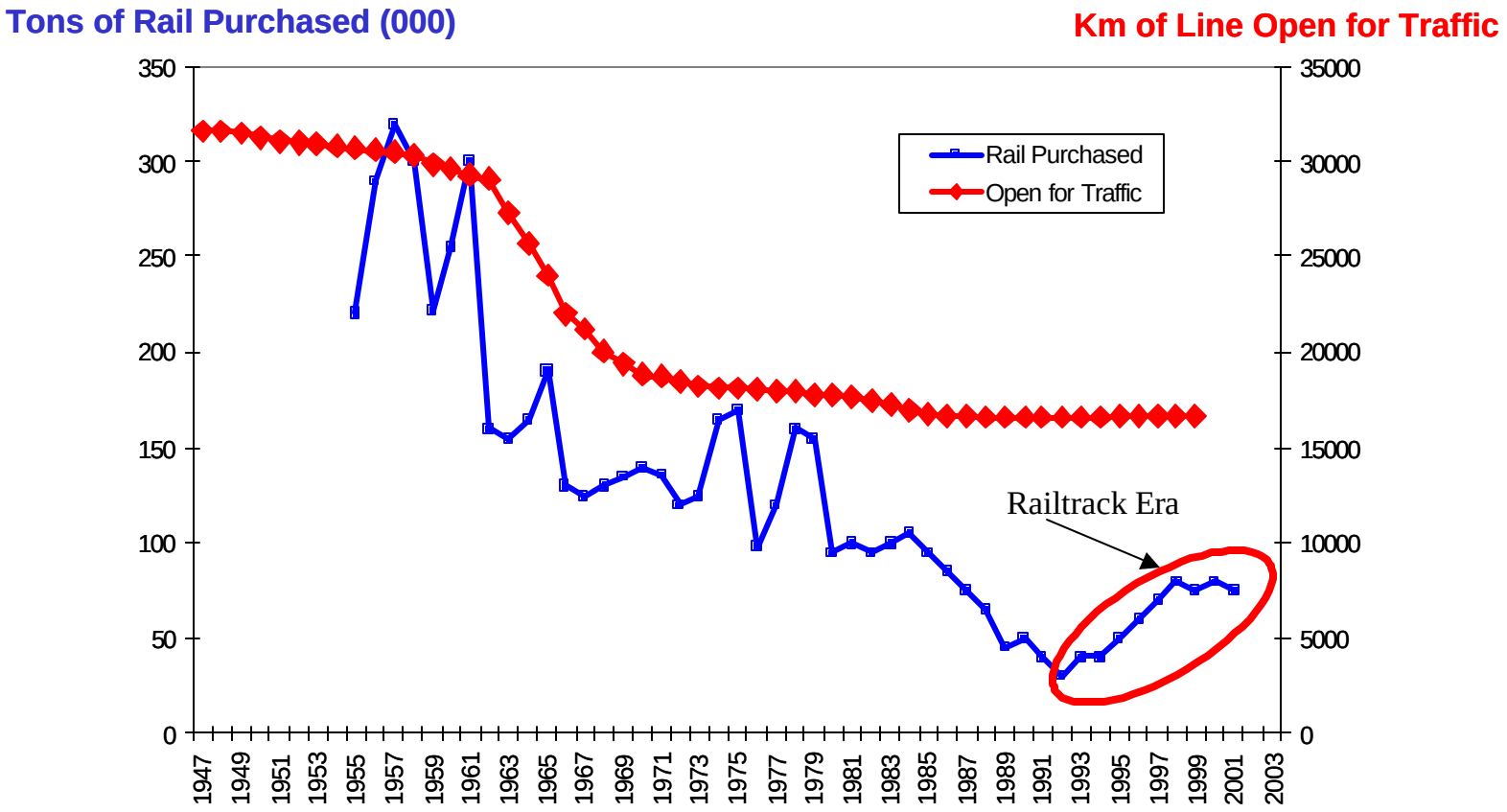
Source: estimated from RSSB, 2003, pg 20, and 2002 estimate from Table of Train Incident fatalities by year

Figure O: UK Passenger-Km, Ton-Km and GDP (Index, 1994=100, GDP in constant £ 2002-2003)



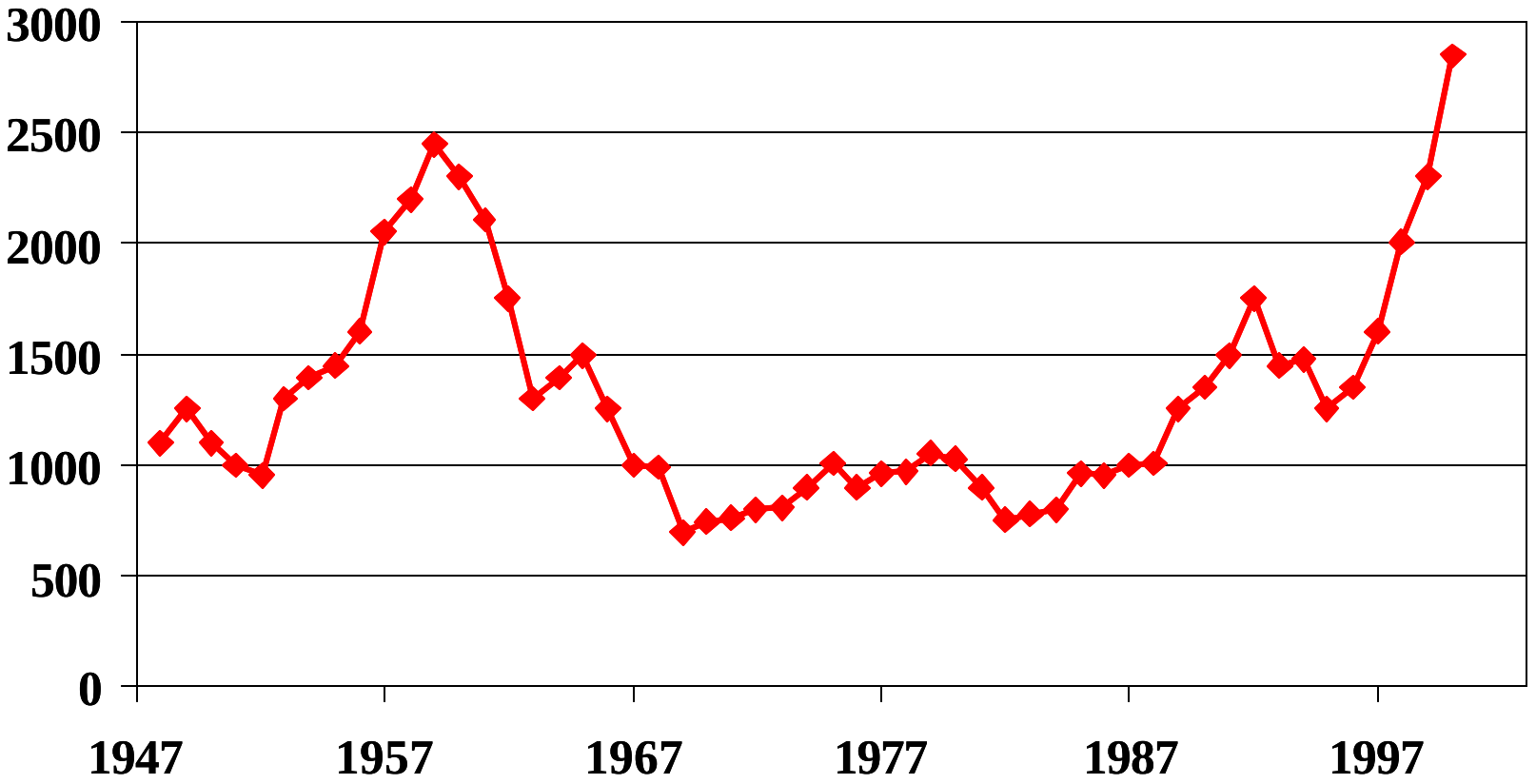
Source: Figure J and U.K. Treasury website.

Figure P: Tons of Rail Purchased (000) and Km of Line Open for Traffic



Source: Sawley, K., 2000, page A-22, and SRA, 2003 a, pg 34 (partly extrapolated).

Figure Q: Investment in British Railways (£million in 1999-2000 prices)



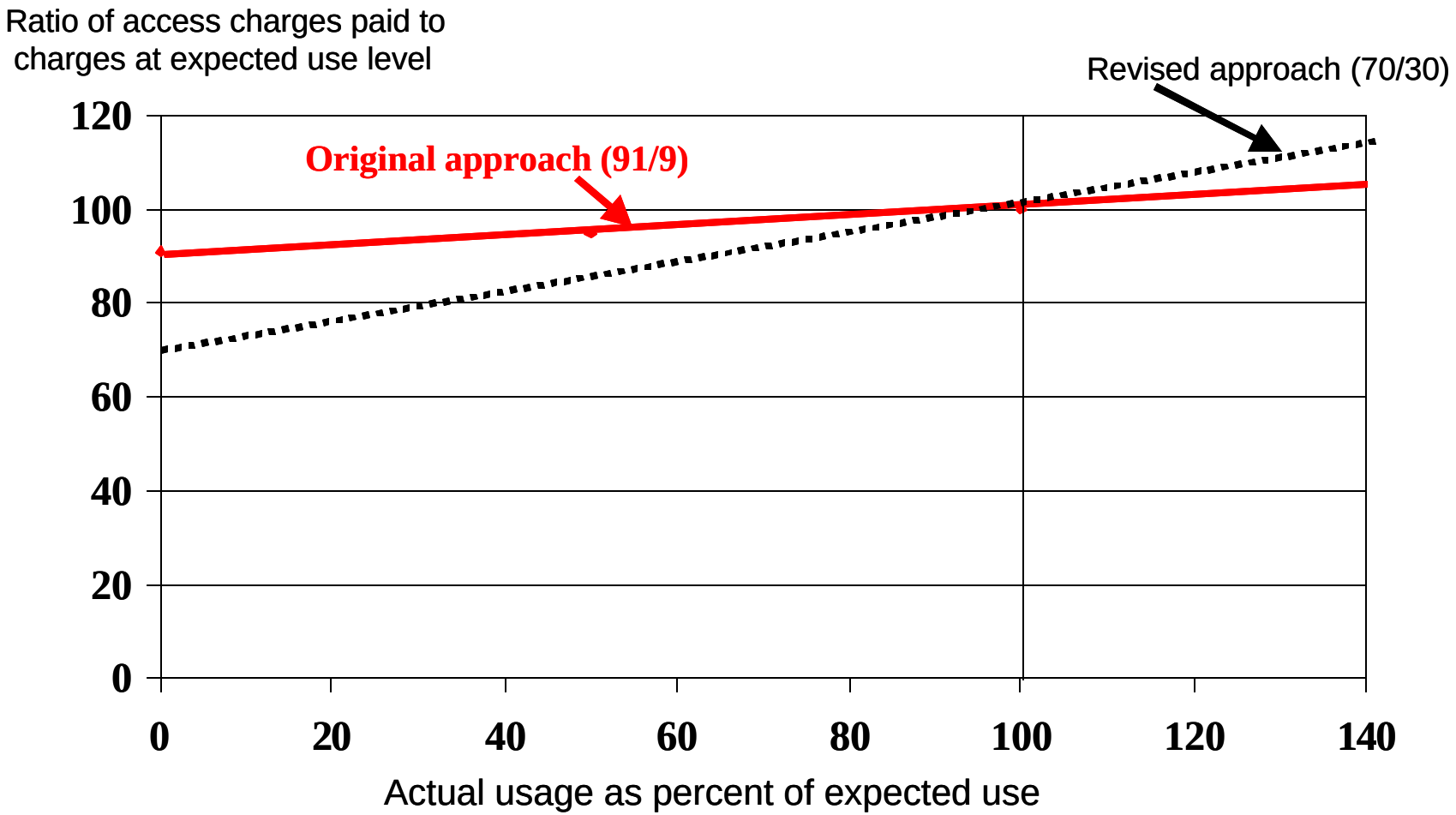
Source: Davies, R., 2002

Figure R: Changes in the Franchises

The Original Franchise Structure					The Revised Franchise Structure		
TOC	**Original Franchise Operator***	**Start Date**	**Franchise Period**	**Original Expiry Date**	**Current Franchise Operator**	**Current Expiry Date**	**Remarks**
Island Line	Stagecoach	Oct. 96	5yrs	Sep 03	Stagecoach	Feb 07	Renegotiated
Merseyrail	MTL Rail	Jan-97	7 yrs 2 mos	Feb 03	Serco/Nedrail	Jul7 18	Control given by SRA to Merseyside PTE
North Western	FirstGroup Plc	Mar. 97	7yrs 1mo	Apr 04	FirstGroup Plc	Oct 04	Recombined into new Northern, TPE and new Wales and Borders
RRNE/Northern Spirit	MTL Rail	Mar-97	7 yrs 1 mo	Feb 03	Arriva	Oct 04	Short extension of non-TPE services, pending new Northern franchise
Wales and West	Prism	Oct. 96	7yrs 6 mos	Apr 04			To new Wales and Borders and new Wessex
Cardiff Railways	Prism	Oct. 96	7yrs 6 mos	Apr 04			Combined with Wales and Borders
Scotrail	National Express	Mar. 97	7yrs	Mar 04	[First Group	Oct 11	Currently operated by NX on short extension, imminent transfer to preferred bidder for timescale indicated
Central Trains	National Express	Mar-97	7yrs 1 mo	Apr 04	National Express	Apr 06	Extended
Cross Country	Virgin Rail Group	Jan. 97	15yrs	Jan 12	Virgin Rail Group	Jan 12	Being analyzed: no change currently
West Coast	Virgin Rail Group	Mar. 97	15yrs	Jan 12	Virgin Rail Group	Jan 12	Being analyzed: no change currently
Silverlink	National Express	Mar-97	7yrs 6 mos	Sep 04	National Express	Sept 04	Extension negotiations ongoing
Chiltern	M40 Trains	Jul. 96	7yrs	Jul 03	M40 Trains	Dec 21	Renegotiated franchise
c2c (LTS)	Prism	May-96	15 yrs	May 11	National Express	May 11	No change
South Eastern	Connex UK	Oct. 96	15yrs	Oct 13	South Eastern Trains		Removed from Connex in 2003. Currently operated directly by SRA
South West Trains	Stagecoach	Feb. 96	7yrs	Feb 03	Stagecoach	Feb 07	Interim 3 year contract negotiated
Great Western	Great Western Holdings Ltd	Feb. 96	10yrs	Feb 06	FirstGroup Plc	Feb 06	Will then become part of new Greater Western franchise
South Central	Connex UK	May. 96	7yrs	May 03	Govia	Dec 09	Renegotiated, name changed to Southern
Anglia	GB Railways	Jan. 97	7yrs 3mos	Apr 04			To new Greater Anglia franchise
WAGN	Prism	Jan-97	7yrs 3 mos	Apr 04	National Express	Apr 06	Part incorporated into Greater Anglia, Great Northern part remains with NX
Great North Eastern	Sea Containers	Apr. 96	7yrs	Apr 03	Sea Containers	Apr 05	Competition begun for new franchise
Thames Trains	Go Ahead Group	Oct. 96	7yrs 6mos	Apr 04	First Group	Apr 06	mini-competition held for 2 year franchise, then becomes part of new Greater Western franchise
Midland Mainline	National Express	Apr-96	10 yrs	Apr 06	National Express	Apr 08	Extended for two years
Great Eastern	FirstGroup Plc	Jan. 97	7yrs 3 mos	Apr 04			To new Greater Anglia
Gatwick Express	National Express	Apr-96	15 yrs	May 11	National Express	May 11	No change
Thameslink	GOVIA	Mar. 97	7yrs 1mo	Apr 04	Govia	Apr 07	Interim 3 year contract negotiated
*Wales and Borders***	National Express				Arriva	Oct 18	Based on old Wales and West and old North Western
Wessex	National Express				National Express	Apr 06	Created from old Wales and West, will become part of new Greater Western
Greater Anglia					National Express	Apr 14	Includes old Anglia, Great Eastern and West Anglia part of WAGN
Trans Pennine					FirstGroup/Keolis	Jan 12	Acquires part of old North Western
Northern					[Serco/NedRail]	June 12	[Preferred bidder]

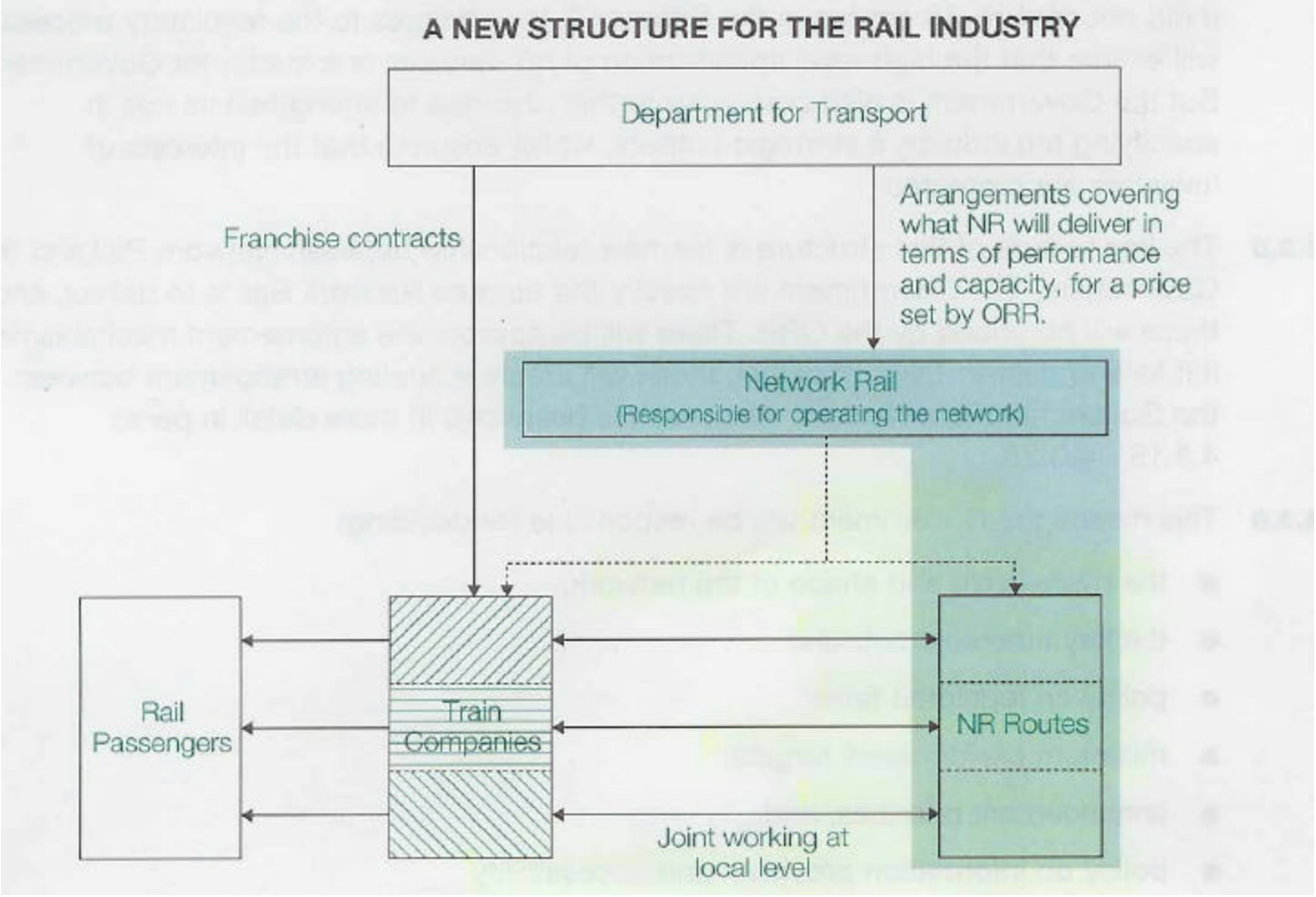
Source: OPRAF, 1999, pg. 45, SRA, 2003d, pg 66,67., http://directory.google.com/Top/Regional/Europe/United_Kingdom/Transport/Rail/Operating_Companies/

Figure S: Fixed versus Variable Composition of Access Charges



Source: World Bank calculation

Figure T: The DfT Proposal, July, 2004



Source: DfT, 2004b, pg 62