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PRIVATISATION, RURAL RAILWAYS AND COMMUNITY DEVELOPMENT

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PRIVATISATION, RURAL RAILWAYS .

AND

COMMUNITY DEVELOPMENT.

by

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A thesis submitted to the University of Plymouth

in partial fulfilment for the degree of

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Department of Geographical Sciences

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ABSTRACT
PRIVATISATION, RURAL RAILWAYS
AND
COMMUNITY DEVELOPMENT
THERESA MARIA LOWNDES

This thesis examines two separate, but interrelated, issues, namely rail privatisation and rural dependency on the availability of rail transport. The thesis was based on the proposition that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this interrelationship is currently threatened by rail privatisation and the associated risks of line closures or service cutbacks. To test this proposition a thorough investigation into the theory and practice of privatisation was completed, together with a comprehensive survey of the travel arrangements of people living in rural communities served by branch line railways. A variety of research methods were employed, including desk-top studies involving literature searches, qualitative investigations to assist questionnaire design and the use of self-administered questionnaires by sample populations. The empirical results are presented and discussed against the background of introductory chapters which review the policy of privatisation, the evolution of rail privatisation and the role of the rural branch line. The concluding chapters present three different scenarios for the future of rural branch lines, ranging from closure to revitalisation, and outline areas where future research may be carried out. The main findings were that a substantial number of people depend on the branch lines to enable them to carry out a wide variety of journeys and it was concluded that branch line railways do indeed play a vital role in the development and sustainability of the rural community. Furthermore, it was concluded that rail privatisation may indeed pose a threat to the future provision of branch line services and as such could have far-reaching impacts on the future well-being of the rural community.

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AUTHOR'S DECLARATION

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A programme of advanced study was undertaken, including a period of research training accounting for six months in the first year of study.

Relevant conferences were attended and two papers were prepared for publication.

Publications:

Charlton C., Gibb R. & Lowndes T. (1995) 'Rail Privatisation and Local Authority Reorganisation'. *Journal of Transport Geography*, vol. 3, No. 3, pp.221-226.

Gibb R., Lowndes T. & Charlton C. (1996) 'The Privatisation of British Rail'. *Applied Geography*, Vol. 16, No. 1, pp.35-51.

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CHAPTER 1

Privatisation, Rural Railways And Community Development

The decision to privatise Britain's railway network was regarded by many commentators to be one of the most controversial privatisations to have taken place since 1979 (Gibb et al 1996). Such a decision appeared to be based primarily on a philosophical commitment to the theory and practice of neo-liberalism and many supporters argued that it was a necessary step towards achieving a commercially viable rail network servicing the needs of the twenty-first century (Irvine 1988). It was also argued that the privatisation of an industry and the subsequent introduction of competition provides additional benefits to the consumer (Beesley and Littlechild 1983). The opposition, meanwhile, insisted that British Rail was beginning to 'flourish' under the public sector and that many of the problems that privatisation is supposed to solve had already been addressed before the process began (Salveson 1989). Furthermore, opponents argued that the privatisation process could only prove detrimental to the future of rail transport and, instead of revitalising the railways as the pro-privatisation lobby argued, lead to the decline of a coherent rail transport network in the UK (Salveson 1993, Jenkins 1993, Platform 1993).

1.1 - Aims Of The Research

The aims of this thesis are twofold; first, to conduct a thorough investigation of the policy of privatisation, both in theory and in practice, paying particular attention to the methods used to privatise the railways; and second, to investigate the role of the rural rail branch line in the lives of the communities that it serves. There have been many previous studies into the various privatisations which have been carried out, including rail privatisation, and, similarly, a great deal of research has investigated transport issues in rural

communities (see for example Moseley et al 1977, Hillman and Whalley 1980). The originality of this study lies in the fact that it will take all of these issues into account by evaluating how privatisation theory has evolved over time, examining the mechanisms by which the railways have been privatised (relating these to the lessons learned from previous privatisations), and then relating the potential impacts of rail privatisation to the levels of dependency to be found in rural communities. An important goal of this study is, therefore, to integrate a number of previously separate issues, and, in particular, evaluate the relationship between rail privatisation and rural dependency on the availability of rail transport.

1.2 - Hypothesis

This thesis is structured around exploring one central hypothesis; that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this interrelationship is currently threatened by rail privatisation and the associated risks of line closures or service cutbacks.

It is surmised that rail privatisation could prove to be particularly damaging to the economically most vulnerable parts of the railways, i.e. the rural branch lines, which form the periphery of the rail network. Privatisation could, therefore, lead to either cutbacks in service or even closures of branch lines in rural areas. It is postulated that branch lines in rural areas allow members of the communities they serve to gain access to a wide variety of facilities that are unavailable within the immediate vicinity of the community in which they live. As such the branch lines help to sustain the social and economic lives of the community, and these lives could be severely impaired should the services be withdrawn. The result of service closures or cutbacks would have implications for both individual

members of rural communities and for the overall well-being of the community as a whole. It has previously been recognised that reliance on rail services will be concentrated among certain, more vulnerable, members of a community and that it is members of these groups who would suffer the greatest deprivation should the provision of rail services change (see for example Hillman and Whalley 1980). This thesis will evaluate this assertion in the case of Devon and Cornwall in the 1990s.

1.3 - Background To The Study

Privatisation came to the forefront of public policy with the election of a Conservative Government, under Margaret Thatcher, in 1979. This election saw the end of the Keynesian principles which had dominated Government policy during the post war years (Lipietz 1992). Instead, the newly elected Government looked to the neo-liberal ideologies of the New Right and devoted themselves to the creation of a free-market economy with its associated individual freedoms (Lipietz 1992). At the core of this change in policy was the return of the large nationalised monopolies such as gas, water and electricity to the private sector (Heald 1984). As the policy evolved, more and more public sector companies were prepared for the private sector. Rail privatisation was among the last of the major privatisations to be carried out. It can be argued, however, that preparation for the privatisation of the rail industry was a protracted affair due to the complexity of the issues surrounding it (Gibb et al. 1996).

As the examination of privatisations will show (chapter two), the policy has evolved throughout the life of the Conservative Government and in each case the aims and objectives behind a particular privatisation have altered according to current Government thought (Heald 1984). The extent to which each privatisation has proved 'successful' has

varied in line with the objectives set and the methods used to privatise. Some of the early privatisations were simply direct transfers of a public sector monopoly to the private sector with little, if any, provision for competition which, theoretically at least, lies at the heart of a free market economy. As the policy evolved, however, subsequent privatisations involved the break-up of a public sector monopoly into a host of competing companies. There has been varied success in meeting the stated objectives, particularly those concerning choice, service improvements and increased value for money for the end-user or customer and many commentators argue that the results are neither in the interests of the consumer or served social needs (Yarrow 1986, Kay and Thompson 1986, Letwin 1988, Jackson and Price 1994). While the introduction of competition has generated the required response from utilities such as British Telecom (though it was a long time before this target was achieved), other utilities such as Water have seen costs rise disproportionately and service standards drop since their exposure to the private sector (Bernoth 1994). The fate of Britain's railways, therefore, remains unsure.

A wide variety of methods have been used to privatise the railways. Track, signalling and infrastructure were allocated to a newly privatised company, Railtrack. Passenger services were sold as twenty five franchises to run for a specified period of time. Rolling stock became the property of three ROSCOs (rolling stock leasing companies), now sold to the private sector, which lease rolling stock back to the twenty five train operating companies. The remaining businesses that formed British Rail, including freight, have been sold off to the private sector as individual companies (Dept. of Transport 1994). The result of this restructuring has been the fragmentation of the railways and many commentators have expressed fears that this will inevitably lead to a breakdown in the rail network (Salveson 1993, Jenkins 1993, Platform 1993).

One of the principal aims behind rail privatisation was to 'see better use made of the railways, greater responsiveness to the customer, and a higher quality of service and better value for money for the public who travel by rail' (Dept. of Transport 1992). Competition was to be at the heart of this revitalisation and provision was made in the original privatisation plans for open-access operators to compete along the same routes with the incumbent franchisee. The introduction of competition has subsequently been postponed until at least 2002 because of the risk to the incumbent franchisee in the early years of establishing a viable train operating company (ORR 1995). The free market forces which underpin the neo-liberal philosophy have been curbed even more by the intense regulatory regimes which have been deemed necessary. Regulation of the railways is shared between the ORR (Office of the Rail Regulator) and OPRAF (Office of Passenger Rail Franchising) and gradually competition and many other commercial freedoms have been eroded by a recognition that such moves could only prove detrimental to the long term survival of the railways. As the discussion on rail privatisation will show, the intense regulation that the railways are now subject to is still not sufficient to protect fully passenger services. Franchise agreements are readily flouted and the travelling public are not necessarily enjoying a good quality, reliable service.

The eventual fate of the branch lines is uncertain. There are measures in place which are intended to protect rail services but the branch lines are a special case and have always required heavy subsidy on the grounds of the social, economic and environmental benefits that they provide (Salveson 1993). Under the new regime the amount of subsidy paid to a train operator is set to decline throughout the life of a franchise which, in turn, could affect the level of support allocated by the train company to branch line operations (see for example OPRAF 1996b). Thus a very real threat to the continued operation of rural branch

lines does exist and this in turn threatens the social and economic well-being of the rural communities currently served by rail.

It could be argued that as branch lines are relatively underused, and therefore unprofitable, it would be best to let them close and make alternative arrangements for the limited number of people who are currently reliant on rural rail services. This thesis intends to examine this argument by exploring the assertion that branch lines play a vital role in sustaining rural communities and that there are specific groups within the population for whom branch lines provide a vital link to essential goods and services which are unobtainable within the immediate vicinity of the rural community. Should branch lines suffer cutbacks in service or, in a worst case scenario, closure of services, these people may suffer relative deprivation the impact of which may be felt throughout the wider community. A survey of the travel habits, travel difficulties, levels of rail use and views about the value of branch line services and the possible impacts of rail privatisation held by members of rural communities served by rail will therefore be carried out to determine the role of the branch line and how it fits into the daily existence of people in rural communities. Using this information it will be possible to determine how important the branch line is and the levels of dependency shown among members of rural communities. It is envisaged that though journeys may be relatively infrequent among some groups they are nonetheless essential and that this factor may account for the hypothesis that levels of dependency are actually higher than has been previously assumed while levels of use remain low.

In addition to identifying those groups most dependent on rail, the importance of branch lines to rural communities and the impact that various policy scenarios might have, the

thesis will also use the information gathered in the survey to examine measures to improve branch line services and attract more passengers. This work will involve evaluating various service scenarios aimed at protecting the interests of those members of rural communities for whom the train provides a vital link with the wider world. The future of the branch lines will be best ensured by attracting a larger passenger base of more frequent travellers thus ensuring a more economically viable business which will be less vulnerable to threats of cutbacks or closures. In addition to protecting the interests of rail users in rural communities, measures to ensure the continued viability of the railways may also assist in the future provision of more environmentally friendly transport links. Government policy is beginning to examine ways in which road traffic, particularly the use of the private car, may be reduced (Royal Commission on Environmental Pollution 1994). Rail networks could, in the future, become an important means of achieving these aims (Royal Commission on Environmental Pollution 1994).

1.4 - The Scope Of The Study

The first part of this thesis will focus on the aims and objectives behind privatisation and evaluate how privatisation policy has been applied in practise to a wide variety of industries, particularly the public sector monopolies such as gas, water and electricity which, because they serve the public, can be viewed as examples of how a public service will achieve its social objectives in the private sector. Following this the events surrounding rail privatisation, together with the mechanisms by which it has been achieved and the results so far, will be examined in detail to give a more focused background to the study. Chapter two, therefore, contains the theoretical perspective on privatisation together with an assessment of the various means used to privatise different industries. This chapter will also evaluate the extent to which the various aims and objectives which underlie

privatisation theory have been achieved. The chapter will examine the way in which social objectives have been protected and evaluate whether or not the service to the consumer has indeed been improved. The thesis will then focus more closely on the issues surrounding rail privatisation and in chapter three the findings of the previous chapter will be related to the mechanisms involved in rail privatisation. Particular attention will be paid to the events surrounding rail privatisation in an attempt to evaluate whether or not this privatisation will fulfil the aims and objectives set out in the original proposals. One of the key questions to be answered concerns the potential impacts of rail privatisation on rural branch lines. It has been hypothesised that rail privatisation presents a threat to the continued operation of the branch lines but nonetheless alternative scenarios such as the preservation of the existing service or even an improvement to the current service will need to be considered.

The second part of the study will then comprise a detailed examination of selected communities along the branch lines of Devon and Cornwall, enabling a profile of the typical branch line user to be built up in order to determine the impact that various policy changes brought about by rail privatisation may have. It will also be possible to identify those most dependent on the availability of rail transport and evaluate the potential levels of deprivation should service provision change. Chapter four will, therefore, set out both the results of the background study into the branch lines of Devon and Cornwall together with the methodology devised to investigate further the role of these branch lines. The design of the survey and the selection of suitable communities for inclusion in the study was based wholly around the background investigation which was carried out along each of the branch lines in Devon and Cornwall. Chapters five, six and seven will then set out the results of the survey and detail the results of the analysis which was completed.

The final part of the thesis will discuss the findings of the study and assess the potential impacts of rail privatisation. In chapter eight the discussion will evaluate the key findings of the research and relate these findings to some of the broader issues surrounding rural branch lines and rail privatisation. A variety of scenarios will be explored which, while focusing primarily on the transport requirements of the populations of rural communities and the degree to which certain sectors of the population could suffer deprivation should service provision change, will also examine ways in which rail operators could attempt to increase their passenger numbers thereby ensuring a more secure future. Additional, related, issues such as the increased congestion on the roads that changes to the provision of rail transport in rural areas could bring, together with the future expansion of environmental policies in the UK, will also be discussed. Chapter nine will then go on to draw conclusions from the work that has been carried out and assess the extent to which rail privatisation is indeed likely to have an impact.

In the next chapter this thesis will begin by examining the concepts surrounding privatisation and evaluate the way in which various privatisations have been carried out. There is clear evidence of a policy which, though based around the philosophical ideals of neo-liberalism in its original form, has evolved to meet the needs of government at the time of a particular privatisation. The stated aims and objectives behind privatisation are, therefore, many.

CHAPTER 2- Privatisation

Since 1979, the dominant philosophy of Government in Britain has been that of the neo-liberal (Gamble 1994) - searching for ways to reduce public sector involvement, promote market-led policies and encourage free-market economies driven by enhanced competition. At the heart of this policy has been the privatisation of public sector industries (Heald 1984), particularly the large monopolies such as gas, water, electricity and telecommunications. The transport industry has also experienced massive restructuring in the form of privatisation and deregulation leading to increased competition and a more flexible marketplace (Knowles and Hall 1992, Beesley 1992).

In its simplest form Privatisation can be taken as meaning *'the formation of a Companies Act company and the subsequent sale of at least 50% of the shares to private shareholders'* (Beesley & Littlechild 1983 p.21). The rationale for this shift to private sector involvement is that increasing the role of market forces will improve the performance of an industry. However, to define privatisation as the sale of at least 50% of a company to the private sector is an oversimplification of the processes involved. In reality privatisation is an extremely complex policy and each industry will be prepared for privatisation by employing a specific set of measures designed to best achieve the shift to a free market economy. Among the key measures employed are de-nationalisation (the sale of publicly owned assets), deregulation and liberalisation (the introduction of competition into statutory monopolies by removing restrictions on entry) and contracting out (the franchising to private firms of the production of state financed goods and services) (Kay & Thompson 1986, Wiltshire 1987). These measures are all reflected in the various policies adopted since the Conservatives were elected in the General Election of 1979. A wide

variety of nationalised industries have been privatised, either through being sold off and deregulated or contracted out to private companies.

The earliest privatisations involved the sale of state owned industries to the private sector but as the policy evolved the objectives changed in line with the shifting political and economic climate. Some commentators allege that privatisation became a policy in its own right (Bishop and Kay 1988). Later policy involved major share issues and the emphasis on private sector ownership increased as the government, from 1984 onwards, transferred the large public sector monopolies such as telecommunications, gas, electricity and water into private ownership (Heald 1984, Kay & Thompson 1986, Veljanovski 1987, Beesley 1992).

In privatising the utilities, however, it can be argued that the government appears to have acted in a way contradictory to one of the core objectives of privatisation, for not only is there little true competition but there is also a strong case to be made that the newly privatised utilities are not able to operate effectively within a free market economy (Bishop, Kay & Mayer 1994). This apparent contradiction arises because of the strong regulatory bodies set up to monitor both the performance and the service standards of these industries (Bishop, Kay & Mayer 1994). Equally, however, the social objectives implicit within these industries can remain, if not unfulfilled, certainly compromised because the brief given to these regulatory bodies relegates social objectives to a secondary position behind the economic objectives (Ernst 1994).

The aim of this chapter is to explore these issues more fully and attempt to gain an insight into the privatisation process from a conceptual perspective and from the experiences of industries that have already experienced the shift from public to private sector. This will

permit subsequent discussion on the privatisation of the railways to be set within its proper context. The issues raised by privatisation, the various means employed, the diversity of the social, economic and political objectives and the way in which these various objectives have been emphasised over time will be examined together with the coherent ideological agenda which underpins this policy. Wherever possible the stated aims and objectives will be assessed to determine how well these aims have been fulfilled. There will be particular emphasis on the privatisation of the utilities and the setting up of regulatory bodies to oversee these industries because they, like the railways, fulfil a social obligation as well as functioning as commercial industries. The first part of this chapter will therefore examine the conceptual side of privatisation and the second part of the chapter will look at privatisation in practice, particularly the privatisation of the large utility monopolies.

2.1 - The Concepts Behind Privatisation

At the heart of the privatisation programme lies the Conservative Government's commitment to neo-liberalism, a philosophy devoted to the creation of a free market economy and its associated individual freedom, and antithetical to the social and economic development model of the post war years that was based around Keynesian principles (Lipietz 1992, Jackson & Price 1994, Gamble 1994). Keynesian economic policy was based on state intervention and critics claim that the state controlled the economy and the lives of the population creating a strong welfare state, an excessively large public sector and high public expenditure (Lipietz 1992, Jackson & Price 1994, O'Connell Davidson 1994). The neo-liberal or 'New Right' argues that it was this that led to the economic crisis of the mid-1970s and that under these conditions there was little incentive for public sector companies to operate efficiently (Jackson & Price 1994, O'Connell Davidson 1994). Similarly it was claimed that the combination of the welfare state, safe public sector

employment and high taxation destroyed any incentive the individual might have (Lipietz 1992, Jackson & Price 1994). To rectify this situation a return to the free market economy under which competition flourished was considered by many to be the only solution (Moore 1983, Lipietz 1992, O'Connell Davidson 1994). Privatisation, together with a reduction in the scope of the state, were seen as key policies in implementing this change (Lipietz 1992, Gamble 1994).

In particular the policy of privatisation has been applied to the large nationalised monopolies such as gas, water and electricity. The nationalisation of industries was considered to be an unsuccessful policy that had led to inefficient, uncompetitive industries, greatly overmanned and laden down with restrictive labour practices (Letwin 1988, Jackson & Price 1994, O'Donnell Davidson 1994). When first conceived nationalisation was seen as the appropriate tool for a wide variety of social policies; it enabled the state to administer, control and regulate industries and services that were considered important (Moore 1983). It has often been argued, however, that what resulted was neither in the interest of the consumer nor served social needs (Yarrow 1986, Kay & Thompson 1986, Letwin 1988, Jackson & Price 1994).

The view of government was that reform was urgently needed within these industries while, at the same time, they should continue to meet those social obligations that are viewed as a duty of the state. Privatisation was seen as the key to meeting this aim. Nonetheless, there remains a conflict of interests as some of these industries form monopolies and are not readily opened up to competition (Beesley & Littlechild 1983, Veljanovski 1987).

To control these industries and ensure that the public interest is safeguarded a series of regulatory bodies have been set up with the power to monitor performance, prices and quality of service (Veljanovski 1987, Jackson & Price 1994). It can, therefore, be argued that a free market economy is not possible in a regulated industry and as a consequence one of the primary goals of privatisation remains unfulfilled. Despite this there are the many other associated aims and objectives; some economic, some political and some social which should be considered when assessing the strengths and weaknesses of privatisation as a policy.

2.2 - The Aims And Objectives Of Privatisation

The first time the objectives of privatisation were explicitly outlined was in 1983, in a speech by John Moore, then Financial Secretary to the Treasury (Moore 1983). Business efficiency was cited as a key objective and was to be achieved by the promotion of competition. State monopolies were no longer considered to be in the public interest and a free market economy was the ultimate goal. In total, seven major aims and objectives have been identified, each with their own social, economic or political agenda. These are:

- 1 The promotion of competition and increased efficiency leading to improved performance.
- 2 Reduction in role of the state.
- 3 Increased commercial and financial freedom for the companies that were privatised.
- 4 The raising of revenue for the treasury and reduction of the PSBR.
- 5 Improved service to the consumer.
- 6 The promotion of 'popular capitalism' through wider share ownership.
- 7 Decreased trade union power.

(Beesley & Littlechild 1983, Heald 1984, Kay & Thompson 1986, Veljanovski 1987, Wiltshire 1987, Letwin 1988 & Saunders 1991).

Most commentators are agreed on a basic set of objectives and it is only when one attempts to establish the different priorities attached to these objectives that disagreement arises. Bishop and Kay (1988), for example, argue that privatisation arose initially from a desire to reduce the power of the trades unions which dominated the public sector industries and that this would be best achieved by subjecting these industries to the discipline of a competitive, free market economy. However, Kay and Thompson (1986) argue that the initial concern with liberalisation of the market and the promotion of competition rapidly gave way to the transfer of ownership and reduction of the state. By 1994 Bishop, Kay & Mayer (1994) asserted that a major motivation in the early stages of the policy was financial, designed to help fund the large public sector deficit but also that improved efficiency brought about by competition was of equal importance. Saunders (1991), however, states that there was an explicitly sociological concern and that a major objective was to bring about a new culture of popular capitalism. Such an enterprise culture would of course be far more receptive to the underlying concepts of the neo-liberal philosophy such as a reduced role for the state, greater individual responsibility and personal freedom.

What appears to be generally agreed is that the initial concern with enhanced competition and efficiency rapidly gave way to a determination to reduce the role of the state and to this end the transfer of ownership from public to private sector became prioritised. A free market economy and a reduced public sector are the key ideological underpinnings to the policy of privatisation and each of the other objectives represent some facet of the overall aim and can be interpreted in terms of both the ideological goals and the accompanying social, economic and political aims. In the next section the importance of the underlying social, economic and political aims will be explored further by evaluating privatisations which have been carried out both in terms of the mechanisms used and the aims and

objectives prioritised at the time of privatisation. This work will allow rail privatisation, which will be explored in more detail in the following chapter, to be set within the context of the lessons learnt from previous attempts to successfully privatise public sector monopolies which have an underlying social obligation.

2.3 - Privatisation Since 1979

There are now many different examples of the various means employed in the privatisation and deregulation of public sector companies. The early privatisations involved the sale of publicly owned assets such as council houses (Bishop & Kay 1988). Since 1979, over one million publicly owned houses (mainly under local authority control) have been sold under the 'right to buy' scheme. These were valued at over £20 billion but due to discounts being offered to tenants raised £15 billion (Bishop & Kay 1988). Disposal of the assets of the New Town Development Corporations and Committee raised a further £700 million (Bishop & Kay 1988). Competition for the provision of services was also introduced and local authority services such as street cleaning and refuse collection were contracted out (Letwin 1988). After a relatively sluggish start the policy began to gain momentum when in 1981 British Aerospace and Cable & Wireless were sold with subsequent privatisations following in rapid succession.

Tables 2.1 and 2.2, overleaf, serve to indicate not only the scale of privatisation in the U.K and the revenue raised, but also the different means employed. Table 2.1 details the companies that were privatised by share offer up to 1991 and table 2.2 shows companies that were transferred by private sale rather than stock market flotation up to July 1988 (including management or employee buyouts).

DATE	COMPANY	PROCEEDS £M.
Nov-79	BP	290
Feb-81	British Aerospace	149
Nov-81	Cable & Wireless	224
Feb-82	Amersham International	63
Nov-82	Britoil	548
Feb-83	Assoc. British Ports	22
Sep-83	BP	565
Dec-83	Cable & Wireless	275
Apr-84	Assoc. British Ports	52
Jul-84	Enterprise Oil	393
Aug-84	Jaguar	294
Dec-84	British Telecom	3,920
May-85	British Aerospace	550
Aug-85	Britoil	450
Dec-85	Cable & Wireless	600
Oct-86	TSB	1,360
Dec-86	British Gas	5,600
Feb-87	British Airways	900
May-87	Rolls Royce	1,360
Jul-87	BAA	1,280
Oct-87	BP	7,200
Dec-88	British Steel	2,500
Nov-89	10 Water Companies	5,400
Nov-90	12 Elec. Companies	5,180
Mar-91	Scottish Power/Hydro-electric	2,900
Jun-91	National Power/Powergen	2,100

Table 2.1 - Privatisation By Share Offer.

Source - Wright & Thompson 1994

DATE	COMPANY	PROCEEDS £M.
June 1980	Fairey Engineering	22
June 1980	Ferranti	54
Feb. 1982	National Freight Consortium	7
Mar. 1983	International Aeradio	60
Mar. 1983	BR Hotels	45
Mar. 1984	Scott Lithgow	20
May 1984	Wytch Farm	80
July 1984	Sealink	66
Aug. 1984	Inmos	95
June 1985	Yarrow Shipbuilders	34
Nov. 1985	Vosper Thornycroft	18.5
Jan. 1986	Swan Hunter	7
Mar. 1986	Vickers Shipbuilding	60
July 1986	Royal Ordnance	201
Aug. 1986	National Bus Company	250
Sept 1986	BA Helicopters	13.5
Jan. 1987	Unipart	30
Jan. 1987	Leyland Bus Company	4
May 1987	DAB	7
June 1987	Istel	26
July 1988	Rover Group	150

Table 2.2 - Privatisation By Private Sale

Source - Bishop & Kay 1988

It must be noted that none of these tables are necessarily complete. Wright & Thompson (1994) point out that there is no centralised record in the UK of transfer of public assets to the private sector and that existing surveys of privatisation activity most likely understate the extent of the policy. Nonetheless, these tables do serve to display the breadth of the privatisation programme in the U.K and when the list of privatised companies is compared to the list of major nationalised industries in 1979 (Table 2.3), it becomes apparent that the process is nearly complete. The British Railways Board, the National Coal Board and the

Post Office were the only major nationalised companies to remain in the public sector by 1991 and both Coal and the Railways have subsequently been privatised.

MAJOR NATIONALISED INDUSTRIES IN 1979
British Airports Authority
British Airways Board
British Gas Corporation
British National Oil Corporation
British Railways Board
British Shipbuilders
British Steel Corporation
British Telecom
British Waterways Board
Electricity Council & Generating Boards
National Bus Company
National Coal Board
North of Scotland Hydroelectricity Board
Post Office
South of Scotland Electricity Board

Table 2.3 - Major Nationalised Industries In 1979

Source - Veljanovski 1987

It is worth noting that the most difficult and problematic privatisations appear to have been left to the end and that the only industry the government has failed to privatise is the Post Office (the proposals that this too should be moved to the private sector were defeated early in 1995). Although the privatisation of the railways has now been completed there is evidence to suggest that because of the complexity of the privatisation it was prepared over a long period of time (Gibb et al 1996).

A great many of the early privatisations, for example BP, British Aerospace and Cable and Wireless, were carried out with relatively little controversy and, indeed, seemed likely to fulfil many of the objectives. Certain objectives, however, such as an improved quality of service and the promotion of 'popular capitalism' were not apparent in many of the initial privatisations (Bishop, Kay & Mayer 1994).

It was only from 1984 onwards that privatisation became a more complex and contentious issue as the government began to emphasise private sector ownership as a prime objective, together with increased share ownership, and to this end began to privatise the large public sector monopolies such as telecommunications, gas, water and electricity (Veljanovski 1987, Letwin 1988, Ernst 1994).

2.3.1 - The Privatisation Of Public Sector Utilities

Pre-privatisation each of the major utilities existed as a monopoly and the mechanisms by which they were privatised were influenced by the status of the monopoly, i.e. whether it existed as a natural monopoly or a statutory one. In the case of statutory monopolies the freeing up of entry into the market, i.e. liberalisation and the introduction of competition was cited as a key objective (Bishop, Kay & Mayer 1994). In the case of a natural monopoly it was argued that those sectors of the company that contained a competitive element should be identified and formed into separate companies at the time of privatisation, allowing them to compete freely in the market place (Bishop, Kay & Mayer 1994). Natural monopoly considerations, i.e. no competition, would then only apply to a limited segment of a firms activity, specifically distribution through the medium of national grids and networks (Bishop, Kay & Mayer 1994).

Despite these arguments many commentators suggest that opportunities for the introduction of competition were missed (see for example Veljanovski 1987 or Bishop, Kay & Mayer 1994), particularly in the case of earlier privatisations such as Telecom and British Gas which were privatised as fully integrated monopolies (Price 1994). This lack of competition has led to the setting up of regulatory bodies to monitor, and indeed control, the performance and service standards of the privatised monopoly industries (Veljanovski 1987, Price 1994). One aspect of this regulation is price setting, a system based on the retail price index. The formula most often used is RPI - X (the retail price index which indicates the general rate of inflation - the figure imposed by the regulator to take account of productivity increases and other factors) and most privatised industries are expected to keep price rises below the rate of inflation (Saunders 1991). The setting of X has varied enormously from industry to industry.

2.3.1.1 - The Privatisation Of The Telecommunications Industry.

The first of the large utility monopolies to be privatised was the telecommunications industry in 1984 which was sold off as an entire company rather than breaking it up into smaller companies for separate flotation. The decision to privatise came about partly as a result of British Telecom's plan to invest substantially in electronic switching (the government was anxious to exclude the cost of this from the PSBR) but, more importantly, it was driven by a political philosophy that was determined to transfer state ownership to the private sector (Veljanovski 1987). In November 1984, 51% of the shares were sold raising £3.9 billion in revenue (Bishop & Kay 1988). It was one of the largest share issues ever seen, six times larger than any previous issue on the UK stock market (Bishop & Kay 1988).

As a part of the privatisation process the first of the regulatory bodies, Oftel, was set up to monitor and regulate the telecommunications industry and for the first time the objectives for regulation were made explicit. Littlechild (1983) listed five objectives:

- 1 Protection against monopoly.
- 2 Encouragement of efficiency and innovation.
- 3 Low cost of implementation.
- 4 Promotion of competition.
- 5 Maximisation of proceeds from sales and enhancement of commercial prospects.

In addition to the provision of a regulatory body, the Telecommunications Act 1984 required organisations offering telecommunications networks to be licensed by the Secretary of State (Bowdery 1994). The prices charged for some activities were to be controlled (the RPI-X formula was used to control prices with no modification and X was set at 3%). BT was required to connect other licensed networks and apparatus to its 'public' network and to provide services unless all reasonable demands were met by other means (Bowdery 1994). Specific public service obligations such as call boxes, rural services and emergency services were also set out in the operating license but there was no mention of quality of service (Bowdery 1994).

Despite privatising Telecom as a fully integrated monopoly there was some provision made for competition to develop. The previous monopoly for all telecommunications changed and a duopoly was to be allowed in the fixed link telecommunications market. Mercury became British Telecom's potential competitor. However as Veljanovski (1987) points out, there was a reluctance to further liberalise the industry. This was partly because of the undertaking given to shareholders in the BT prospectus that there would only be two companies permitted to provide basic fixed link telecommunications networks until at least

1990, and partly to protect BT from competition and allow Mercury time to become a feasible competitor (Veljanovski 1987). In the field of other services and products, e.g. telephone equipment, the market was opened up and substantial competition emerged. Additional competition was finally introduced to the telecommunications market when, in 1990, the review of the original duopoly provision was completed and a white paper 'Competition and Choice: Telecommunications Policy for the 1990s' (HMSO 1990) was published which allowed further liberalisation of the telecommunications market.

It is interesting to note that the protection afforded to BT and Mercury in the initial phase of operation as a private sector company has been repeated in the case of rail privatisation whereby the initial plans to allow competition to develop have been shelved until 2002 to allow franchisees time to establish a successful operation. Similarly, the undertaking to BT shareholders is echoed by the need to make rail franchises an attractive proposition by offering protection from competition in the early years.

2.3.1.2 - The Privatisation Of The Gas Industry

In December 1986, gas was also sold off as an integrated monopoly rather than broken up for separate flotation (Bowdery 1994). It is argued that there was an urgency behind this privatisation, both to maximise the financial revenue from the sale (much greater if the industry was privatised intact) and also to complete the sale before the general Election in 1987 (Ernst 1994, Price 1994 Robinson 1994). The share issue raised a total of £5.4 billion, even larger than that of Telecom, and spread the concept of 'popular capitalism' even more widely, particularly as 99% of the workforce took up share options and all customers were mailshotted with a guarantee of a minimum of 200 shares (Mitchell 1990).

There was little or no provision made for competition to develop, and a regulatory regime, Ofgas, was established. Not all elements of the industry were to be regulated, however. The retail appliance outlets were already operating in a competitive marketplace and required no regulation. More controversial was the decision to only regulate some 60% of the gas supply. For that part of the market which was to be regulated the RPI-X formula was employed. It was however modified and became RPI-X+Y, whereby X (the efficiency factor) was set at 2% and Y allowed for the entire purchase costs of gas to be passed on to the consumer (Ernst 1994). This only affected those consumers who used less than 25,000 therms, the larger users of gas remained free to negotiate their own prices.

Once again, quality of service was given a low priority in the regulatory regime. Ofgas was given a general duty to protect consumers, with a specific mention of the elderly and disabled, but this was relegated to second place behind the primary duties of ensuring that all reasonable demands for gas are met, that authorised suppliers of gas are able to finance the provision of gas supply services, and to enable suppliers to compete effectively in the supply of gas to premises whose usage exceeded 25,000 therms per year (Bowdery 1994 Ernst 1994). In addition to Ofgas a second body, the Gas Consumers Council, was set up specifically to deal with consumers representation and complaints. This contrasts with Oftel, the regulatory organisation for telecommunications, which dealt with all aspects of regulation.

The privatisation of British Gas as an integrated monopoly, without introducing competition, was a highly controversial move which inevitably attracted a lot of criticism. Subsequent legislation has, however, gradually lifted restrictions on new entry to the gas supply market and in 1993 the government decided that British Gas should fully separate

the operation of its trading and transportation business to make entry easier for new suppliers and that their tariff monopoly should end in April 1996 with competition to be steadily phased in over the next two years (Bowdery 1994). From April 1996 a pilot scheme in South West England permitted all domestic and small commercial customers to select their own supplier (Grant 1995). It is claimed that customers making the switch in supplier will benefit by savings of at least 10% on existing bills (Grant 1995).

This was the last time that a major public sector company was privatised intact and later privatisations such as water, electricity and the railways have all involved the break up of these companies prior to their sale. The need to introduce competition has also been recognised but, often, this is delayed to ensure the successful move from the public to the private sector.

2.3.1.3 - The Privatisation Of The Water Industry

The water industry was not privatised as an intact monopoly. Instead, in November 1989, the ten regional water and sewerage companies were sold to the private sector as individual companies (Mayer 1994). They joined the twenty nine water only companies that were already in private ownership and raised £5.3 billion in revenue (Cowan 1994). It has been suggested that a major incentive for this privatisation was to avoid the vast capital expenditure that meeting EC directives on water quality and sewerage would entail (Mayer 1994).

Water privatisation was a particularly contentious issue and throughout the entire privatisation process opinion polls suggested that it was opposed by between 70 and 80 per cent of those interviewed (Ernst 1994, Jackson & Price 1994). Particular criticism was

directed at the lack of potential competition. The only competition possible was in the form of yardstick competition, a method that comes in for strong criticism because of the difficulty of establishing relevant determinants of performance (Mayer 1994, Cowan 1994).

To counteract fears of the exploitation of monopoly power therefore, a regulatory body, Ofwat was established. Ofwat was set up to deal primarily with economic regulation and had two main duties: the first was to ensure that water companies could operate profitably and the second was that they could carry out their duties and adequately finance them (Ernst 1994). Secondary duties included general provision to protect the interests of customers, a specific duty to take account of the needs of the disabled and the elderly together with an extra duty which was to protect the interests of customers and potential customers in rural areas in respect of charging for water services (it was felt that under a free market the costs for rural customers could soar) (Ernst 1994). Furthermore, for the first time, legislation that required the regulator to enforce quality standards was included in the privatisation bill (Bowdery 1994, Ernst 1994). Environmental regulation was dealt with as a separate issue. Three bodies were to monitor and regulate environmental standards: HM Inspectorate of Pollution, the Drinking Water Inspectorate, and the National Rivers Authority.

Meeting the cost of the new EC directives on water quality and sewerage disposal was taken into account when setting prices. The RPI-X formula was applied but because of the substantial capital requirement for new investment the formula was modified into RPI+K (where K represented the sum required for new investment 'Y' less the efficiency gains 'X') which has led to variable, rising prices in the different regional companies (Saunders 1991, Ernst 1994).

Competition has not really increased, despite legislation in the 1992 Competition and Service (Utilities) Act which relaxed restrictions on competition at boundaries and permitted new appointments to be made for the service of single existing customers whose consumption exceeds 250 megalitres per annum (Bowdery 1994). Equally, yardstick competition is still not fully operational due to the difficulties in establishing relevant determinants of performance and, in fact, many argue that it is too limited and would be a poor substitute for real competition (Bishop, Kay & Mayer 1994, Cowan 1994).

Water privatisation affords a good example of the difficulties inherent in attempting to introduce competition into an industry that is essentially a natural monopoly. When electricity was privatised this problem was recognised and, while the potentially competitive sectors of the industry were formed into individual companies, the transmission network was conceded as naturally monopolistic and formed into one company, jointly owned and managed by the regional electricity companies.

2.3.1.4 - The Privatisation Of The Electricity Industry.

The privatisation of the electricity industry was carried out over a period of some six months between December 1990 and June 1991. The sale raised just over £10 billion; the twelve electric companies were sold for £5,180 million, 60% of the stock in PowerGen and National Power raised £2,100 million, and Scottish Power and Scottish Hydro-electric were sold for £2,900 million (Wright & Thompson 1994). In March 1994 the government sold off its remaining 40% share of PowerGen and National Power (Lorenz & Grice 1995).

The industry was broken up into its component parts of generation, transmission and distribution, and supply to the end user. It was an intensely complex privatisation which

was based on the idea that the transportation side of the market (i.e. transmission and distribution) was naturally monopolistic given the current technology available, and that generation (the wholesale supply side) and retail supply to the end user were both the potentially competitive ends of the market (Yarrow 1994).

In the initial plans CEGB, responsible for the generation and transmission of electricity, was broken up into three parts. Power generation was divided between Gen1 (later National Power) with 67% of the capacity and Gen2 (later PowerGen) with 33%, and the responsibility for nuclear generation went to the larger company (Yarrow 1994). The transmission network was transformed into the National Grid Company, jointly owned and managed by the regional electricity companies. The existing twelve regional electricity boards were sold off as twelve public limited companies responsible for distribution and supply to the end user. In Scotland the Scottish electricity industry was broken into two vertically integrated companies, Scottish Hydro-Electric and Scottish Power, with their generation, transmission, distribution and supply functions intact (Bowdery 1994).

In November 1989, however, the government decided to withdraw the nuclear generating capacity from the sale, forming instead two public sector companies, Nuclear Electric and Scottish Nuclear (Bowdery 1994, Ernst 1994). This arose because of fears that nuclear generation would prove to be unattractive to investors, particularly given the huge costs associated with decommissioning the older nuclear power stations (Bowdery 1994, Lorenz 1995). The overall impact of this was to increase competition between the power generators and National Power's share of the market was reduced to 52%, PowerGen remained the same at 33% and Nuclear Power received 15% of the market (Yarrow 1994). In March 1994 the decision was partially reversed and the government announced its

decision to privatise Nuclear Electric's six modern reactors and Scottish Nuclear's two reactors which became separate subsidiaries of a new joint holding company, British Nuclear (Lorenz & Grice 1995). The nine ageing Magnox stations, with their £8.5 billion liabilities, were retained in the public sector because of the difficulty and cost associated with decommissioning nuclear power stations (Beavis 1995).

The price for generated electricity was not regulated, and competition was allowed to develop between generating companies (Bowdery 1994). In addition, some competition was to be developed in the supply side of the business with the larger commercial and industrial users (>1MW) allowed to negotiate prices and switch suppliers (Ernst 1994, Yarrow 1994). However, the monopoly franchises of the regional electricity companies would stand until 1994 in the case of medium sized customers (100KW-1MW) and 1998 for small customers (<100KW), after which time the small business user would be free to switch suppliers should they wish to (Bowdery 1994).

Despite the moves to introduce competition certain areas of transmission charges, distribution charges and supply charges were in need of regulation and therefore a regulatory body, Offer, was set up (Bowdery 1994, Ernst 1994). The regulator was charged with developing competition wherever possible and also ensuring that licensed suppliers satisfy all reasonable demands for electricity within their authorised area (Bowdery 1994). To regulate the economic side of the business the RPI-X formula was applied but in the case of electricity it was to include a Y factor ($RPI-X+Y$), the Y reflecting the costs to the regional electricity companies of such things as wholesale costs, transmission charges and distribution charges (Yarrow 1994). Although the regulation was primarily economic there was nonetheless some provision made for consumer protection, with particular reference to

those living in rural areas, the disabled and the elderly (Ernst 1994). Ensuring the continuity and quality of supply to consumers together with protection of the public from any danger arising from the generation, transmission and supply of electricity was also included in the regulators brief (Bowdery 1994). In addition, a series of Regional Consumer Councils were set up to look after consumer interests.

The privatisation of the electricity industry clearly demonstrates the lessons learnt from previous utility privatisations. The industry was broken up before sale and the naturally monopolistic sector, the transmission network, was set up as a shared resource for all the electricity companies. This closely resembles the final plans for rail privatisation whereby the potentially competitive sectors of the industry were formed into individual companies while the track, signalling and infrastructure were conceded as naturally monopolistic and formed into one company (Railtrack) which operates without competition and provides access for all the train operating companies. The need to make an industry attractive to potential investors, a recurring theme since British Telecom was privatised, was also recognised when the nuclear industry was withdrawn from the sale.

2.4 - The Changing Face Of Privatisation

Examining the processes involved in the utility privatisations afford good examples of both the various forms that privatisation can take and the changing priorities of the underlying objectives. Among the methods used to privatise these industries one can see examples of the direct sale of the vertically integrated monopoly (such as Telecom and gas) and also the breaking up and restructuring of an industry prior to privatisation (water and electricity). With the exception of the water industry, privatisation has also been accompanied by fairly extensive liberalisation of the market in an attempt to introduce competition, a move that

has been more successful in some areas than others. Nonetheless there are signs that fairly substantial competition has begun to emerge. Whether or not this competition has led to the fulfilment of the major objectives of privatisation remains debatable, often the fulfilment of one objective will sometimes prevent others from being achieved.

Underlying each of these privatisations is the strong commitment of the Conservative government to neo-liberal principles and a free market economy. Nonetheless the objectives associated with this ideology can change in priority and often the way in which a company is privatised will reflect these changing priorities. In the case of Telecom for example, Bishop, Kay & Mayer (1994) argue that a major motivation was financial, raising revenue to help fund a large public sector deficit. Others such as Veljanovski (1987) agree that a financial motive existed but that it was more a step to avoid the cost of investment in new technology. The successful flotation of Telecom, however, brought about a new objective, 'popular capitalism', which was to feature strongly in subsequent privatisations (Bishop, Kay & Mayer 1994). When gas was privatised however, there seemed to be an urgency to the sale brought about by the need to transfer it from state to private sector before the General Election of 1987 (Ernst 1994, Price 1994, Robinson 1994). The form the privatisation took, gas was sold as a fully integrated monopoly, suggests that maximising the revenue was also a strong motivation (Ernst 1994, Price 1994, Robinson 1994). Water privatisation remains controversial, competition was virtually impossible to introduce (except in the form of yardstick competition). It is suggested that, together with a strong ideological commitment to reducing the role of the state, the primary motive was again financial, concerned with avoiding the substantial capital investment that compliance with new EC regulations would bring about (Mayer 1994). It is only in the privatisation of the electricity industry that a full range of objectives can be detected. The industry was

totally restructured before privatisation and competition was introduced where ever possible. Even this privatisation seems unlikely to fulfil all of the objectives because, as in the case of all the utility monopolies, the industry is subject to regulation which immediately prevents it from operating in a free market context.

2.5 - Measuring The Success Of Privatisation

One recurring theme seems to be the apparent contradiction between the privatisation of the utilities and the regulatory bodies set up to monitor them. The very act of regulation immediately compromises the operation of a free market and jeopardises the fulfilment of some of the objectives associated with it. Despite extensive regulation however, the public service element contained within these industries is often relegated to second place behind economic goals. How well the privatised industries fulfil their objectives, particularly the public service element, will, therefore, be discussed, with particular reference to the privatisation of the utilities.

2.5.1 - Competition, Efficiency And Improved Performance.

It is alleged that improved performance is due to the introduction of competition and more efficient methods and can be measured by indications of increased profitability, turnover and growth in output (Beesley 1992). However, the direct impact of competition can also be measured using means such as the level of new entry to the market place or the movement of customers and/or prices in response to increased choice and competition.

2.5.1.1 - Competition

To achieve competition in the 'natural monopolies' a core issue is the separation of the ownership of genuine natural monopoly activities from those areas of the business where

competition may be possible. Prior to railway privatisation, the only privatised monopoly where this was carried out was the electricity industry when the National Grid company (considered to be the only naturally monopolistic part of the organisation) was separated off, and the generation and retail supply parts of the industry which were considered to be potentially competitive were broken up for sale (Yarrow 1994).

Competition has certainly been allowed to develop within the generating side of the electricity industry and table 2.4, below, shows the structure of the generating market after the nuclear industry privatisation in 1996. When first privatised National Power had 52% of the generating market, PowerGen 33% and Nuclear Electric 15%, since then a much more competitive marketplace appears to have developed.

Company	% Share of Market
National Power	23
British Nuclear*	22
Independent Power Projects**	21
PowerGen	16
Magnox Company	8
Electricite de France	5
Scottish Power/Hydro-Electric	5

*Nuclear Electric & Scottish Nuclear without Magnox

**Gas-fired joint ventures with regional electricity companies

Table 2.4 - Structure Of The Electricity Generating Market After 1996

Source - Lorenz (1994)

On the retail supply side there are also signs of developing competition for larger consumers. This is apparent in the switching of supplier and the associated change in price. (See tables 2.5 & 2.6, based on a survey published by the Financial Times in 1991).

% Of Respondents Who Had:	%
Transferred entirely to supply from a generator	13.6
Transferred partly to supply from a generator	17.8
Transferred entirely to supply from another REC	3.8
Transferred partly to supply from another REC	17.4
Remained with local REC	37.6
Switched to Pool related contracts	9.8

Table 2.5 - The Switching Of Supplier By Large Consumers 1990/91

Source - Financial Times 1991

% of Respondents Who Reported:	%
Reductions >20%	31.3
Reductions between 10% & 20%	44.6
Reductions <10%	15.7
No Material Difference	6.6
Increases	1.8

Table 2.6 - Price Changes For Large Consumers 1989/90 - 1990/91

Source - Financial Times 1991

The data contained in tables 2.5 & 2.6 serves to highlight the competitive forces at work within the electricity industry and the subsequent movement of customers in response to this competition. In addition, table 2.6 serves to illustrate one area in which competition will have an impact, that of pricing. Littlechild (1994) points out that generally customers who are free to choose their supplier have experienced an improvement in the standard of service, whether or not they have actually switched to a second tier supplier.

The privatisation of British Gas initially made very little provision for competition but has since been subject of intense scrutiny resulting in measures to enhance competition (Ernst

1994, Price 1994, Robinson 1994). Even the limited competition that was introduced to the gas industry had an impact but although gas prices fell in real terms (relative to the RPI) the price gains were far greater for larger users than for the domestic consumer (Ernst 1994). Table 2.7 shows the changes in gas tariffs by percentage for all sectors between 1988 and 1991 together with the percentage increase in the RPI during this time.

Sector	% Change
Domestic	24
Small Industrial (<50,000 Therms)	14
Medium Industrial (50,000 - 300,000 Therms)	-4
Large Industrial (>300,000 Therms)	-4
RPI	27

Table 2.7 - Changes In Gas Tariffs (By Percentage) For All Sectors 1988-91

Source - Ernst 1994

There are indications that, within industries that had previously operated as monopolies, competition is beginning to emerge. The impact of this competition manifests itself both in new entry to the market place and more competitive pricing for the larger customer. For the domestic consumer, however, the franchise monopolies will not be fully lifted in Gas and Electricity until 1998, after which time they to will be free to switch suppliers and take advantage of competitive pricing and service standards designed to attract custom. In the meantime the domestic consumer is not experiencing the benefits that privatisation is deemed to provide.

2.5.1.2 - Profitability And Increased Efficiency

Profitability and increased efficiency can also be measured. For the energy and water utilities the profits, since privatisation, have increased considerably (see table 2.8).

However, it is interesting to note the impact that competition has on profits. Water companies, where yardstick competition is the only measure, show a much higher increase in profits than the companies where more direct competition has been introduced. Similarly, British Gas had an increase in profits of 99% up to the end of the financial period 1990/91 which dropped to an overall increase of 49% by 1992. This deterioration is attributed, in part, to competition taking around half of the profitable contract gas market (Ernst 1994). The argument that competition leads to improved efficiency and increased profitability does not, therefore, seem to be borne out by the profit increases attributed to these companies because increases in profits are greatest within those industries allowed to retain a monopoly whilst operating in the private sector.

Utility	Years	% Increase
British Gas	1985/86 - 1992*	49
Water Companies	1988/89 - 1991/92	137
RECs	1989/90 - 1991/92	47
Generators	1990/91 - 1991/92	24

*NB. - 1985/86 - 1990/91 British Gas profits increased 99%

Table 2.8 - Percentage Increase In Privatised Utility Company Profits Since Privatisation

Source - Ernst (1994)

Looking at the difference in profits brought about by an injection of competition it becomes apparent as to why regulation of these erstwhile monopolies was considered so vital. It is worth noting that these increased profits have been achieved despite the limits on pricing brought about by the regulators imposing a negative X factor in all cases except for water (where increased investment to meet EC legislation had to be allowed for) (Winward 1994). Profitability is, therefore, primarily dependent on efficiency gains brought about by decreased costs of production. If a firm achieves lower costs of production it will result in higher profitability and should costs of production rise, and the company perform less

efficiently than predicted, then it will incur losses (Mayer 1994). The price caps, however, reflected the tariffs operating at the time of the privatisation and these were increased prior to the privatisation taking place. Winward (1994) argues that this was done to make these industries more profitable and thus more attractive to a potential purchaser. A similar scenario can be seen when rail privatisation is evaluated, in this case the level of subsidy nearly doubled before the franchises were awarded (see chapter 3 for further detail). Increased profits must therefore be treated with caution when being viewed as a measure of the success of privatisation, as they could result from a combination of price increases that were introduced prior to privatisation taking place and the extent to which an industry continues to dominate the marketplace.

Nonetheless, if regulation is too strict then new entrants to the marketplace will be discouraged by the poor return on investments and lack of commercial freedom and the regulator must balance the need to control prices and allow profits (Lipworth 1993, Price 1994, Carsberg 1994). This serves to highlight the essential contradiction between the concept of a regulated market and a free market economy. In a free market new entrants are encouraged to enter the industry by the levels of profitability that can be achieved. The regulated market, on the other hand, is trying both to encourage emerging competition by making entry to these markets attractive and yet still control prices and service standards (Lipworth 1993). The market that operates after privatisation does not therefore fulfil the criteria of a free market economy but nevertheless operates in a manner comparable to that of a free market with increased competition and the drive towards more efficient operation.

2.5.2 - The Revenue From Privatisation And The P.S.B.R.

Figure 2.1 shows the revenue received between 1984/85 and 1994/95¹. In 1991/92 for example, some £7.9 billion was raised from privatisation with a further £8.1 billion generated in the following year (CSO 1995).

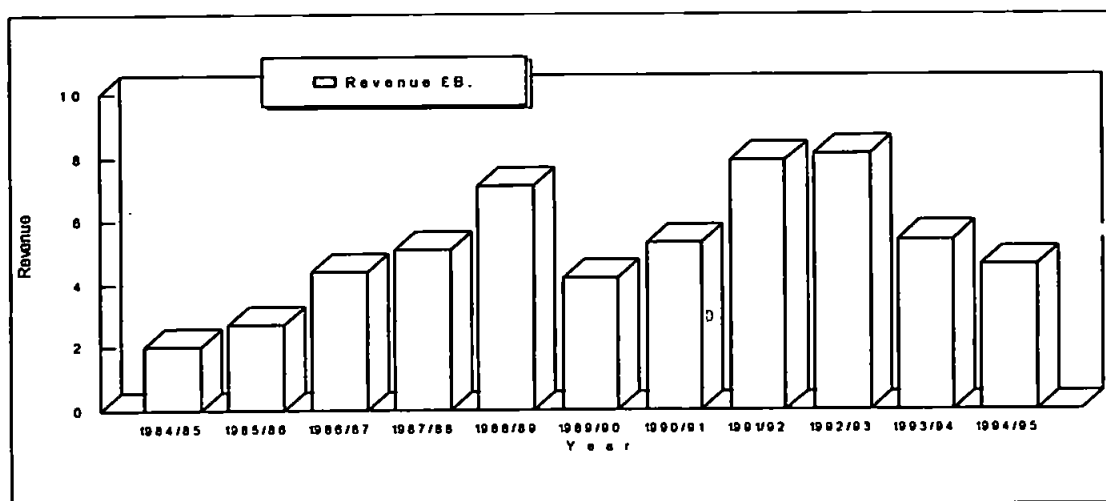


Figure 2.1 - Annual Proceeds From Privatisation 1984/85 - 1994/95 (In £B.)

Source - CSO Financial Statistics (1992 & 1995)

The revenue generated by privatisation has undoubtedly had an impact on the PSBR and over the ten year period between 1984/85 to 1993/94 can be shown to have substantially reduced it (see figure 2.2 for further detail). The impact was most marked in the mid to late 1980s when privatisation revenue effectively halved the PSBR. Indeed, it can be argued that the government's objective of reducing the PSBR was, in the mid to late 1980s, totally fulfilled. Since then however the PSBR has risen dramatically and in the 1990s the revenue from privatisation has had very little impact on the overall PSBR, despite increases in the annual proceeds.

¹ These figures are taken from CSO Financial Statistics and reflect net proceeds rather than gross proceeds, thus the figures differ from the gross revenue received from each sale previously quoted

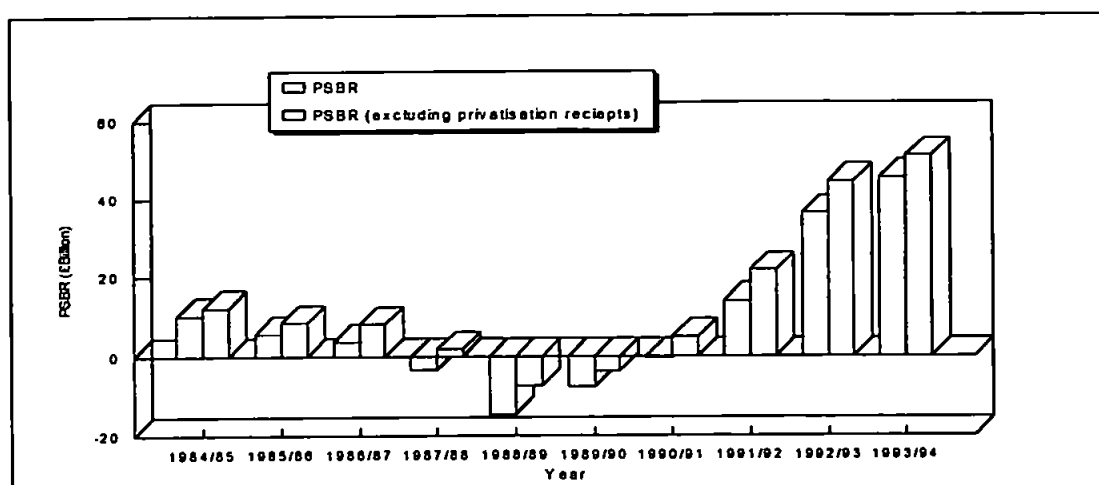


Figure 2.2 - P.S.B.R. 1984/85 - 1993/94 (Showing Effect Of Privatisation Revenue)
Source - CSO Financial Statistics (1992 & 1995)

However, any attempt to determine the success of an objective such as the raising of revenue and the reduction of the PSBR on the statistics that measure these two factors would not necessarily reveal the true picture. The short term gains from the sale together with the removal of the costs of the company from the public sector do not always offset the lost revenue that would have been received from the company. As table 2.9 indicates, the effects of privatising British Telecom on the 1985/86 PSBR actually raised the PSBR by £230 million.

EFFECT	£MILLION
Removal of BT's gross trading surplus from public revenue	+3,000
Removal of BT's capital requirements from public spending accounts	-1,900
Receipts by Govt. of its dividend on 3 billion shares (net)	-200
ACT receipt on all BT dividend payouts	-170
Interest paid by BT to the rest of the private sector	-150
Interest paid by BT to the government	-350

Table 2.9 - Effect Of Privatising B.T On 1985/6 P.S.B.R.
Source - Kay & Thompson 1986

What the evidence suggests is that on a short term basis, especially in the year of the privatisation, the PSBR and the proportion of GDP required for government expenditure are reduced. Later on, however, the impact of privatisation can actually be to increase the proportion of GDP required for expenditure and the PSBR. This is due to the loss of profits from the company, an income that would have existed on an annual basis. It is possible that this is one of the factors that has contributed to the dramatic rise in the PSBR in the 1990s.

2.5.2.1 - The Cost Of Privatisation

It must also be noted that there are often huge costs associated with the actual preparation of a company for privatisation and the subsequent sale of the company to the private sector. As Ernst (1994) points out the gross proceeds that are usually quoted do not reflect the actual gain in revenue because the costs of the sale have yet to be removed from the figures. Once this has been done the net proceeds are often considerably reduced. The cost of sales are variable and Wright & Thompson (1994) suggest that the expenses associated with privatisation have been reduced in recent years with the privatisation of the water and electricity industries costing between 2.4 and 2.8 per cent of the equity proceeds whereas earlier privatisations such as Telecom and British Gas cost 6.8 and 6.4 per cent respectively. In total, the expenses attributed to the privatisation of the utilities by Wright & Thompson (1994) amount to more than £1 billion, a considerable sum of money.

There are many examples of a failure to maximise revenue from privatisation that suggest that this objective is not always a priority. In particular, there have been accusations of deliberate underpricing of shares to both promote the concept of popular capitalism and also to ensure that the move from public to private sector is successful (Jenkinson & Mayer 1994, Wright & Thompson 1994). Discounts on share prices were at their highest when the

promotion of popular capitalism became a major objective (Jenkinson & Mayer 1994) and when Telecom was privatised the discount was calculated to be 86% (Wright & Thompson 1994).

One final example of the underpricing apparent in the privatisation of the utilities can be seen in the discrepancy between the market value and the current cost book value of these companies. British Gas was sold for £5.6 billion and by the end of the first weeks trading was valued at £6.1 billion with assets valued at £18 billion (Bishop, Kay & Mayer 1994). Similarly, the water companies were sold for £5.2 billion and by the end of the first week were valued at £6.4 billion, with assets (at current cost book value) valued at £110 billion (Bishop, Kay & Mayer 1994). These are not isolated cases, the same discrepancy can be found in the sale of the electricity industry. There is, however, a valid reason for this dramatic underpricing as the prices charged for these services fall well below those that would be required to earn a normal return on the current cost value of the assets. This reflects the 'social needs' element to these industries as it would not have been possible to raise charges levied on consumers to sufficiently high levels to ensure an adequate return, resulting in the utilities being sold for well below the current cost value of their assets.

All the evidence examined in this section suggests that although the raising of revenue and reduction of the PSBR have been often cited as one of the major objectives of privatisation it is an objective that has often been relegated to a lower priority when compared to other objectives. Although the statistics for revenue raised, together with its impact on the PSBR, appear initially to indicate successful fulfilment of the objective, further analysis suggests that once the costs of privatisation are taken into account (such as loss of annual revenue, expenses associated with privatisation, and discounts on share prices to ensure a successful

flotation) the actual revenue raised is not as great as has been supposed, and certainly the impact on the PSBR is, in the 1990s, negligible. Furthermore, it has been possible to highlight the discrepancy between the market value of utility companies and the current cost value of the assets that have been sold, a situation arising out of the public service element to these companies. A factor that further accentuates the difficulties to be overcome when selling off the so-called 'socially necessary' services.

2.5.3 - Reduced Role Of The State And Increased Commercial And Financial Freedom

The reduction of the role of the state is, at best, an objective that will always be compromised in some way. Whatever the industry some form of control will remain and state intervention, though perhaps much reduced in its scope, will still be apparent in the day to day running of a company. Regardless of ownership the state can and does intervene on matters as diverse as compliance with health and safety regulations and financial regulation. In the case of the newly privatised utilities, however, state intervention goes much further and a series of regulatory bodies have been set up to oversee these industries. Although these bodies remain nominally independent entities they are nonetheless non-ministerial government departments which are ultimately answerable to the Secretary of State (Ernst 1994). Thus the state retains a strong interest in the performance and activity of these industries. The reduction in the role of the state is perhaps better expressed by Veljanovski (1983) who described it as a 'redefinition of the role of the state'.

Despite the continuation of some form of state regulation and intervention all of the newly privatised utilities have gained a considerable degree of commercial freedom and have taken advantage of this by diversifying into a wide variety of new enterprises. This rapid diversification into new business ventures was perhaps inevitable and is considered to be a

response to the stringent regulation that the main core of the utility industries are subject to (Bernoth 1994). With profits and prices so tightly controlled, expansion into areas beyond the control of the regulators was viewed as an opportunity to ensure future profitability regardless of how restrictive future regulation on profits became. Water companies entered the waste management industry, became environmental consultants, ran hotel chains and built overseas water plants. Regional electricity companies diversified even further, the liberalisation of entry to the utilities that accompanied the privatisation legislation has led to them becoming suppliers of gas and communications in addition to their core functions of supplying electricity. Too often a lack of commercial expertise in the new areas of business has led to huge losses, however, and many of these companies, recognising their lack of commercial expertise within these fields, have begun to restructure their management, bringing in teams with considerable commercial expertise outside of the utilities (Bernoth 1994). The possibility of a new monopoly situation emerging exists, with one company able to supply a household with all of its electricity, gas and communications requirements.

Alongside the new found commercial freedom comes a new financial freedom. The newly privatised utilities are able to operate outside of the constraints of the government's borrowing limits. However, as Bishop, Kay and Mayer (1994) point out, there has been little external financing because prices were set at levels to ensure that they yielded both an adequate return and sufficient cash flow to meet financing requirements. An important part of this financial freedom was the exposure of these companies to private sector disciplines. King (1987) points out that financial targets were originally introduced into nationalised industry to take the place of market forces but were never as effective as the threat of bankruptcy, closure or takeover.

Theoretically bankruptcy is now possible within the privatised utilities but in practice privatised firms are some of the most highly financially protected firms in the UK (Bishop, Kay & Mayer 1994). This is primarily because of the disruption that bankruptcy would cause in a key industry and the government avoids the possibility by ensuring that the regulator sets prices that will enable the companies to meet their financing and investment obligations (Bishop, Kay & Mayer 1994). Equally, most privatised utilities are protected from the threat of take-overs and mergers because they reduce the number of companies available for yardstick comparisons (Bishop, Kay & Mayer 1994).

Evaluation of these particular objectives (reduction in the role of the state and increased commercial and financial freedom) suggests that none of them are successfully fulfilled. Regulation of these industries immediately negates any reduction in the role of the state. Equally, commercial freedom has not led to commercial success, despite diversification into new fields of operation. Little external financing has taken place because the terms of the regulation were set generously to ensure sufficient funds existed, and the impact of financial disciplines normally found in the private sector such as the threat of bankruptcy has had very little effect because the privatised utilities are still heavily protected because of their key role in the provision of services.

2.5.4 - Wider Share Ownership - The Promotion Of Popular Capitalism.

The promotion of popular capitalism has been ascribed any number of changing motives since the inception of the privatisation programme in the UK. Initially viewed as a means of ensuring the success of the Telecom flotation the policy soon developed and served both social and political goals (Bishop, Kay & Mayer 1994).

In social terms the policy was promoted heavily as a means of involving the population in a developing enterprise culture, aimed at achieving a major cultural shift in public attitudes (Saunders 1991). Certainly privatisation has been a major factor in UK share issues over the last few years and the majority of the new shareholders have been small individual investors. Between 1985 and 1989, for example, the revenue raised by privatisation amounted to £16.6 billion of the £23.6 billion raised on the stock market (Jenkinson & Trundle 1991). For individual investors share ownership nearly trebled from 3 million in 1979 to 8.3 million in 1987 when the conservative election campaign was fought with popular capitalism as a key issue. (Bishop & Kay 1988). Around 15% of the population had become shareholders. By 1992 that figure had risen to 22% of the population (Bishop, Kay & Mayer 1994).

Many shares have also been acquired through employee share schemes which have enjoyed considerable success. In total around 95% of the workers in Gas, Telecom, Water and Electricity now have a financial stake in the future profitability of their company (Saunders 1991). This will have a direct benefit on the company concerned as the workforce retains a greater awareness of the company's problems, something that will be reflected in any negotiations between management and workforce (Grout 1994).

However, in terms of bringing about a major cultural shift in attitudes towards an enterprise culture popular capitalism does not seem to have fulfilled its objectives. Studies by Saunders (1991), carried out at the time of water privatisation, indicate that share ownership has not had as dramatic an impact as the promotion of home ownership did. With the exception of the workforces there has been very little extension of share ownership among the working classes who remain unconvinced as to the value of such

holdings (Saunders 1991). In addition, there is extensive evidence to suggest that the initial investment made is very small and buyers often sell again rather than keeping their shareholding (Saunders 1991). A panel survey carried out by Saunders (1991) both before and after the privatisation of the water industry did, however, suggest that those who had purchased shares became much more supportive of the privatisation policy and tended to switch political allegiance from the Labour party to the Conservative Party. Overall, the results obtained by Saunders (1991) led him to conclude that there was little evidence to suggest that:

'share buying generates or sustains a popular culture more favourable to capitalism, pursuit of profit or the free market nor that it undermines faith in the state nor even the trades unions' (Saunders 1991, p. 16).

Although the evidence suggests that the social aims behind the spread of popular capitalism are not really successful, in terms of the political aims the policy appears to be more effective. Certainly a political party is less likely to renationalise an industry if the shares are spread across a large number of voters (Grout 1994). Furthermore, there was a growing realisation within the Labour Party that success in a General Election was unlikely so long as a commitment to renationalisation remained on the agenda. From an early commitment to renationalisation without compensation and the creation of a statutory power to take companies into public ownership displayed by the Labour party at the start of the Conservative privatisation programme in 1979 there has been a steady retreat towards a more moderate policy (McGowan 1994). This culminated in the removal of Clause 4 from the constitution of the Labour party, a move voted for and passed by 65% to 35% at a special conference (Grice 1995). Thus the political pressure for change that the policy of popular capitalism was claimed to bring about has been proved successful. There is now

little or no threat of the reversal of the privatisation policy regardless of whether or not there is a change of party.

Overall the objective of popular capitalism may be deemed a success and one that has fulfilled a wide variety of aims. Certainly there has been an enormous expansion in the number of shareholders in the UK. The case that this would lead to a major cultural change remains unproven, however, and there are strong indications that overall share ownership has had little real impact in altering the attitudes and opinions of the population (Saunders 1991). By far the biggest success is perhaps the change of policy apparent within the Labour party where a commitment to nationalisation has now been dropped from the party constitution.

2.5.5 - Decreased Trade Union Power.

One of the more disturbing aspects of public sector industries was, in the view of many commentators, the power wielded by the trade unions (Heald 1984, Veljanovski 1987, Wiltshire 1987). The nationalised industries were plagued by industrial unrest and strike action throughout the 1970s and, to quote from the speech about privatisation made by John Moore MP (1983) when he was financial secretary to the treasury:

'Public sector trade unions have been extraordinarily successful in gaining advantages for themselves in the pay hierarchy by exploiting their monopoly collective bargaining position.....most of the large industries employment costs per employee increased faster than the national average over the period 1970-71 to 1982-83.....without corresponding increases in productivity.' (Moore 1983, p.5)

The issue of the trade unions was of great concern to the Conservative Party and fears were expressed that 'they (the unions) are all too ready to seek to involve the government in the interests of their political objectives' (Moore 1983). As a consequence the curbing of the power of the trade unions has often been cited as one of the key political objectives behind privatisation (Bishop & Kay 1988).

Once an industry has been privatised there are many factors that may have an impact on the power of the trade unions, including a more commercially aware management team who are unwilling to allow costs of production to soar, changes of attitude within the workforce that the unions represent and, perhaps most importantly a weakening of the monopoly power previously held as the impact of deregulation and new entry to the market makes itself felt. All of these things will, in combination, reduce the power that the trade unions wield. However, although privatisation has been cited as the key method of accomplishing a reduction in the power of the unions the government also introduced comprehensive legislation against certain union practices such as closed shops and secondary picketing which has also played a part in weakening the unions.

Measuring this change is rather more difficult. Haskel and Szymanski (1992) suggest that there is little evidence of the impact of privatisation on industrial relations but that overall there seems to be a move towards decentralisation of industrial 'bargaining'. One potential measure is to analyse the number of working days lost to strike action. Figure 2.3 indicates the number of working days lost to strike action from 1971 to 1993 and although there is a tremendous year by year variation the overall trend shows a steady decrease.

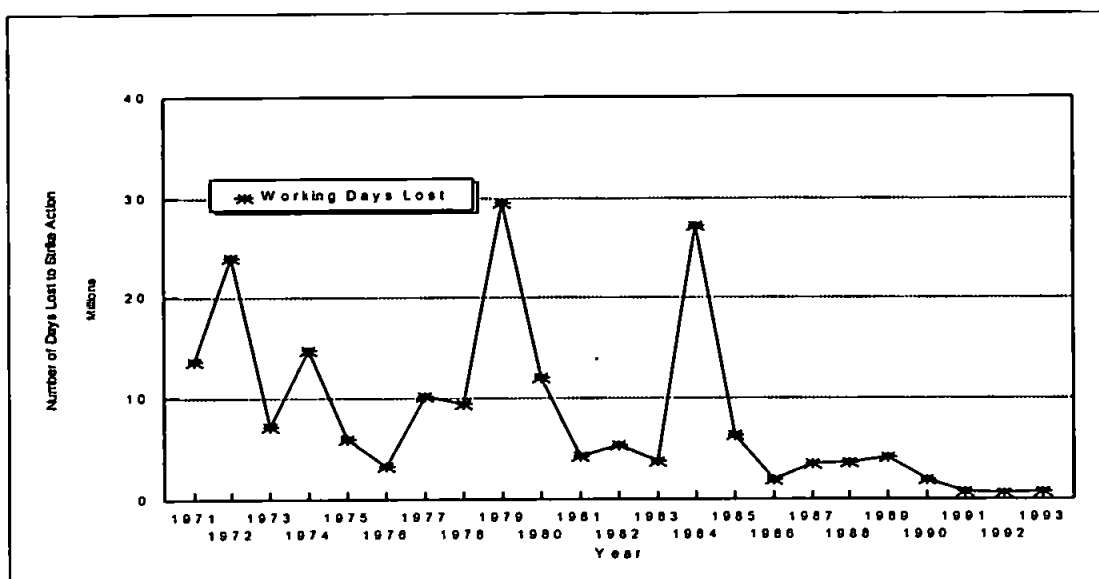


Figure 2.3 - Number Of Working Days Lost To Strike Action 1971-1993

Source - CSO (1983, 1987, 1995)

It is interesting to note that the worst year after the election of the Conservative Government in 1979, occurred in 1984 when 22,484,000 of the total 27,135,000 days lost to strike action were due to the Miners strike and that the coal industry has subsequently been privatised. Certainly from 1989/90 onwards there has been a very abrupt decline in working days lost to strike action but it must be acknowledged that the onset of a severe recession could well have had an impact. Overall, however, there has been a steady, though fluctuating, decline in the number of days lost to strike action and it would be reasonable to suggest that this could be due to a combination of privatisation and the legislative measures implemented by the Conservative government.

Certainly, when the railways, an industry with notoriously strong unions with a tendency to opt for strike action on a large scale, were being privatised the process was accompanied by widespread industrial action. Although the unions argue that the industrial action taken in the summer of 1994 represented an attempt to sort out pay disputes before the privatisation process was complete, there are many who argue that ministerial vetoing of a settlement

offer at the beginning of the dispute represented a direct attempt by government to defeat the rail unions (Milne & Bates 1994). It is worth noting that since the privatisation process has been completed industrial action appears to be limited to individual railway companies rather than the entire network.

2.5.6 - Quality Of Service.

Improved service to the consumer has been identified as one of the key objectives behind privatisation. It has often been argued that the nationalised industries were unresponsive to the needs of the customer (O'Connell Davidson 1994) and they failed to deliver public services efficiently and effectively (Jackson & Price 1994). To combat this it was argued that within a more competitive marketplace a company would be forced to respond to the demands of the customer for goods and services of a suitable 'quality, quantity, variety and price' (Beesley & Littlechild 1983). There are, nonetheless, vast disparities in service after privatisation has occurred and the consumer is not always receiving a good standard of customer care, often experiencing price rises far beyond the rate of inflation coupled with a standard of service that has actually declined.

2.5.6.1 - The Cost To The Consumer

The pricing of services is one area in which privatisation has had a particular impact. Despite all the criticism of nationalised industry services were generally supplied at a price that reflected the view that these were socially 'necessary' services. Indeed, as Bishop, Kay & Mayer (1994) point out, one of the main reasons that these utilities were underpriced at the time of sale was because the prices charged for services fell well below those required to earn a normal return on current cost value of assets.

As the discussion of competition earlier in this chapter indicates, where a choice exists, particularly in a competitive marketplace, the consumers (in this case the large commercial and industrial customers of the water, gas and electricity suppliers) do indeed receive a better standard of service. This is particularly apparent in the pricing of these services, where there now exists a considerable disparity in costs to large consumers compared with the charges levied on the smaller domestic customer. Winward (1994) argues that this will always be a problem while partial competition is in place and that any economies made will not necessarily benefit the domestic consumer. The scheduled opening up of the domestic gas and electricity market to competition and choice will have an impact and new entrants to the gas supply market are predicting that domestic customers switching supplier will make savings of around 10% per annum (Grant 1995).

Issues such as the control of prices and the encouragement of competition are under the direct control of the regulatory regimes that were set up at the time of privatisation. Within the gas and electricity industries it has been possible to detect a steady move towards a flexible, more competitive and responsive market place. Furthermore the regulatory bodies have been responsible for setting a pricing regime (using the RPI-X formula) that has kept price rises below the rate of inflation. Within the water industry however, where there was an acknowledged need for considerable infrastructure investment, this has not been the case. The RPI-X formula actually contained a K factor which allowed the costs of investment to be passed on to the consumer.

As a result of this the water industry has experienced massive price rises, particularly in South West England which has experienced an average rise in water and sewage costs per household of 55% (at a time when inflation was slowing down) compared to a rise of 39%

in the four years (1986-1990) before privatisation (Bernoth 1994). One of the factors responsible for such large increases is the need to meet current EC regulations on water quality and sewerage and, as table 2.10 indicates, the average household bills for unmeasured sewerage are rising considerably above the rate of inflation.

Company	%Increase	%Increase	%Increase
	1989/90-1990/91	1990/91-1991/92	1991/92-1992/93
Anglia Water	7.3	12.5	9.3
Welsh Water	9.7	16.3	8.7
North West Water	12.5	14.5	9.7
Northumbrian Water	19.5	16.5	10.7
Severn Trent Water	12.9	14.8	9.4
South West Water	12.2	17.1	23.1
Southern Water	10.3	15	9.4
Thames Water	10.3	14.4	11.5
Wessex Water	11.2	13	8.4
Yorkshire Water	9.8	12.6	9.5

Table 2.10- Average Household Bills For Unmeasured Sewerage 1992/93
Source - Booker (1993)

Responsibility to share holders has also helped to push up costs; in the case of the water industry the value at privatisation of £5 billion has now risen to more than £13 billion (Bernoth 1994) and dividends to share holders have risen steadily while the domestic consumer has paid the price for the improvements that have increased the value of the holding.

In terms of 'socially necessary' services the case of the water industry again highlights the plight of the consumer. As commercial interests take over an increasing number of people fall into arrears and have their supply cut off (see figure 2.4). Ofwat (1994) points out, however, that after a surge in disconnections following privatisation the effectiveness of

their guidelines to the water companies regarding debt and disconnection has led to a steady reduction in domestic disconnections (though not down to pre-privatisation levels).

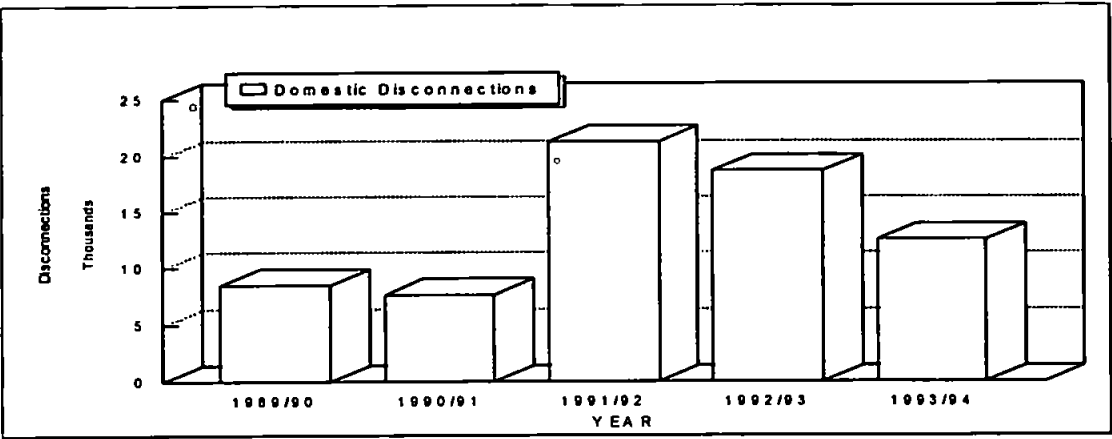


Figure 2.4 - Domestic Water Supply Disconnections 1989-1994
Source - Ofwat (1994)

Although the figures for disconnections are decreasing, and Ofwat is 'encouraged' to note that disconnections now only affect 0.03% of domestic customers (Ofwat 1994), this nonetheless serves to highlight the difficulties that arise when trying to reconcile the new commercial interests brought about by the shift from public to private sector with the social objectives which were apparent within these industries when they formed a part of the state sector.

2.5.6.2 - Consumer Satisfaction

To obtain a general measure of how well privatised utilities are performing in terms of quality of service several polls have been conducted by the National Consumer Council and MORI which asked customers to express their level of satisfaction with public utility levels of service but exclude any reaction they might have to prices. Table 2.11 shows the percentage of respondents who expressed overall satisfaction with the quality of service.

UTILITY	March 1990	March 1991	January 1992	December 1992
British Gas	77%	80%	85%	85%
Local electricity supplier	77%	78%	83%	79%
Local water supplier	58%	63%	69%	59%

Table 2.11 - Percentage Of Respondents Satisfied With Quality Of Service
Source - Ernst (1991)

It appears that the water industry, which has already seen enormous price rises, fares badly in terms of overall consumer satisfaction with the quality of service. This might indicate that the lack of competition within the water industry has a detrimental affect. Within those utilities exposed to competition there are indeed signs of a more customer orientated approach. Certainly the telecommunications industry, which was the first to be privatised and has been exposed to competition from Mercury since the earliest days, has a satisfied customer base which expresses an overall belief that the service represents value for money (see figure 2.5).

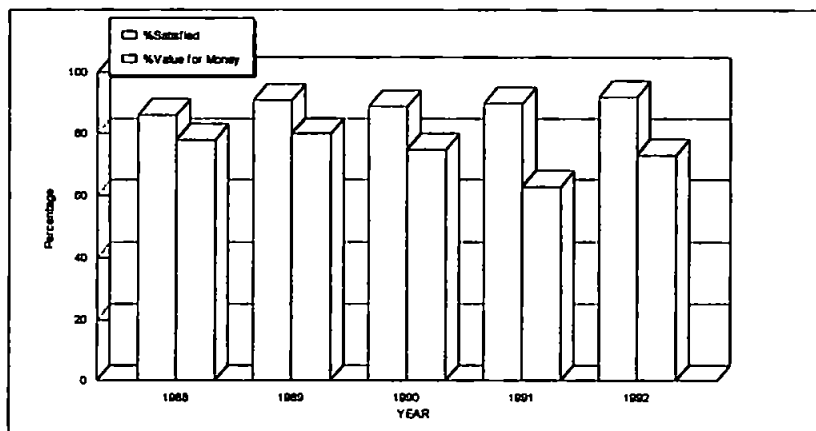


Figure 2.5 - Percentage Of British Telecom Customers Who Expressed Satisfaction With Quality Of Service And Value For Money.

Source - Bowdery (1994)

An obvious conclusion to be drawn from the evidence presented so far would be that the introduction of competition, brought about by the liberalisation that accompanied privatisation, has led to both an improved service to the customer and a steady drop in

price. However, this would be oversimplistic and fail to take into account the role of the regulatory bodies in achieving these improvements. Even in the case of the water industry, where prices have increased dramatically and over a third of all customers are dissatisfied with the quality of service, the regulatory body plays an important role in controlling price rises and ensuring that improvements in the standard of customer care are being continually sought. Equally, the regulatory bodies have introduced the competition, which was often lacking in the initial privatisation plans, and have ensured that competition and choice will be extended to all customers of the energy utilities by 1998.

In complete contrast to this, the public transport industry, which will be discussed in more depth in the next chapter, has suffered a considerable decline since the privatisation and deregulation of the buses in 1986. When the bus industry was privatised and deregulated in 1986 the formation of a regulatory body to oversee the industry was not considered necessary. Competition would be allowed to flourish and this, it was claimed, would lead to a flexible system that met the customers needs. This has not necessarily been the case; prices have risen, service standards in many areas have dropped, and, because of a lack of cross-subsidisation, many uneconomic services (often in rural areas) have been withdrawn. Although some areas have actually experienced the benefits of increased choice and flexibility a report prepared by local authority associations claims that 'deregulation has had a generally destabilising impact through frequent service changes and poor standards of operation leading to loss of public confidence in many areas' and goes on to state that the number of passengers on the buses has declined by some twenty per cent (Jones 1994).

Overall, it would seem that privatisation can bring benefits in terms of improved service to the consumer. The industries where the benefits are most apparent appear to be those in

which both the cost to the consumer and the introduction of competition are controlled by a regulatory body. However, the very act of regulation actually compromises the free market economy that privatisation was destined to bring about. How this is to be reconciled remains difficult, for as Lipworth (1993) points out:

'Regulation was not necessarily designed to be a long-term replacement for the competitive market. A primary aim of the regulatory regimes was to introduce competition and maximise the extent to which normal competitive forces would be sufficient and thus avoid the need for further involvement' (Lipworth 1993, p.44)

Thus it appears that the regulation of the utilities is considered to be a relatively temporary policy, to be phased out as the competitive forces of the market 'take over'. Certainly, if this was the case, then a major criticism of regulation which is that it compromises the fundamental objectives of a free market economy and furthermore leads to continued government intervention would be rectified. However, without regulation competition for the most attractive markets would increase and the less lucrative markets, such as rural areas where there is a smaller population base spread over a larger area, could suffer a decline in service such as that experienced in the case of the bus industry (Knowles & Hall 1992).

In the next chapter the privatisation of public transport, which is also bound by the need for often unprofitable but 'socially necessary' services, will be assessed. In the case of bus services a statutory monopoly was deregulated and privatised to introduce competition. Rail privatisation has proved more complex and there is evidence to suggest that the lessons of previous privatisations have been learned. As a result, the railways appear to have undergone a prolonged period of restructuring in preparation for privatisation. The

bulk of the next chapter will, therefore, deal with rail privatisation and evaluate the extent to which the railways are likely to fulfil the objectives set.

CHAPTER 3 - Rail Privatisation

In the previous chapter the concepts behind privatisation and the underlying aims and objectives were discussed in relation to the privatisation of other 'public service' monopolies such as gas, water and electricity. The success of privatisation with regard to achieving the stated objectives was also assessed and there is evidence that many of the objectives identified were lost in the overall drive to privatise an industry. The transport industry has also experienced massive restructuring in the form of privatisation and deregulation designed to increase competition and create a more flexible marketplace (Beesley 1992). Sealink, British Airways, National Freight Corporation, coaches and buses have all experienced deregulation or privatisation. The privatisation of the rail industry has, however, always been recognised as particularly difficult. This is, in part, due to the 'unique' place the railways hold in the affections of the British Public (The Economist 1993). More importantly, however, the railway industry is neither profitable nor easily broken up into parts able to promote competition. Notwithstanding these difficulties, the planned privatisation of the railways has been a recognised goal of the Conservative Government since 1989.

It can, however, be argued that the process leading to the privatisation of British Rail actually started in the early 1980s and has been a more protracted process than most political commentators credit (see, for example, The Economist 1990). Furthermore, it can be argued that British Rail has been better prepared than most industries for privatisation as a result of the restructuring process that began well before the strategy and timetable for privatisation became clear. Indeed, it can be argued that this restructuring was so successful that many of the objectives of privatisation had already been met by the time the

privatisation process began (Gibb, et. al. 1996). This chapter will, therefore, examine the nature and evolution of privatisation in the context of the transport industry generally and British Rail in particular, evaluate the restructuring of British Rail in preparation for the private sector and assess the objectives and strategy for the privatisation of British Rail. The chapter will then examine the progress of rail privatisation since the process began and assess the likely impacts of rail privatisation on the more peripheral areas of the rail network, particularly rural branch lines.

3.1 - Privatising The Transport Industry

Since 1980, the transport industry has been regarded as an ideal candidate for privatisation and deregulation. Whereas in the past transport was perceived as an industry that required the control and supervision of Government, the neo-liberal philosophy prioritises the 'free market', with the provision of transport being both dictated and regulated by competition and demand. The three main methods of achieving neo-liberal policy objectives have been identified as de-nationalisation (the sale of publicly owned assets), deregulation (the introduction of competition into statutory monopolies) and contracting out (the franchising to private firms of the production of state financed goods and services) (Kay and Thompson 1986). The restructuring and privatisation of the transport industry has in the past involved one or more of these methods and in the case of the railways all three methods appear to have been adopted.

The Conservative General Election manifesto published in April 1979 (Conservative Central Office 1979) made few references to transport but subsequent Transport Acts in 1980, 1981, 1982 and 1985 were to set the scene for a radical reorganisation of the transport industry. The 1979 manifesto did, however, contain a pledge to sell shares in the

National Freight Corporation (NFC) to the public, which had already been mentioned as a possibility in 'The Right Track' (Fowler 1977), a paper on Conservative Transport Policy aimed at raising private sector investment. In fact the privatisation of the NFC in 1982 took the form of a management buy-out, a straightforward de-nationalisation involving the sale of publicly owned assets and the formation of a new private company. The 1979 manifesto also pledged to expose artificial monopolies, such as bus services, to competitive pressures via the liberalisation of entry restrictions (Conservative Central Office 1979). However, the commitment contained within the manifesto to relax licensing regulations in order to encourage the development of new bus and other services, particularly in rural areas, made no mention of full scale privatisation. The 1980 Transport Act (House of Commons 1980) did indeed liberalise entry to the long distance express coach market and, in addition, abolished all bus fares controls, and was followed rapidly by the 1982 Act (House of Commons 1982) which introduced private capital into the National Bus Company. The 1985 Transport Act (House of Commons 1985), signalled the final break-up of the nationalised bus industry into 70 companies sold off to private sector interests, many to management buy-outs. Of British Rail there was no mention and yet as early as 1981 the Transport Act (House of Commons 1981) was making provision for the sell off of British Rail subsidiaries such as Sealink, BR Hovercraft, British Transport Hotels and the non-operational property of the railways.

3.1.1 - Bus Deregulation And Privatisation

The Transport Act of 1985 signalled the end of 55 years of assiduously regulated bus transport in Britain. Total deregulation of bus services came into effect and the National Bus Company was broken up into 70 smaller units for sale to the private sector by April 1988 (Moyes 1992). The majority of these new companies were sold to management

buy-outs and, as in the case of many of the utility privatisations, at considerably below market value (Hencke 1990). A report from the National Audit Office in 1990 revealed that one in four state owned bus companies was, in fact, sold to a single bidder for less than the value of property and vehicles (Department of Transport 1990). Subsequent take-overs and mergers have led to large windfalls for many of these management teams, and the consolidation of bus services has substantially reduced competition between operators (Simpson 1996).

The bus industry had been in decline for a considerable period of time, losing around 4% of its passengers a year for the past 30 years, and privatisation and deregulation were intended to stimulate new growth by introducing the key concepts of competition and choice (Moyes 1992). Achieving a significant reduction in the amount of subsidy paid to maintain local bus services was an additional aim. Declining passenger numbers had led to an growth in subsidy from £10 million to £520 million for the decade 1972-1982, an increase of 1,300% (Knowles and Hall 1992). The 1983 Transport Act had already attempted to address this issue by capping local authority public transport subsidies, introducing instead protected expenditure levels (PELs), reducing annually, below which subsidy could not be legally challenged (House of Commons 1983).

To encourage new entry to the market the protection from competition that bus operators had previously enjoyed was replaced with an open entry market which scrapped the old route licensing system in favour of allowing operators to set up new services after six weeks notice. The only condition to this was that any services set up in this way should be financially self-supporting (Moyes 1992). It was argued by the Government that these measures would lead to increased competition and hence create more choice for the

travelling public in the form of more frequent buses and lower fares (Knowles and Hall 1992). The need for subsidy was not wholly eliminated however. In addition to the commercially viable services which now operated without subsidy, the Local Authorities were charged with the task of identifying transport needs which were not being met and putting these routes out to tender. Thus each of the three main methods of achieving neo-liberal policy objectives identified by Kay and Thompson (1986) i.e. de-nationalisation, deregulation and contracting out, were used when the bus industry was privatised.

The result of this privatisation was not, however, as successful as the Government suggested it would be. The number of passengers continued to fall steadily, and by 1996 it was reported that the number of passenger journeys had fallen by 29% (Brown 1997). It has been suggested that much of the drop in passenger numbers was caused by the continued uncertainty felt by passengers in the initial chaos immediately after de-regulation, a loss of confidence that was reinforced by continually changing bus services and operators (Knowles and Hall 1992). This could have considerable implications for the privatisation of the railways where a similar loss of confidence in the continuation of services is apparent. The situation has improved slightly in recent years, but there is still a great deal of confusion over the availability of services (Brown 1997). This is the downside of competition, with rival operators competing on profitable routes while very few new travel opportunities were created (Moyes 1992). It is worth noting that rail privatisation plans also contained proposals for competition between operators along routes. Although these proposals have subsequently been shelved until at least 1999 a phased introduction of competition is still planned. If the problems encountered by the bus industry are to be avoided, careful regulation of competition will still be necessary. In addition to the

argument that competition would lead to the provision of a greater range of more frequent services it was also felt that competition would lead to lower fares. This belief has not been borne out by subsequent events. Substantial fare increases in some areas have also been blamed for the continued loss of passengers (Moyes 1992). Thus the introduction of competition and choice has not really led to a revitalisation of bus services in Britain. The reverse, in fact, is true and as Knowles and Hall (1992) point out:

'Urban trunk routes witnessed more vehicles, greater frequencies and in some cases cheaper fares as the result of competition, but often at the expense of congestion and increased traffic hazards.....the trade-off saw reduced services in less populated and less- or non-profitable areas. In the case of bus services this has meant poorer rural and off-peak and Sunday urban services.' Knowles and Hall 1992, pp.48/49.

There are distinct parallels to be drawn between bus privatisation and rail privatisation which suggest that if competition is allowed to grow in a relatively unregulated fashion, the branch lines could indeed suffer as resources are directed toward the most profitable routes while less profitable areas of the rail network decline.

Within the bus industry, the competition promised by the break up of the National Bus Company has now been substantially reduced as a result of the many take-overs and mergers that have occurred (Hencke 1990, Simpson 1996). There has been a gradual decline in the number of bus companies which has led to the emergence of several large operators, namely FirstBus¹, Stagecoach and British Bus who between them control more than a third of the market (Cheek 1995, Simpson 1996). In total, some 60% of the bus market is controlled by eight operators and further consolidation of the remaining 40% is

¹ FirstBus was formed when badgerline and GRT merged.

predicted (Cheek 1995). Although much of the growth in the major bus operators has come about as a result of take-overs and mergers, there is also evidence of aggressive competitive practices designed to drive a rival operator out of business (Cheek 1995, Simpson 1996). Between the major operators, however, competition would prove too expensive and there is little evidence that this occurs (Simpson 1996). Although the consolidation of the market, leaving control of bus services to a handful of operators, should have the effect of stabilising the market it will not halt the decline of services in small towns, suburbs and rural areas and today it is felt that the re-introduction of regulation will be necessary (Simpson 1996).

The emergence of large, monopoly, suppliers of bus services is likely to have considerable implications for privatised rail services. In total, eighteen of the twenty-five rail franchises have been awarded to bus operators (Glover 1997, OPRAF 1997e), which may lead to an efficient, integrated, public transport system, or could simply squash any hope of competition by creating even larger public transport monopolies. In the initial rail privatisation plans it must be noted that the MMC (Monopolies and Mergers Commission) was totally against the integration of bus and rail (Cox 1993), but now co-ordinated bus and train links form part of the current services offered by many of the new rail companies (see for example OPRAF 1995, OPRAF 1996b).

The other chief aim of this particular privatisation was the reduction of the role of Government and the amount of subsidy paid to support the bus transport industry. There have indeed been substantial savings in the amount of direct bus service subsidies but these have been offset by an increase in other costs. In 1987, for example, the Department of Transport announced that bus deregulation and privatisation had led to savings of £40

million in subsidy but ignored the £17 million that the fuel duty rebate paid to bus operators together with increased administration costs had amounted to (Knowles and Hall 1992). By 1995 costs had risen sharply and though 85% of the national bus network operated without subsidy it was still reliant on the £1 billion of public funds paid in the form of the fuel duty rebate, local authority contracted services and concessionary fares schemes (Cheek 1995). As a cost saving exercise this privatisation cannot, therefore, be deemed a total success.

There are lessons to be learned from the experiences of the privatisation and deregulation of the bus industry. It is clear that the measures adopted by the Government to promote new growth in a public transport industry, whilst at the same time relieving the Government of a financial burden, are not necessarily successful. Instead there is a risk that such measures will destabilise the industry leading to an increase in the number of private vehicles on the roads, something which, in the light of the Royal Commission on Environmental Pollution Report of 1994, is to be discouraged. The report dealt with transport and the environment and called for a target to be set with the aim of increasing public transport use from its current level of 12% of the market to 20% by 2005 and 30% by 2020 (Royal Commission on Environmental Pollution 1994). Any actions which lead to further decline in the use of public transport are, therefore, inappropriate in the light of recent concerns about the environment. The privatisation of the rail industry is in danger of replicating the errors of the bus deregulation and privatisation though, as mentioned previously, there is evidence that this particular privatisation has been prepared over a considerable time period and has, presumably, been shaped in the light of previous experience.

Certainly the aims and objectives of privatisation can be seen to have changed over time but not necessarily with the overall well being of either the industry or the consumer as a major priority. From an initial concern with the liberalisation of markets leading to increased competition and efficiency that was displayed in the 1980 Transport Act, Kay and Thompson (1986) note that by 1986 the transfer of ownership had become a primary objective. Beesley (1992), however, argues that the 1985 Transport Act, concerned with privatising the National Bus Company, had three objectives, namely deregulation, the reduction of Government subsidy and privatisation. As the discussion above on bus deregulation and privatisation clearly shows, both Kay & Thompson (1986) and Beesley (1992), are, to a certain extent, correct. There was indeed a major transfer of ownership but this was certainly accompanied by considerable deregulation and withdrawal of government subsidy. As the policy moved into the 1990s, however, it would seem that the priorities appear to have changed yet again, with the financial benefits to Government taking equal priority with competition and efficiency.

3.2 - The Case Of The Railways

The aims and objectives of privatisation have, therefore, changed over time. From the literature² it is possible to identify an initial concern with enhanced competition and efficiency evolving in the first place into a policy concerned more with transferring ownership of public sector companies to the private sector. More recently the financial benefits appear to have been accorded a higher priority, with the Government keen to shed responsibility for public sector industries perceived to be 'financial drain', while raising

² See for example: Beesley & Littlechild 1983, Moore 1983, Kay & Thompson 1986, Beesley 1992.

revenue through the sale of public sector organisations to the private sector. One constant factor, regardless of changing aims and objectives, remains the underlying philosophy of the neo-liberal, seeking to reduce Government involvement and encourage a free market driven by competition. Perhaps more than any other privatisation, the case of British Rail highlights the way that objectives and mechanisms vary, while retaining the driving force of the neo-liberal philosophy. Government policy on the railway industry has been constantly evolving and changing in accordance with current thinking on privatisation and also in the light of experience once the process got under way.

The turning point for British Rail occurred in 1982, at a time of considerable financial difficulty. Despite the financial respite afforded by the privatisation and asset sales in the non-rail side of the business, BR had an estimated deficit of £154 million (Bagwell 1984) and a recorded net group loss of £37 million in the year 1981/2. According to the Adam Smith Institute (1983), BR losses amounted to more than £1,000 million in 1982/3 with the revenue raised covering only one half of the cost of running the railways (Adam Smith Institute 1983). As early as 1981, BR had asked the Secretary of State for 'a clear sense of direction and a workable financing framework' in its 'Rail Policy Statement' (British Railways Board 1981a), and the Government responded in May 1982 by setting up a Committee of Enquiry into Rail Finances under the chairmanship of Sir David Serpell. The Serpell Report (Serpell 1983), published in January 1983, failed to provide BR with the workable finances that it had requested. Instead of looking into the long term role of the railways and suitable ways of financing BR, it focused predominately on ways of improving the railway's short term financial prospects. Closures were a major feature of the proposed solutions together with reduced service frequencies, higher commuter fares (particularly within the South East region where the customers were a 'captive' market) and

a reduction in maintenance and replacement of old technology such as signalling. Arguments that the avoidance of road congestion or energy efficiency were valid reasons for supporting railways were dismissed (Bagwell 1984). The main aim appeared to be the reduction of the level of Government support for the railways. Despite BR's plea that under-investment was already leading to huge problems in track maintenance and increasing speed restrictions on stretches of track throughout the network, the Serpell Report proposed savings of £220 million to be spread over 10 years. The Report received an extremely hostile reception in both the press and parliament and the Transport Secretary, David Howell, was quick to reassure the Commons that although the report gave a 'basis for decisions and for action.....the extreme options were not acceptable' (Hansard 1983).

It seems highly probable that this is the point at which existing notions on railway privatisation began to crystallise into more coherent policy. If the cost cutting measures proposed were unacceptable then the Government would have to look at different ways of achieving its aims of establishing a financially viable railway and reducing costs. David Howell later confirmed that he was considering plans for the privatisation of railway lines in Wales, Scotland and South East England (Hope 1983). At the same time, with the Government's active support, the management and operational structures of BR experienced a radical transformation. Up to 1982 the railways were run as five geographical units (Figure 3.1). This was replaced with five business sectors - Intercity, Network South East, Regional Railways, Parcels and Freight. The business sectors were seen as a likely basis on which the future privatisation of BR could be based.

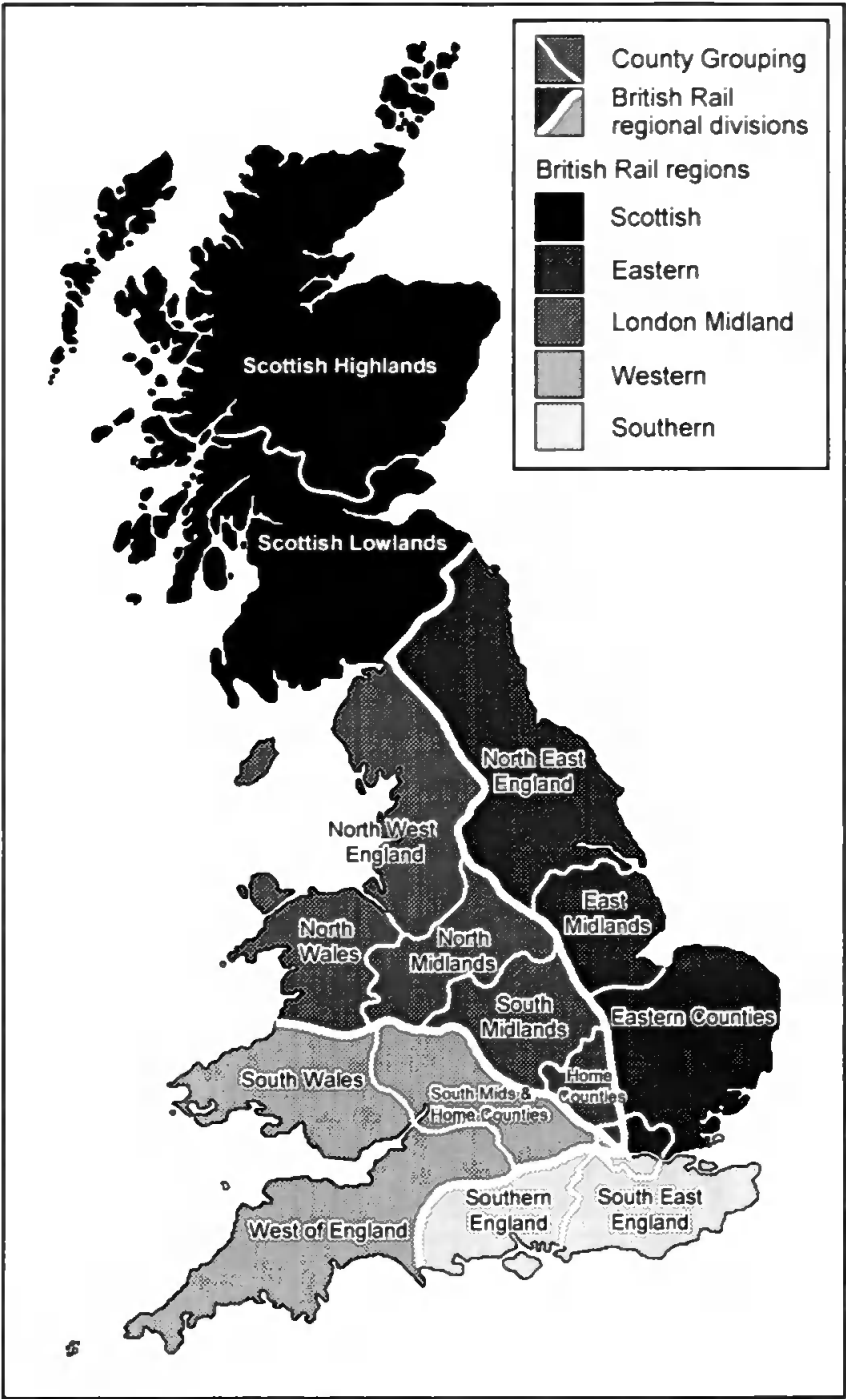


Figure 3.1 - The Five Geographical Regions of British Rail

From 1983 onwards a number of privatisation schemes were proposed, several of which were closely scrutinised by the Government as potential models. Many of the usual reasons put forward for privatisation, such as injecting competition and efficiency into an industry, were not necessarily valid. For example BR was not a true monopoly, despite the fact that it was the sole provider of rail services, because it operated in direct competition with roads for both the freight and passenger sides of the business. Many in fact argued that the competition it faced was unfair, as roads have always been in Government control and road users do not pay directly for their costs (Transport 2000, 1989). Furthermore, investment in road building is justified through the use of cost-benefit analysis and is not expected to yield a direct financial return on the capital invested. When the railways asked for permission to upgrade infrastructure, often spending internal funds, there was no equivalent cost-benefit analysis. Instead the capital invested had to yield a minimum 8% financial rate of return or the proposal was rejected (Transport 2000, 1989, Salveson, 1989). The argument for efficiency is equally difficult to judge in an industry dominated by a loss-making public service obligation and suffering, in the eyes of British Rail, from under-investment. Nonetheless, there were undoubtedly changes that could be made to run the industry more efficiently than had previously been the case. The service to passengers would surely benefit enormously from improvements.

It is among the other stated objectives of privatisation, however, that the most persuasive arguments for privatising BR can be found. The reduction of Government intervention and freedom from the tight financial constraints imposed by Government would resolve many of the problems identified by BR with under-investment. The motive behind this particular privatisation would seem to be a combination of purely financial considerations, designed to both solve BR's problem with adequate financing and at the same time raise revenue

and/or reduce costs for the Treasury, together with a strong philosophical commitment to neo-liberal ideals such as reduced Government involvement and a free market driven by competition.

3.3 - Proposals For Rail Privatisation

A variety of approaches to privatisation were put forward as the policy evolved. They contained each of the key methods of privatising an industry identified by Kay and Thompson (1986). At various stages each one of these methods has been promoted as the most suitable model.

3.3.1 - Early Proposals 1979-1984:

One of the earliest proposals for the privatisation of the railways came in the Adam Smith Institute's Omega Report on Transport Policy in 1983 (Adam Smith Institute, 1983). The key theme underpinning this report was that public transport should operate within a free market run by the private sector rather than by monopolistic public corporations. Privatisation of both the bus and train industries was proposed and it was suggested that in order to achieve a free market for transport regulated by competition it would be necessary to charge road users. Their proposals for the privatisation of the bus industry were in fact very similar to the scheme finally adopted. However, the more radical concept of equal competition through the medium of charging road users was largely ignored. For the railways, the Adam Smith Institute proposed the key measures of decentralisation and privatisation; BR was to rid itself of all remaining peripheral activities, track renewal and major maintenance was to be contracted out, BREL (British Rail Engineering Ltd) was to be separated from BR and sold off to the private sector, disused rail lines were to be sold off to private developers, and unprofitable and underused lines were to be closed. In

addition, the Adam Smith Institute proposed that BR's management structure be broken into cost centres building up a financial and traffic record for each line and unit which could then be sold leasehold. Competition was to be maximised by some form of regulation aimed at preventing one company from buying up the leases on adjacent competing lines. Although certain elements of the policy adopted for the privatisation of BR can be seen among these proposals, key aspects such as full competition between private and public transport through the proper allocation of costs and the vertical integration of railway franchises failed to materialise.

Another discussion of rail privatisation in 1983 came from Beesley and Littlechild (1983). British Rail was viewed as a monopoly suffering a decline in demand because of the emergence of substitutes preferred by the consumer. In effect, it was monopoly operating within a competitive market place. British Rail was seen as not readily divisible and as a consequence reasonably sized, geographically separate sectors were proposed, perhaps based on the old regions (see Figure 3.1). To secure the provision of services the successor companies should be floated in such a way that in return for command over assets they would be bound to provide a 'minimum' programme of rail output, heavily client-oriented and financed by profits from all activities. In effect, the proposal called for a cross-subsidisation of unprofitable services which was later rejected by Government in the case of the bus industry (Barrett 1984). Direct competition on the railways was not really seen as an option because, in the opinion of Beesley and Littlechild (1983), no one would be willing to 'take on' railway companies operating on long established routes.

3.3.2 - Further Plans 1985 - 1989:

By the latter half of the 1980s privatising the railways was firmly established on the political agenda. It was no longer a case of would the Government decide to privatise, but of when and how the railways could be privatised. As a result further privatisation models were proposed.

The Adam Smith Institute became involved in the debate once again in the late 1980s when Kenneth Irvine published 'The Right Lines' (1987) and 'Track to the Future' (1988) which proposed the privatisation of BR through the formation of a separate infrastructure company and the setting up of train operating companies, initially based on the business sectors but which would eventually include other companies operating in competition. Regional Railways would however be split into individual cost centres to be operated by private sector companies as individual franchises. In many ways these proposals can be viewed as the model on which the final privatisation was based.

Other proposals such as those put forward by Gritten (1988) for a regional division of the BR network into vertically integrated independent companies, each covering major route corridors similar to those that had existed in the past, were seen as unworkable. The proposal involved the introduction of competitive companies operating trains on the track owned by the main regional companies with allowance made for direct competition between companies on parallel routes, for example the various main lines into London. However, because of the proposed vertical integration of track and trains, both Transport 2000 (1989) and Irvine (1988) foresaw difficulties both in negotiating through traffic and connecting services across the territory of several different railway companies, as well as in the potential loss of network-wide fares packages such as railcards. There was also concern

expressed over the prioritising of access to train paths, with the possibility of competitor services being forced to 'give way' to trains owned by the 'host' company that owned the track (Transport 2000 1989).

The final suggestion, favoured by Transport 2000 (1989) and British Rail itself, was to privatise BR as a whole, a solution which would emulate the previous transfers of state monopoly to private sector monopoly already seen in the privatisation of the utilities. A solution such as this would at least keep the rail network intact, although the main argument against it was that it makes no provision for competition. In the view of Transport 2000 (1989), no further competition was needed within the railways as they already faced intense competition from other modes of freight and passenger transport. If the privatisation of the railways as a single unit was to prove impossible, for example if BR was considered to be too large, then Transport 2000 (1989) argued in favour of a continued sectorisation as the next least damaging option, with the five business sectors being established as separate companies overseen by a holding company to regulate and mediate between the companies.

The proposals discussed in this section involve a range of potential methods for rail privatisation. All of the key models of privatisation outlined by Kay and Thompson (1986) have at some time been proposed as suitable approaches. The final plans adopted by Government, however, whilst containing elements of all the key methods (de-nationalisation, de-regulation, and contracting out) strongly favour retaining some measure of state control. The core of any railway, the operation of train services, has been franchised out to the private sector rather than sold off definitively.

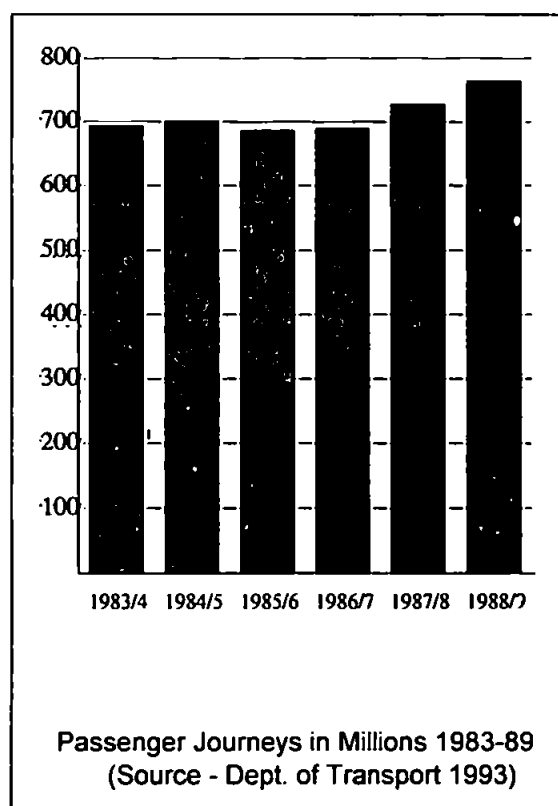
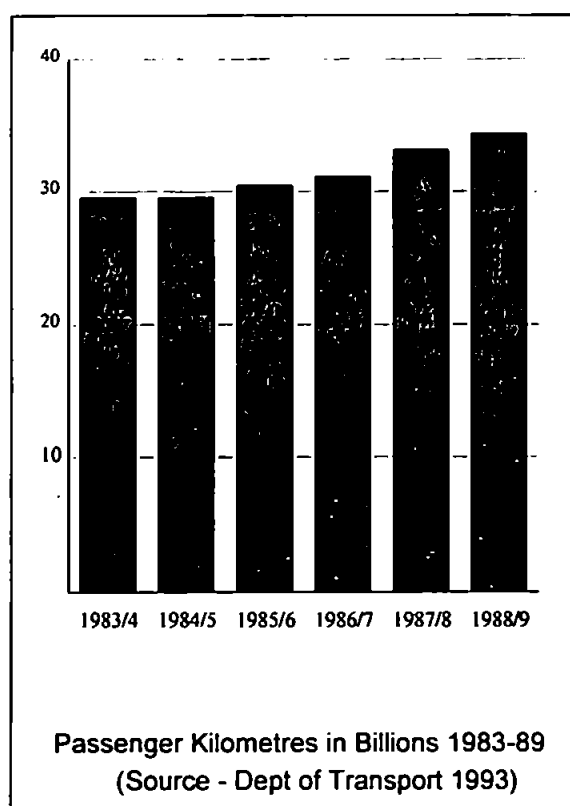
3.4 - Initial Stages Of Privatisation

As observed previously, the preparation for privatisation appears to have started in the early 1980s with the sale of non-railway businesses to the private sector and the restructuring of British Rail into business sectors. Once the non-railway businesses, such as British Transport Hotels and Sealink Ferries, had been transferred to the private sector other peripheral businesses, such as station catering, were privatised. BREL, British Rail's rolling stock construction and repair subsidiary, was sold to a consortium of management and private sector firms, including the Swedish firm ABB, and forced to compete for business as BR put contracts for new rolling stock out to competitive tender (Truelove, 1992). Within the freight industry private sector involvement increased. By 1989, there were approximately 180 privately owned freight terminals, 31 per cent of the wagon fleet was privately owned and freight customers had started to operate their own locomotives, representing a form of partial deregulation (Salveson 1989). It could, of course, be argued that these developments were simply a means of increasing business efficiency. However, it seems more likely that the restructuring process and increased private sector involvement, together with the selling off of non-essential railway businesses, were in preparation for privatisation. As Jenkins observed in relation to BR personnel (1993, p.6):

'....many senior posts are already filled by people from private sector backgrounds, recruited as part of the drive towards business orientation since 1982.'

There is a strong case to be made for interpreting the process of rail privatisation as being a long planned and protracted process. Indeed by 1989, when privatisation was clearly acknowledged as the course of action to which the Government was committed, BR appeared to be experiencing an upturn in economic viability and efficiency brought about by the reforms and reorganisation that had taken place since 1983. Overall the railways

were in profit for the third successive year and Intercity, in its first year of operation without a PSO grant, made a profit of £57 million (Reid 1989). The remaining business sectors, apart from Parcels which made a loss, looked equally healthy: Railfreight increased its operating surplus by 50%; Network South East almost halved its grant requirement; and Regional Railways achieved record growth (Reid 1989). Both the PSO grant and the EFL (external finance limit) which governed BR borrowing, had been reduced since 1983, costing the taxpayer 51 per cent less in real terms, representing a saving of £570 million (Reid 1989). In addition to this, the PSO grant was restricted to Network South East and Provincial Railways (the predecessor of Regional Railways). Intercity, Freight and Parcels ceased to be eligible in 1987/88 and were required to make a return on assets of 2.7% by 1989/90. In addition to these marked financial improvements, the upturn in the railways was also marked by an increasing number of both passenger kilometres and passenger journeys (Figures 3.2 & 3.3, below).



Figures 3.2 & 3.3 - Improvements In Passenger Journeys And Passenger Kilometres

British Rail was a leaner and more efficient organisation; staff productivity (measured in train miles per member of staff) had risen 8 per cent in the year 1988/9 (Reid 1989) and since 1979, 70,000 jobs had been shed, 54,945 within the rail industry itself and the remainder from the sale of subsidiaries (Salveson 1989).

As a prospect for full scale privatisation BR seemed to be a suitable candidate and according to Paul Channon, then Secretary of State for Transport, it was no longer a lame duck nationalised industry (Channon 1988). The reorganisation of BR and drive towards business efficiency created a commercial business ready to operate in the private sector subject to commercial disciplines (Channon 1988). Somewhat paradoxically, therefore, it could be argued that privatisation was no longer necessary. The problems that privatisation were intended to correct were no longer apparent and as the Dept. of Transport (1992a) pointed out in its White Paper entitled 'New Opportunities for the Railways', BR could not really be faulted on its efficiency record. Compared to its European rivals BR was performing well, the productivity of the workforce was among the highest of any European railway and two of its business sectors, Freight and Intercity, were operating without subsidy. Nonetheless, after years of preparation, the plans for privatisation were finally being drawn up.

Some commentators (Truelove 1991, The Economist 1989,1991) assumed that any privatisation would be modelled on the business sectors (i.e. Intercity, Network South East, Regional Railways, Freight and Parcels). Others saw this as unworkable, mainly because only the Freight and Intercity sectors formed profitable businesses. Other arguments against privatisation on the basis of business sectors included the fact that there would be little competition, with each sector catering for its own particular customer base, together with

risk that duplication of facilities and infrastructure could occur as the businesses became separate entities (Transport 2000 1989, Salveson 1989, Dept. of Transport 1992a, Nash 1993). In fact, as mentioned earlier, the final plans strongly resembled the proposals advanced by the Adam Smith Institute (Irvine 1987,1988).

3.5 - The Chosen Plan

In July 1992, the Government published its White Paper 'New Opportunities for the Railways: the privatisation of British Rail' (Dept. of Transport 1992a) which set out both the Government's objectives and plans. The proposed privatisation entailed the sale of both freight and parcels to the private sector, the breaking up of passenger services into franchises to be operated by the private sector, the provision of right of access to the rail network for private operators of freight and passenger services (overseen by a Regulator), the separation of track and train services with one part of BR becoming a track authority (Railtrack) with responsibility for running the track and infrastructure, and opportunities for the private sector to purchase or lease stations. The long term aim was to see the private sector owning as much of the railway as possible but in the shorter term British Rail would continue to exist as two units, one responsible for infrastructure through Railtrack and the other continuing to run train services.

It is worth noting that all the elements of privatisation have at some time been considered; direct sale to the private sector, deregulation and liberalisation of entry to the market place, and the contracting out of franchises. As the Economist noted in January 1993 (p.20), when the privatisation bill began its passage through parliament:

'If like British Gas, BR had been privatised in 1985 it would have been sold as one lump. If, like electricity, it had been privatised in 1988, it would have been broken

into separate regional rail companies, each with a monopoly. The privatisers of 1993 are thinking more radically. They are no longer content to turn nationalised industries into regulated monopolies. They want the maximum of competition, diversity and choice' (The Economist, Jan 1993, p.20).

To achieve this 'competition, diversity and choice', the lessons of previous privatisations had been studied and incorporated into the final plans for privatising an industry that had already undergone ten years of preparation. Between the time that the White Paper was published in 1992 (Dept. of Transport 1992a) and the date privatisation officially began (April 1st 1994), the plans were refined and clarified and various changes were made as the bill passed through the parliamentary process. The finalised plans are summed up by the Dept. of Transport's publication 'Britain's Railways: A New Era' (Dept. of Transport 1994), published in March 1994 on the eve of privatisation. In it the final structures of the soon to be privatised rail industry were detailed. British Rail was to be broken into more than 60 independent businesses, each co-operating on a contractual, commercial basis.

3.5.1 - New Appointments:

To oversee this process two new posts were established, that of the Franchising Director and Rail Regulator. The Franchising Director heads the Office of Passenger Rail Franchising (OPRAF) and is responsible for overseeing the franchising of passenger services and acting as the channel for financial support from central Government for unprofitable but socially necessary services. The Rail Regulator is in charge of promoting and regulating competition, approving access agreements between Railtrack and the Train Operating Companies, overseeing licence applications and promoting and protecting the interests of both passengers and train operating companies (Hughes, 1994).

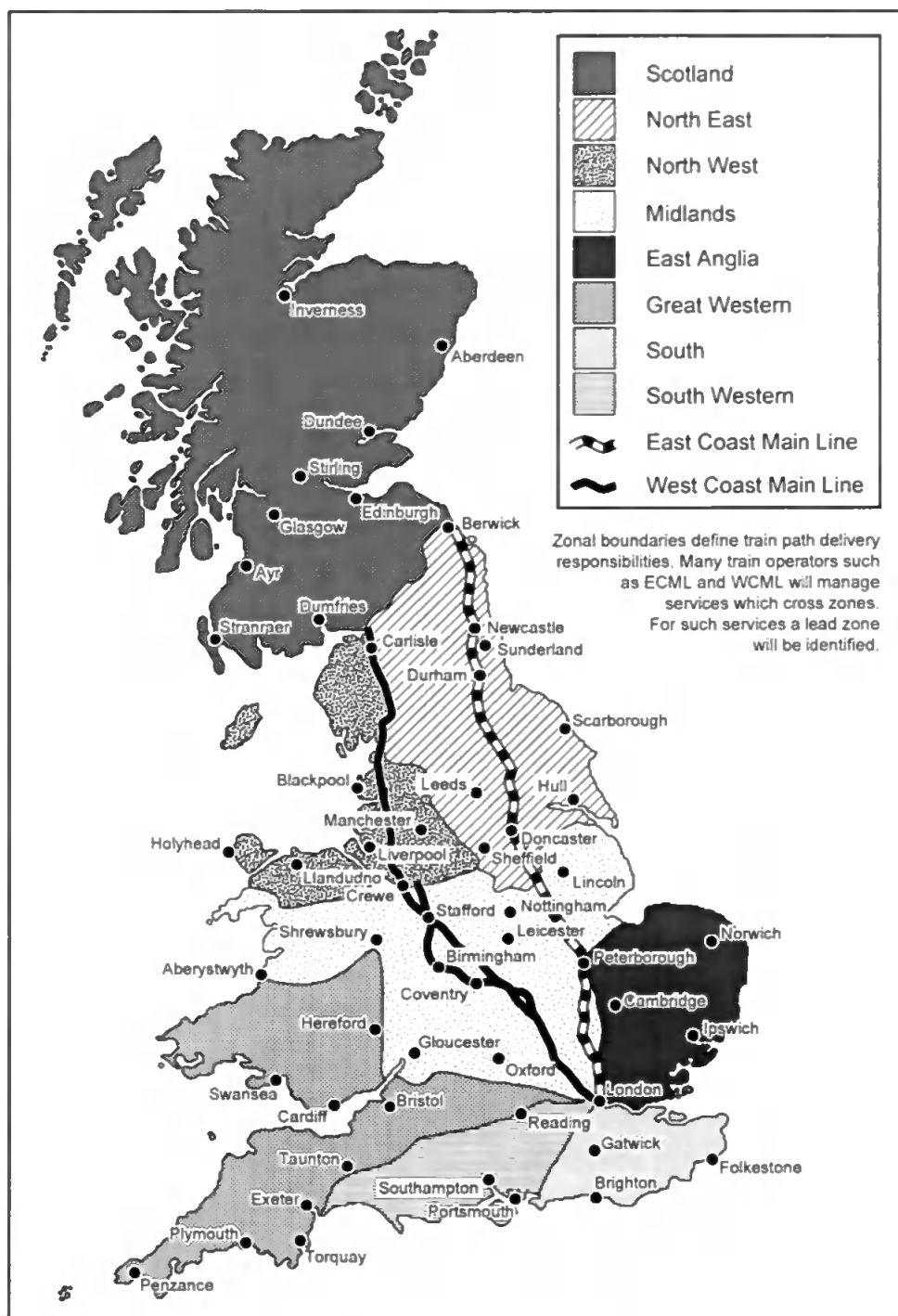


Figure 3.4 - Railtrack Zones

3.5.2 - Infrastructure:

The track, signalling, infrastructure, buildings and operational land come under the ownership and management of Railtrack, a company whose brief is to grant train operators access rights to the track and charge them accordingly. Railtrack is also responsible for central timetabling, train planning and signalling, and is the body ultimately accountable for the safety of the operational network. In addition to these quite onerous obligations, Railtrack has to both maintain and invest in infrastructure. The passenger stations, nearly 2,500 in number, were to be leased to licensed station operators to manage but Railtrack remained responsible for the structural condition of the stations. Railtrack itself was designed to operate as ten zones: Scotland, North East, North West, Midlands, Great Western, South West, South, East Anglia, West Coast main line, and East Coast Main Line (see Figure 3.4, previous page).

3.5.3 - Passenger Services:

Passenger services were to be sold off as 25 separate franchises (Tables 3.1 & 3.2, overleaf), each of which would negotiate its own access agreements with Railtrack (Dept. of Transport 1994). In addition to the Gatwick Express, which began operating as a shadow franchise in October 1993, a further six Train Operating Units (TOUs) became shadow franchises in April 1994 and the remaining eighteen commenced operation by April 1995. The intention was that each Unit became incorporated as a Train Operating Company (TOC) with the opportunity of building up its own financial, operational and traffic record, prior to being franchised to the private sector. In addition, the legislation initially allowed for the formation of other, competitive, passenger services as new train operating companies are established and negotiate access to the Railtrack network.

Intercity	Network South East	Regional Railways
East Coast Main Line	Isle of Wight Line*	Scot Rail
Gatwick Express	London-Tilbury-Southend	
Great Western Main Line	South Western Division	

* Isle of Wight Line to be franchised on a vertically integrated basis, responsible for track, infrastructure and train operations, because of its unique status as a small discrete railway.

Table 3.1 - Shadow Franchises Operational by April 1994

Source - D.o.T 1994

Intercity	Network South East	Regional Railways
Anglia	Chiltern	Cardiff Valleys Line
Cross Country	Great Eastern	Central
Midland Main Line	Kent Services	North East
West Coast main Line	Thames	South Wales and West
	Thameslink	North West
	South London and Sussex Coast	Mersey Rail Electric Services
	Northampton and North London	
	West Anglia and Great Northern	

Table 3.2 - Shadow Franchises Operational by April 1995

Source - D.o.T. 1994

3.5.4 - Freight And Parcel Services:

The freight business sector was destined to be broken up and offered directly for sale to the private sector. Trainload freight was split into three, geographically based, freight rail haulage companies (Loadhaul, Mainline and Transrail) which were set up to take over the domestic transport of bulk commodities such as coal and steel (Harvey, 1994) (see Figure 3.5). These have all subsequently been sold to the same company.



Figure 3.5 - Geographical Division Of Freight Companies

In addition, Freightliner, an intermodal distribution company, was set up to cater for the intermodal traffic, carrying containers between major ports and inland terminals and then shipping them by road from the rail terminal to the customer. The final freight business to be set up was International Freight, a company offering services between British terminals and key locations across Europe. As with the passenger side of the railways, open access by new freight operators was to be encouraged in order to increase competition and customer

choice. In addition, the freight customers themselves would be able to negotiate access with Railtrack and then either contract separately with train operators or use their own rolling stock to move goods. The parcels and letters side of British Rail was also destined to be moved into the private sector in the form of two businesses: The express parcels business (Red Star) and Post Office Mail (Rail Express Systems).

3.5.5 - Railway Support Services:

The remaining companies established under the plans for privatisation included 20 Infrastructure Service organisations providing track renewal, infrastructure maintenance and civil engineering design support under contract to Railtrack and a range of other businesses that were to provide support services to the rail industry. In addition three new rolling stock leasing companies (ROSCOs) were created, all of which have been sold to the private sector. The ROSCOs each inherited a balanced portfolio of rolling stock from British Rail with the responsibility for leasing this stock to passenger train operators. They will also be responsible for renewing stock as and when it becomes necessary or commercially desirable. The new structure of the railway industry in Great Britain became operational on the 1st of April 1994, on which date all the new companies began to assume their future roles.

3.6 - Prospects For The Future

It is three years since the new structure of Britain's railway industry became operational. The franchising of passenger services is now complete, Railtrack has been floated and freight companies and ROSCOs have been sold off to the private sector. However, the key question that remains unanswered is how successful is rail privatisation going to be? As with any privatisation there appears to be a multiplicity of aims and objectives. The

reorganisation that the rail industry underwent in preparation for privatisation suggests that financial considerations are a strong driving force. The Government, however, in its White Paper (1992), suggests that the overriding aim was:

'to see better use made of the railways, greater responsiveness to the customer, and a higher quality of service and better value for money for the public who travel by rail'
(D.o.T. 1992 p.1).

The question remains as to how well do these aims and objectives really match the reality of rail privatisation?

3.6.1 - Financial Benefits

The financial benefits to the Government are not immediately apparent. BR accounts for 1993/94 indicate the costs of preparing for privatisation were high, approximately £92 million was spent, of which the Government provided a grant of £44million (Batchelor 1994). Railtrack alone cost £48 million to establish (Batchelor 1994) and was then sold off for £1.8 billion, a price that many commentators feel was much too low given its estimated value of £6 billion (Harper 1997a). Equally, financial support for the rail network increased substantially. In 1994 the BR Annual Report for 1993/94 highlights the fact that Government subsidy was cut by nearly 20% to £930million (Batchelor 1994) but by 1996/97, when most of the franchises were fully operational, the level of subsidy offered to franchise operators amounted to £1879.9 million, more than double the previous level of support³. However, although the provision of some form of Government subsidy is destined to continue into the future, it will steadily decline throughout the life of a franchise. By the year 2002/3, when most of the franchises have been fully operational for

³ BR claims for the same period amounted to £2107.8 million, which allows the government to claim that savings have been made.

seven years, six train companies will be paying a premium to the government, a further two will be operating without subsidy and the subsidy paid to the remaining seventeen train companies will amount to £927.1 million, a substantial saving on the 1993/94 level when the effects of inflation and rising prices are taken into account.

The rate at which a subsidy declines is individual to each franchise. Subsidy awards on the three train operating companies to serve the West Country vary considerably but in each case savings on the previous level of subsidy are apparent. On services run by South Wales and West (the regional rail company) the subsidy will decline from £70.9 million in 1997/98 to £38.1 million in 2003/4, an average payment of £53.9 million a year compared with British Rail's provisional claim for 1996/97 of £84.8 million, representing a saving of some £30 million a year (OPRAF 1996b). On Great Western Trains (formerly an Intercity company) the cut in subsidy is less savage and declines from £53.2 million in 1996/97 to £38.2 million in 2002/3, an average payment of £44.8 million a year compared to support to British Rail of £61.8 million, representing a saving of some £17 million a year (OPRAF 1995). Virgin CrossCountry, a company with a very extensive network serving the entire country, is, by contrast, expected to operate without subsidy by the year 2009/10 and pay a premium to OPRAF of £5 million in 2010/11 and £10 million in 2011/12 (OPRAF 1996c). In this case the subsidy paid represents an average of £36.4 million a year over the life of the franchise compared to the provisional claim from British Rail for £127.2 million in 1996/97, a saving of some £90 million a year (OPRAF 1996c).

Initially many would-be franchisees claimed that it was only on the heavily subsidised lines that profitability was likely to be achieved and it would, therefore, be preferable to acquire franchises on the least desirable routes rather than the best ones (Sherwood 1994). This

stance has subsequently changed as the privatisation process progressed and, despite franchise agreements for which the subsidy declines or even disappears over time, competition for franchises has been fierce (Ramesh 1996).

In terms of financial benefits then, rail privatisation should eventually prove to be reasonably successful. Though sold at considerably less than market value it must be acknowledged that the revenue received from the sale of companies such as Railtrack has undoubtedly boosted Government revenue in the short term and, in the long term, the declining subsidy allocated to rail companies will lead to considerable savings so long as the companies can meet the commitments they have made.

3.6.2 - Freedom From Government Intervention

It would appear to be the case that whether the railway is in public or private sector hands it will, in the main, continue on the basis of some form of public subsidy. Even the much vaunted commercial freedom, with train operating companies no longer subject to Government intervention on financial matters, does not seem to have materialised. Glaister and Travers (1993), discussing the dangers of the new structure of the railways, point out that the:

'...benefits of the policy might be compromised by continued, or even increased, exposure to the vagaries of central Government interference and inter-departmental conflict which railway managers have found disruptive and have come to resent in the past'. (Glaister and Travers, 1993 p.10)

The 1994 dispute between Railtrack and the RMT signalling staff suggests that this is indeed the case. An acceptable Railtrack offer in the early stages of the dispute was,

according to the RMT, suddenly withdrawn on the advice of Government who claimed it exceeded the guidelines on inflation (Taylor 1994a), something later admitted by John MacGregor, then Secretary of State for Transport (Milne & Smithers 1994, Taylor 1994b).

Commercial freedom has also been seriously impaired by both the reverse of the decision to introduce competition in the form of additional train operators and by the introduction of regulatory agreements. Rail privatisation aimed to introduce competition into the railways, both between train operating companies where they shared routes e.g. the main line to Penzance which is used by three train companies and, more importantly, from open-access operators who would provide services on a selected routes (Dept. of Transport, July 1992b). This raised several concerns, however, not least that it would have an effect on the saleability of franchises (ORR 1994). It was considered likely that permitting open access competition would deter would be franchisees or even threaten the financial viability of a franchise because open access operators could pose a serious threat by competing on the more profitable routes while leaving the incumbent franchisee to run the less profitable but necessary services which make up the franchise agreements (ORR 1994). To combat these concerns the Rail Regulator states that he has:

'accepted that competition will have to be moderated to the extent necessary to secure the successful transfer of passenger operations to the private sector through franchising. ORR 1995, p.3.

Moderation of competition has been achieved by initiating a two stage approach which remains in force until 2002. The first stage operates until March 1999 and protects franchisees from new entry by open access operators by limiting competition to that which exists between franchises (ORR 1995). The second stage will remain operational until

March 2002 and, although lifting the restrictions on further competition and creating opportunities for new entry, will limit the competition to 20% of the route revenue unless there is existing competition between franchisees, in which case there will be no restriction on entry (ORR 1995). Thus competition, which was at the heart of the initial plans for rail privatisation, will not be allowed to flourish unchecked and many franchisees now find themselves running a monopoly rather than a competitive business. The alternative, which soon became apparent in the case of the bus deregulation and privatisation, can severely destabilise a public transport industry leading to a loss of public confidence and the failure of many operators, something which the Rail Regulator is keen to avoid.

In addition to the delayed introduction of competition from open access operators further regulation has been deemed necessary in the form of fares capping. This applies to certain core tickets and, while the percentage of fares that are regulated varies from franchise to franchise, the price cap will operate at RPI until January 1999 followed by RPI-1 until January 2003 (OPRAF 1996a). The regulation of fares will be used to recognise both improvements or deterioration in service standards and will ensure that passengers are compensated for poor performance or pay extra for an improved service by allowing the cap to be adjusted by 2% up or down (OPRAF 1996a). Unregulated fares will be subject to market forces but the aim of this regulatory regime is to ensure that a range of standard fares is available at a controlled price.

The railways have not, therefore been exposed fully to market forces. Competition has been heavily regulated and the new franchisees have limited commercial freedom. While the final form of the privatised railway no longer fully resembles the proposals set out in the Department of Transport's 'New Opportunities for the Railways' it must be acknowledged

that the future of rail services seem more secure under the regulatory regime than they would have been if fully exposed to market forces. Without competition, however, questions over improved quality of service remain. While the fares regulation can reward or punish rail operators for improved or deteriorated services there is less scope in a closely regulated environment for the hoped for improvements brought about by a competitive marketplace.

3.6.3 - Improved Rail Services

Since privatisation was first unveiled as a very real prospect a great many concerns have been expressed, mainly over the future quality, quantity and costs of services. The key issues raised have been concerned with the fragmentation of the railways and the potential loss of benefits associated with a national rail network; through and connecting trains, through ticketing, nationally co-ordinated timetabling, railcards and other discounted fares (Transport 2000 1989; Salveson 1989; Doe 1992a & 1992b; Jenkins 1993). Developments such as the Rail Regulator's proposal that through tickets should only be available at 294 'core' stations did little to allay these fears, though the Government was quick to step in and veto the proposition (Smithers 1995). There have also been serious concerns expressed over the possibility of an unbalanced network emerging, with investment in highly profitable routes and decline elsewhere, leading to the prospect of widespread closures of heavily subsidised rural lines (Salveson 1989; Jenkins 1993; Platform 1993; Salveson 1993). None of this suggests an improved service to passengers that is better value for money. Instead it proposes a future railway dominated by potential drawbacks for the traveller.

As the privatisation process has continued many of these fears appear to have been overcome. Franchise agreements contain commitments to improvements, regulatory agreements prevent unbalanced and unfair fares, PSRs (passenger service requirements) ensure continuation of services, there are strict regulations concerning the continuation of network benefits such as through ticketing and OPRAF and the ORR work continuously to ensure that standards are met. Why then are people still concerned?

The answer to this seems to lie in the disparity between what is promised in the franchise agreements and the reality governing rail travel at the current time. While the press releases from OPRAF and the Department of Transport report the promises of new franchise holders to improve passenger services, replace or refurbish rolling stock and exceed passenger charter agreements (see for example OPRAF 1995, 1996b & 1996c) the media continues to report the downside which is unreliable services, overcrowding and increased numbers of complaints (see for example Smithers 1995, Harding 1997 & Harper 1997a & 1997b). For the potential passenger there is a great deal of uncertainty governing rail travel during the current upheaval and, as the example of bus deregulation and privatisation shows, this can be very detrimental to any attempts to increase passenger numbers.

Developments on one of the first of the franchises to be awarded serve to confirm passengers' greatest fears which are that the services they rely on can disappear overnight. South West Trains, following a crisis brought about by a lack of drivers, initiated an emergency timetable which cancelled more than 190 trains a week (Harding 1997). This followed a four week period during which ad-hoc cancellations 'left commuters in a state of near despair' (Harding 1997). OPRAF have subsequently taken an enforcement order against South West Trains to ensure that scheduled services run and failure to met this

could result in a £1 million penalty and potential termination of the franchise (OPRAF 1997a). In addition to the breach of timetabled services South West Trains have also failed to meet their original franchise plan which has led to the Franchise Director stepping in and renegotiating the franchise agreement to include an additional £1 million worth of improvements (OPRAF 1997d).

While the actions of OPRAF indicate that there are strict controls on the franchise holders none of this helps a passenger who is stranded because a scheduled train has failed to arrive. There is a real risk that instead of a high quality, responsive and affordable means of transport the traveller may be left with a fragmented, confusing and expensive to use railway suffering from under-investment and decline. There is a strong possibility that the major impact of rail privatisation will be felt in further demand for road transport. Given the current moves toward reducing the number of cars on the roads in an attempt to improve the environment this could prove to be extremely detrimental to the future of long term environmental policies in Britain.

3.6.4 - Potential Impacts Of Rail Privatisation

As a result of the massive change the railways are undergoing there is a certain amount of confusion among passengers, in part generated by the change of ownership. If the lesson afforded by the privatisation of bus services provides an example this confusion could manifest itself in a major switch from rail to road. Furthermore, any loss of passengers is likely to jeopardise the financial viability of many rail lines leading ultimately to service cutback or even closures, thus increasing road traffic still further. The implications of

cutbacks or closures will be evaluated further in the next section where the case of rural branch lines, particularly at risk of closure due to their vulnerable economic status, will be discussed. In this section the potential increase in road traffic, brought about by uncertainty over the future of the railways, will be examined.

Government thinking is that use of the motor car needs to be curbed in an effort to reduce the environmental impacts associated with combustion engines. Indeed, the Royal Commission on Environmental Pollution Report of 1994 recommends that targets for travel on public transport should be set that aim to increase the proportion of passenger km (Royal Commission on Environmental Pollution 1994). Department of Transport forecasts in 1989 showed the overall level of road traffic doubling by 2025 (Royal Commission on Environmental Pollution 1994) but a major shift from rail to road could mean that the projected level of road traffic for 2025 could be reached much sooner. Rail accounts for some 5% of the 12% of passenger km currently travelled on public transport (Cheek 1995), a significant rise in road traffic would result if travel were to switch to road transport.

The Royal Commission report notes that: *'The rail system has sufficient spare capacity to make a considerable contribution to meeting our target for public transport use in 2005.....(Royal Commission on Environmental Pollution 1994 p.246)*. However, the report goes on to note that: *'large scale investment is necessary to utilise that capacity and improve the quality and attractiveness of services. Future public contribution to public transport costs should be in a form which gives operators incentives for efficient management.'* (Royal Commission on Environmental Pollution 1994 p.246). This does not seem compatible with the current levels of subsidy which have been set to decline or even disappear over the course of a franchise. Indeed, it is claimed that just to break even many

franchises will need to increase business by 3% a year, a 20% growth in revenue which is the top end of most predictions (Ramesh 1996) and there are even suggestions that this will prove too much for some franchises and that they will fail as a result of the commercial pressures (Save Our Railways 1997). Although the franchise director will take over the running of a failed franchise and guarantee services (OPRAF 1996a) this could still lead to further confusion and, almost certainly, a corresponding decline in passenger numbers and increase in road use. Thus rail privatisation, whose stated aim was: *'to see better use made of the railways, greater responsiveness to the customer, and a higher quality of service and better value for money for the public who travel by rail'* (D.o.T. 1992 p.1) may actually threatens the growth of rail travel and has led to the formulation of policies which may make achieving the stated environmental targets set by the Royal Commission (1994) nearly impossible. An additional threat may come if the railways decline to such an extent that services are either severely cutback or even closed. The impacts of this would be twofold, not merely jeopardising the environmental aims and objectives of Government but also leading to considerable levels of deprivation in the rural areas of the country where branch line services serve those members of rural communities who are unable to travel by any other means. The potential impact of cutbacks or closures will be discussed in the next section.

3.7 - Rail Privatisation And The Rural Branch Lines

Of greatest concern to this study is the potential fate of the branch lines in rural areas. In any newly privatised company there are areas of the business which will prove to be economically less viable and these areas can be neglected in the overall push toward increased profitability. Although franchise agreements include commitments to continue to operate services in the form of the PSR for an individual franchise, recent events on South

West Trains show how easily such agreements can be flouted. In addition to this a franchise holder is free to approach the Rail Regulator with proposals to *'terminate the use of, or close, parts of the network, or stations or facilities used for or in connection with railway passenger services, or if they wish to withdraw all the passenger services on any line or to/from any station'* (ORR 1996). The proposed closure will then be scrutinised and consent will be given or withheld according to the circumstances (ORR 1996). The Railway Act also ensures that a franchise operator may not propose the closure of a service without giving the Franchise Director three months notice and cannot initiate a closure without the consent of the Franchise Director (OPRAF 1996a). This does ensure that services cannot be withdrawn without a prolonged consultation period but it does not suggest that it would be impossible to close a line which has proved to be financially unsuccessful.

3.7.1 - The Rural Branch Line

The most vulnerable part of the rail network is, inevitably, going to be the branch lines in rural areas which traditionally attract low passenger loadings and high levels of subsidy. Many commentators have expressed the fear that rail privatisation will, ultimately, mean closure of rural branch lines (see for example Salveson 1993, Platform 1993 & Liberal Democrats 1996). As Salveson (1993) points out:

'many of the twenty five franchises include both urban, inter-urban and rural lines. There is concern that the successful franchisee would devote the overwhelming amount of management time to the first two categories of lines, with the risk of deterioration of rural services through management neglect' (Salveson 1993 p.23).

If services deteriorate then increasing numbers of passengers will be forced to find alternatives. Given the rigidity of the subsidy agreements and the fact that they are set to

decline throughout the life of a franchise any loss of passengers is likely to precipitate the sort of financial crisis which could lead to closure.

Despite the apparently low levels of use rural branch lines are, nevertheless, of great value, serving rural communities by linking small towns and villages and providing a wider link to main line services. They were originally built as a result of the economic development of rural England which took place in the nineteenth century and, in addition to being the sole form of rural public transport when the only alternative was a horse drawn vehicle, were used as a means of transport for a wide variety of industries such as farming, mining and quarrying (Salveson 1993). The advent of private transport in the form of the car, combined with the slump of traditional industries in rural areas, led to a steady decline in passenger numbers so that by 1960 British Rail was only meeting 10% of the total demand for rural public transport despite the fact that branch lines formed some 40% of the total passenger train mileage of the railways (British Railways Board, 1963). This decline resulted in the appointment of Dr Beeching to head an investigation into the railways and formulate a means by which they could be remodelled to meet current needs. The result of this investigation was the 'Beeching report', *The Reshaping of British Railways*, published in 1963 which led to widespread line closures (British Railways Board, 1963).

Many of the surviving branch lines in use today were actually recommended for closure in the Beeching report but, because they were deemed to have some inherent social, economic or political value, remained operational (Salveson 1993). This is not to say, however, that they were financially viable; most of them do not cover their direct operating costs and before privatisation the shortfall was made up by the Public Service Obligation (PSO) grant (Salveson 1993). The Beeching Report was not the only threat to the continued survival of

the branch lines, however, and subsequent proposals have also posed a threat (see for example the Serpell report, 1982) though in recent decades protest groups such as the Settle-Carlisle Joint Action Committee have proved successful in averting the risk of closure.

Since the 1960s, therefore, branch lines have faced an uncertain future and yet they still play an important role in rural areas; providing access to a range of facilities unobtainable in the immediate vicinity of the rural community. As Salveson (1993) points out:

Many of these rural lines closed before the advent of the country-living commuter, and at a time when rural tourism was relatively undeveloped. The villages and small towns served by rural branches were settled communities with a largely internal economy. People lived and worked within a relatively compact area. (Salveson 1993, pp.11).

Recent decades have seen considerable change within rural communities and, in addition to the advent of a commuter class who live in the rural community but commute daily to the nearest town or city, there has also been a contraction of local services (Nutley 1992). Shops, post offices and banks have closed, while Doctors surgeries, schools and hospitals have all been rationalised into larger, more distant, units (Nutley 1992). A wide range of facilities now lie at a distance from the rural community, often within the nearest town or city, and thus the need for rural transport is greater than ever as people have to travel further to obtain services previously available within the immediate area.

Prior to rail privatisation the changing needs of rural areas had been acknowledged and, in recognition of the different markets within which passenger services operated, British Rail replaced the geographically based units with five business sectors (Intercity, Network

South-East, Regional Railways, Parcels and Freight) each of which dealt with a specific market place. For rural railways this led to the replacement of the old Provincial Sector with a new business sector, Regional Railways, which had a responsibility for operating rural services. As Salveson (1993) points out:

'The new structure enabled the development of a management, and staff, who were committed to the product, and who did not see regional train services as 'secondary'.'
(Salveson 1993, pp.15).

The new structure led to increased growth in passenger numbers and Regional Railways, often working closely with local authorities, began to reopen track and stations (Transport 2000, 1989. Salveson, 1993). Described by Transport 2000 (1989) as a 'railway renaissance', brought about by the tailoring of services to rail users needs, there are fears that rail privatisation will reverse the progress made in reviving rural services and once more leave them vulnerable to closure (Platform 1993).

3.7.2 - The Branch Lines Of Devon And Cornwall

Of greatest concern to this thesis are the branch lines of Devon and Cornwall which form part of the transport network in the more peripheral areas of this country. Throughout the two counties there are eight branch lines, all serving rural areas, which provide a link to the nearest big town or city and allow access to goods and services unobtainable in rural villages, particularly for those members of a community who are without an alternative form of transport such as a car. In 1993 Platform produced a report which highlighted the problems of running rail services in Devon and Cornwall and suggested that the higher costs associated with Railtrack maintenance in rural areas will be passed on to the train operators (Platform 1993). The report presented a summary of both structural costs⁴

⁴ Track maintenance, bridges, signalling, and stations.

(£6,205,000), which amount to 59.8% of the cost of operation and will fall under the jurisdiction of Railtrack, and operating costs⁵ (£4,165,000) which form 40.2% of the cost of operation and are the direct responsibility of the train operator (Platform 1993). Set against these costs, which total £10,370,000, is the income from the rail services which amounts to £3,732,000, a deficit of some £6,638,000 (Platform 1993). These figures, which exclude the mainline Intercity services, are for the year 1987/88 but serve to emphasise the problems of running profitable rail services in Devon and Cornwall. The costs of maintaining this rural network are high, amounting to nearly two-thirds of the £10,370,000 overall operating costs, and the burden of this will be passed on in the form of Railtrack's track access charges. It is not surprising, therefore, that the viability of rural lines in a more commercial environment should be questioned. While it is accepted that some form of subsidy is necessary to keep lines open, this subsidy has been set to decline throughout the life of a franchise, something which may, ultimately, threaten the more peripheral areas of the rail network. The second generation franchises may even expect the train operators to operate without a subsidy which would prove disastrous for the future of rural branch lines in Devon and Cornwall.

There is a real risk of deprivation should these branch lines close because, although car ownership throughout the two counties is among the highest in the country, some 24.6% of Cornish households do not have a car and 27.3% of households in Devon do not have a car (Census 1991). Salveson (1993) has identified three dimensions of rural deprivation, all of which inter-relate. The first is household deprivation where low income leads to limited access to the necessities of life, the second is opportunity deprivation because rural areas are typified by fewer jobs and lower rates of pay than can be found in urban areas and the

⁵ Staff and rolling stock.

third, which is closely related to the first two, is mobility deprivation which can be classed as lack of basic public transport, the high costs of running a car and limited access to employment, social and recreational opportunities (Salveson 1993). For these families in particular the rural branch line can form an interface between the rural community and the wider opportunities to be found in an urban setting. In addition, there are other groups which can be identified as potentially dependent on rail services; namely the elderly (many of whom are no longer able to drive), young people who are too young to drive and women, particularly housewives, who live in a household with one car which is in use during the day (Salveson 1993). This suggests that there are certain groups within the rural community who are very genuinely at risk of severe deprivation should the provision of branch line services change and the aim of this thesis is to investigate the role of the branch line in the rural community and determine who is most at risk if service reductions or closures should happen.

When previous rural transport surveys are evaluated it becomes apparent that many of these concerns have existed for a considerable period of time. By the 1960s the growth of private transport, particularly the motor car, had led to concerns about future levels of rural transport systems. It was thought likely that special measures, in the form of direct financial assistance, would be needed to avoid hardship and inconvenience among rural populations (Ministry of Transport 1963). This led to a series of detailed studies into public transport systems in rural areas.

One of the first of these large scale regional studies was completed by the Ministry of Transport in 1963. This study found that people without private transport were considerably hindered in their ability to travel and tended to make fewer journeys (Ministry

of Transport 1963). Reliance on public transport was, however, low (c.5% of journeys by rail and c.12% of journeys by bus), possibly reflecting the inadequacy of the service (Ministry of Transport 1963). By the early 1970s the Department of the Environment had carried out some large-scale studies into passenger transport needs in rural areas, based in Devon and West Suffolk. Again, the findings indicated that, while the car had taken over as the predominant means of transport in rural areas, there will always be those who will suffer real hardship without some form of public transport provision, especially the elderly and young people (Dept. of the Environment 1971a, 1971b). Throughout the 1970s and early 1980s further large-scale regional travel and transport surveys were completed, covering many rural areas around the country (see for example Clout et.al. 1973, Moseley et. al. 1977, Farrington & Stanley 1978, Peat, Marwick, Mitchell & Co. 1980, Farrington et. al. 1981). All of these studies concluded that, despite the rise of the motor car as the predominant form of transport in rural areas, there still remained the need for some form of public transport provision to cater for those who would suffer genuine hardship if such services were withdrawn. The elderly, young people and women (especially housewives) were specifically mentioned as the groups most likely to depend on public transport (Clout et. al. 1973).

By the mid-1980s major studies, involving large-scale regional travel and transport surveys, had more or less ceased, to be replaced by smaller, localised studies directed at specific issues (see for example Settle & Carlisle Joint Action Committee 1985, Nutley & Thomas 1992, Devon & Cornwall Rail Partnership 1993, Liberal Democrats 1996). Recent, detailed, rural transport studies at a regional level are, therefore, uncommon, leading to a major area of uncertainty which requires investigating. There is a large gap in the literature regarding public transport use and consumer behaviour in rural areas in the last decade and

it is, therefore, impossible to predict with any certainty what the impact of policies such as rail privatisation may be.

The concerns apparent in the rural transport literature of the 1960s and 1970s reflected the prominence afforded to socially necessary services such as rural transport. The key aim of Government, at this time, was to ensure that such services were afforded the support that they required to continue operating. Today, the underlying neo-liberal philosophy adopted by Government is more concerned with efficient, cost effective, market driven services that can operate with little or no subsidy. Accordingly, the socially necessary aspects of such services can be more easily relegated to second place behind market forces. Policy decisions, such as the decision to privatise Britain's railways, can therefore, have far-reaching impacts at the grassroots level. An excellent example of this is the impact of bus deregulation and privatisation which, although designed to improve service to the customer and create new travel opportunities, has resulted in a diminished service in rural areas. Evaluation of previous travel and transport studies in rural areas suggests that there are certain groups within the rural community who are very genuinely at risk of severe deprivation should the provision of public transport change⁶. It is, therefore, important to carry out a major new investigation into the travel and transport arrangements of rural communities in order to determine what the potential impacts of rail privatisation, and its associated risks of branch line service cutbacks or closures, may be.

The next chapter will, therefore, discuss the methodology which should be adopted to best determine the type of use a branch line receives and the people who are most dependent on

⁶ see for example Ministry of Transport 1963, Dept. of the Environment 1971a & 1971b, Clout et.al. 1973, Moseley et. al. 1977, Farrington & Stanley 1978, Peat, Marwick, Mitchell & Co. 1980, Farrington et. al. 1981.

it. This chapter will also look at the branch lines of Devon and Cornwall in greater detail and evaluate which lines should be used as sampling points to obtain the information needed. Methodological issues such as survey design the type of questions needed and the most effective sample size will also be considered.

CHAPTER 4 - Investigating The Role Of The Rural Branch Line

This chapter outlines and evaluates the principal methodologies adopted in this thesis. In order to investigate the central hypothesis of this thesis, which is that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this is currently threatened by rail privatisation and the associated risks of line closures or service cutbacks, a survey was constructed that would assess the dependency of rural populations on rural railways. This survey also examined existing mobility levels in rural communities and sought to determine why people travel, what means of transport are available and how various journeys are undertaken. The survey was designed to ascertain the level of dependency on rural rail networks together with the current mobility levels in rural areas in order that the impact of any potential change to rural rail networks could be evaluated.

The survey was also designed to investigate the attitudes of both rail users and non-rail users towards rail privatisation, service standards and the local branch line. Attitudes to rail privatisation and service standards were deemed important as it is considered likely that these will influence the travel behaviour of potential rail users. If, for example, the general perception is that the rural rail network provides an unreliable service with low standards, facing an uncertain future as a privatised industry, then it seems likely that alternative modes of transport are already being sought. This may be reflected in an unwillingness to use the local branch line rail services. Equally, the attitudes to rail privatisation and service standards among those who use the railways may reflect a more positive outlook, brought about by experience rather than outside influences such as the negative media coverage of both the rural rail network and the privatisation process.

4.1 - Evaluating Existing Methodologies

An important preliminary step in the design of a suitable survey was to review the existing literature for similar research studies and evaluate the types of methodology used. This gave a valuable insight into how certain issues are best investigated. Although not all the methodologies were suitable for the present study, by evaluating the methodologies cited in the literature it was possible to eliminate those which would not yield the level of data and information suitable for the study in question. Issues such as the available time and manpower also had to be taken into account as some of the previous research had been carried out over long periods of time, using teams of researchers.

The key methodologies used in previous research into rural mobility and transport include the use of travel diaries, questionnaire surveys and both structured and semi-structured interviews with special interest groups. The majority of these studies were general investigations into issues of rural mobility and accessibility (see for example Moseley et. al. 1977, Nutley 1983, Nutley & Thomas 1992, Nutley & Thomas 1995). Other studies, however, have focused on specific issues such as the provision of public transport, generally in the form of bus services (see for example Peat Marwick, Mitchell & Co 1980, Nutley 1980, Nutley 1985).

Comparatively little work has been carried out that focuses specifically on the railways. One important study, carried out by Hillman and Whalley (1980), looked at the consequences of rail closure on ten rural branch lines. The study concentrates on the changes brought about by closures in the lives of former rail users. Three sources were used in the study. The first data source was information obtained by personal interviews conducted among people living in the areas that had experienced rail closures. The second

source of data came from discussions with representatives of local authorities and other organisations and the third source of data was the 1971 Census, British Rail, Bus timetables and local bus operators. This study provided a useful insight into some of the key issues and the methods that could be adopted to investigate them, though the proposed survey intends to study rural branch lines before they have closed rather than the post-closure impacts. Another useful study was carried out by the Settle-Carlisle Joint Action Committee (1985) when the line was under threat of closure. In this case a passenger survey asked the respondents about their travel arrangements if the line closed. Again, a useful insight into the key issues and how to best investigate them, though the proposed survey will be carried out on the basis of a possible rather than an actual threat and as such must be carried out in a 'non-alarmist' fashion. Nevertheless, each of these studies have covered, in detail, some of the key issues that the current research intends to investigate and therefore the methodologies adopted and the design of the questionnaires will be of assistance when designing the current survey.

Among the more general methodologies concerning rural mobility and transport, one of the key issues in the construction of rural transport surveys has been a shift in focus from issues of mobility, i.e. how people travel and what means of transport is available to them, to looking at issues of accessibility i.e. gaining access to remote facilities (Moseley et al.1977, Moseley 1979, Nutley 1983, Nutley 1992). This change of focus has come to prominence as local facilities have closed and it has become necessary to travel beyond the village to gain access to certain facilities. This will have implications in the design of a questionnaire and the type of question to be asked and serves to highlight the importance of asking not only how and why people travel but also what difficulties they experience and how these could best be solved. Many of these studies had been carried out using

questionnaires administered by a team of interviewers and, often, these questionnaires were long and detailed (see Moseley et al. 1977). Any methodological approach taken in the proposed study would, however, have to take into account the limitations of one person working alone.

One particularly long and complex study was carried out by Peat Marwick, Mitchell & Co (1980) in Wales for Dyfed County Council. The study was an assessment of needs for rural public transport and used a variety of techniques. The methodology was based on three different approaches; surveys of bus passengers, a county-wide questionnaire to Parish Councils on transport arrangements and problems, and an interview based household survey in selected communities to obtain detailed information on the travel requirements of a rural population. A part of the detailed work on individual households entailed each member of the household keeping a travel diary that logged every journey made, the purpose of the journey, the mode of transport, distance travelled and the time each journey took. The data gathered from these various approaches was analysed and a method of ranking needs, determining which are essential and which are merely desirable, and relating these to the service levels that should be provided to cater for the essential needs of a population was devised. Furthermore, using the data collected in conjunction with available census data, Peat, Marwick, Mitchell & Co (1980) devised a methodology that could be applied to any rural community creating an index of travel needs. This was undoubtedly a comprehensive study that, given sufficient time and resources, would be useful in providing the data required to successfully model the potential impacts of rail privatisation. Given the constraints of the current study, in terms of time, resources and manpower, it would be impossible to adopt this approach but certain aspects of the

methodology, particularly investigating the purpose of the journey and the principal mode of transport used, could be adapted to suit the proposed survey.

All of these methodologies (travel diaries, questionnaires, interviews and the use of secondary sources) provide a valuable insight into the issues that need to be covered, the various methods that can be used and the types of question that will yield an adequate set of data for analysis. Certainly it serves to indicate that several sources of information will be needed in order to build up a comprehensive picture of the communities to be studied.

In addition to the specific methodologies used for travel surveys, general texts on methodological issues were also studied (see for example Frankfort-Nachmias & Nachmias 1992, Shaw & Wheeler 1994). These provided information on issues such as sampling techniques, survey methodologies, questionnaire design and analysis techniques. One of the key issues to be decided was which methodological approach would be appropriate to the type of research being carried out. An evaluation of past research into rural mobility and transport issues served to highlight a variety of methods that can be used and these were assessed to determine which would be the most effective.

The first approach that was considered was the use of travel diaries as they would provide a comprehensive insight into how, when and why people travel. The aim of the current research, however, was to carry out a study into the overall pattern of mobility and modes of travel whilst at the same time finding out a) what difficulties they experience, b) if they use the train at all and for what reasons and c) the perception of both branch lines and rail privatisation. A travel diary would therefore only provide a small portion of the information required and would not be an efficient use of time or resources as it would fail

to evaluate details such as transport problems, frequency of rail use, and attitudes to branch lines and rail privatisation.

Having eliminated the use of travel diaries from the methodologies under consideration, alternative approaches to be considered were the direct questioning of respondents in the form of either structured or semi-structured interviews or a mail questionnaire. All of the methodologies that were evaluated relied on some form of questionnaire, in the form of either a self completion questionnaire returned by mail or face to face interviews. There are both advantages and disadvantages to either of these methods and these were evaluated carefully before a decision was made. Frankfort-Nachmias and Nachmias (1992) suggest that the key issues to be considered are:

- 1 Cost - A mail questionnaire does not require a team of trained interviewers or the long term efforts of a single interviewer. A questionnaire can be compiled and delivered over a wide geographical area in a relatively short period of time and a stamped addressed envelope can be provided for its return. In addition the analysis and processing of questionnaire returns are often simpler and less time consuming than the results from interviews.
- 2 Bias - In a face to face interview there is the danger of introducing bias. This can arise for two main reasons, either the interviewee is attempting to assess the type of answer that may please the interviewer or there are certain clues in the way the interviewer phrases a question that influences the person being interviewed. In a mail questionnaire the dangers of bias are much smaller because there is no interaction between the researcher and the respondent.
- 3 Anonymity - A mail questionnaire, delivered to a house and returned through the post enable a respondent to retain their anonymity whereas a face to face interview has been arranged with the researcher knowing both the name and address of the respondent. Many respondents favour a more anonymous approach as this enables them to be honest in their answers without fear of judgement.

- 4 Accessibility - A mail questionnaire can be carried out over a much wider geographical area, something that would prove to be more difficult if interviews were arranged.
- 5 Expanding a respondent's answers - There is no opportunity to enquire further of a respondent with a mail questionnaire whereas during an interview it is always possible to question further on a particular issue.
- 6 Response rates - A major disadvantage associated with mail questionnaires is the low response rate usually obtained. Response rates for personal interviews are commonly 95% whereas mail surveys tend to have a response rate of between 20-40% (Frankfort-Nachmias & Nachmias 1992). This can introduce bias into the data because the non-respondents often comprise the poorly educated, the elderly and the more mobile members of the population (Frankfort-Nachmias & Nachmias 1992).
- 7 No control over respondents - If the questioning is aimed at a particular person or type of person a mail questionnaire removes the control that is needed. The researcher is unable to ensure that the questionnaire is filled out by its intended respondent. This problem does not exist in an interview because the researcher is able to ensure that they are interviewing the right person.

After considering all these points it became apparent that none of the methods under consideration were without problems, each had their own advantages and disadvantages (see table 4.1).

Advantages and Disadvantages	Mail Questionnaire	Structured Interview	Semi-structured Interview
Cost Effective	✓	✗	✗
Less Risk of Bias	✓	✗	✗
Anonymity	✓	✗	✗
Ease of Accessibility	✓	✗	✗
Expanding Respondents Answers	✗	✗	✓
Higher Response Rates	✗	✓	✓
Control Over respondents	✗	✓	✓

Table 4.1 - Advantages And Disadvantages Of Data Collection Methods

When each of the three methods of data collection were evaluated the mail-based questionnaire proved to have the most advantages (see table 4.1 above), particularly in terms of available time and resources. It must be noted that both structured and semi-structured interviews would allow more control over the respondents and return much higher response rates and that semi-structured interviews have an additional advantage in permitting a respondent's answer to be queried but these were not necessarily major problems and the design of the research could take account of them. If certain sectors of the population failed to respond to the questionnaire it would always be possible to carry out further work among selected groups, and, if the responses from the questionnaire raised more issues than they clarified, follow-up interview work targeted at specific issues would be possible. Overall, therefore, a mail-based questionnaire offered more advantages over the use of structured and semi-structured interviews and the disadvantages could be overcome more easily.

Having evaluated the methodologies that could be used, the final decisions about design of the current research were made. It was decided to base the main survey on a mail questionnaire which seemed to be the most efficient way for one researcher to cope with trying to gain access to a reasonably large sample size over a geographically diverse area. This work could then be supported by other data sources such as the 1991 Census, rail timetables and an investigation into types of settlement, the location of the railway station and the facilities they offered along each branch line in Devon and Cornwall. Taken in combination this information should allow the researcher to carry out a rigorous investigation into the issues surrounding rural branch lines and rail privatisation.

4.2 - Preliminary Fieldwork

The preliminary fieldwork took the form of an evaluation of all the branch lines operating in Devon and Cornwall. The aim of this was to determine: the size and type of settlement; the relationship of the settlement to the local branch line station; and what type of facilities existed at both the settlement and the station. Every station along each of the branch lines in Devon and Cornwall was visited and details of how close to the nearest settlement the station is, how easily accessible the station is, how readily the train fitted in with other forms of public transport such as bus and taxi services, what facilities were available in the nearest settlement and whether there was any sign that the station was being used throughout the day were noted (see section 5.4.2 - Site Selection for further detail).

To enable a fuller profile about each branch line and station to be built up, data from a range of secondary sources were also compiled. This data consisted of timetabling information, details of the levels of population (both total population and economically active population) living within settlements along the branch lines, breakdown of population on the basis of age and sex, levels of car ownership and information about modes of transport from the travel to work survey (see section 5.4.2 - Site Selection for further detail).

4.3 - Use Of Secondary Data

A variety of data sources were used in the preparation of the fieldwork. These ranged from census data to existing surveys. The census data were of particular value as details of the population, car ownership levels and travel to work by mode of transport in the areas under scrutiny were provided. Use of the small area statistics enabled the work to be narrowed down to specific sites around particular railway stations. Using data sets available from

MIDAS (Manchester Information Datasets And Associated Services) it was possible to relate postcode information to enumeration districts thus ensuring that accurate household counts could be obtained. This information not only allowed a suitable sampling strategy to be devised but would also enable the researcher to verify the accuracy of the sample by comparing the sample data with the same variables from the census 1991 data sets.

In addition to the 1991 census, which was a major source of information regarding the social and economic profiles of the population in the areas under scrutiny, existing surveys carried out in the West Country were also used. Although these surveys did not cover the specific questions that were needed in this thesis, they nonetheless helped to provide a profile of the communities and their attitudes to, and use of, public transport. A survey carried out by the Devon and Cornwall Rail partnership in 1993 for example, which distributed 2000 self completion questionnaires to the majority of homes in the four settlements along the Tamar Line, was of immense value as it provided an insight into one of the branch lines under consideration. The response rate to this survey was high, some 870 questionnaires were returned giving a response of 42.3%. Major findings included the fact that 25% of the respondents used the line once a week or more and 15% of the households did not own a car. Reasons for not using the train were generally: inconvenient train times; infrequent trains; considered too expensive; and, too far from the station. Train frequency was also a major issue raised by the respondents of the Plymouth and South East Cornwall Environs Transportation Study carried out in 1995. This information is of course valuable when determining which issues the proposed survey should explore.

The one source that was inaccessible, but would have been of immense value, was the railway company records. Since the privatisation process began, much of the information

about passenger numbers, type of journey and other ticketing information is considered to be of immense commercial value to the other train operating companies competing for business and, as a consequence, is confidential. Figures for the overall use of the lines in question could not therefore be obtained and the only comparison between the data collected and the use of the railways that could be made was by using the 10% sample in the travel to work survey. This is, of course, not very accurate as use of the rural rail network is not merely for travel to work and the aim of the research is to determine all the types of journey made by rail.

4.4 - Primary Data Collection

Having evaluated the existing methodologies it was decided that the survey to be carried out along the railway lines would be more effective if the questionnaire covered a random sample of the population in each area rather than by conducting interviews among selected groups of people (see section 4.1). This approach not only reduced time and travel costs, it also reduced the risk of bias and, importantly, allowed greater anonymity to the respondents. To overcome the problem of being unable to probe more deeply into a respondent's answers it was decided that the back page of the questionnaire should be left blank and simply headed 'any additional information'. This would enable any respondents who felt that they had been unable to express themselves fully because of the constraints of the questionnaire to expand on any issues that they considered to be of importance. However, analysing any responses to this would be problematic, such data are not easily analysed using statistical techniques and can be difficult to use in an objective manner (Shaw and Wheeler 1994). Nonetheless, it would be possible to group responses into categories and use the data to express the key areas of concern to the respondents.

Rather than send out the questionnaire to households selected from the electoral roll, which would have immediately compromised anonymity and possibly introduced a bias, it was decided that delivery by hand with a reply paid envelope attached for return would be the most appropriate method. This method had the advantage of enabling the researcher to make direct contact with many of the potential respondents and reassure them as to the purpose of the survey. It also reduced the risk of the survey resembling junk mail and marketing surveys received by most households on a frequent basis. Despite the personal contact, the anonymity of the respondents was retained by not numbering or marking the survey forms in any way.

4.4.1 - Preliminary Questionnaire Design

The pilot survey was carried out in two stages, the first designed to test the suitability of the questions and the second to test the response rate and sampling method using a refined set of questions. For the first stage of the piloting process therefore, a questionnaire was designed that covered the key questions i.e. number in household, number of cars, modes of transport, local transport arrangements, rail use and attitudes to the branch line and rail privatisation (see appendix 1). Having determined the types of question to be asked, the questionnaire was distributed among selected respondents to obtain feedback from a sample group on whether or not these questions adequately covered issues of accessibility and transport.

The aim of the first pilot survey was not to obtain an accurate sample but to test question design. The pilot questionnaire was distributed among a selection of 25 rail users who worked in Plymouth and commuted from villages in Devon and Cornwall. The selection of these respondents was based on both personal knowledge and advice from members of the

Devon and Cornwall Rail Partnership. Many of these respondents worked at the University and were therefore familiar with survey designs. This ensured that the feedback would not merely cover the type of questions that needed to be asked but would also contain valuable suggestions as to how to improve the structure of the questionnaire. It must be acknowledged that this approach introduced an element of bias. The sample was carefully selected to ensure that those participating were aware of both the advantages and disadvantages of rail travel in particular and, more generally, transport and mobility in rural communities. The risk of bias, however, was considered to be justified by the need to refine the questions so that they adequately addressed the issues of transport and mobility in rural communities.

The feedback obtained from this approach was excellent, it served to highlight both the strengths and the weaknesses of the preliminary questionnaire design. A key criticism was that the survey form was over long and too complex. Another criticism was that the questionnaire did not cover adequately the different transport needs of various household members some of whom may have little or no access to the household's vehicles. Certain questions such as why people had chosen to move to a particular village and where they had lived previously were criticised for their irrelevance. Equally, omissions such as ignoring the proximity of the local main line when questioning people about their rail use, were pointed out.

Having tested a variety of questions on a selected sample of known rail users it was possible to finalise the design of the questionnaire. Using the feedback from the sample group the questions were refined and rewritten (see appendices 1 & 2). Certain questions such as why people chose to move to a particular village and where they had lived

previously were deemed unnecessary. Other questions connected to modes of transport and rail travel were expanded. Most importantly, the questionnaire was redesigned both to make it shorter and more user friendly and, in addition, to enable up to five household members to answer the questions. An option for five respondents per questionnaire was selected as this was likely to be the maximum number of independently mobile household members. This approach ensured that every household member had the opportunity to both detail their transport needs and express their views on various issues connected with rural transport and rail privatisation.

The finalised questionnaire covered a variety of issues and asked respondents a series of questions covering different aspects of rural transport and mobility (see appendix 2). It was laid out in a series of tables, containing tick boxes, which simplified its completion by several members of the household. The questions covered:

- ♦ General household details e.g. number of people, vehicles, drivers etc.
- ♦ Details of local transport.
- ♦ How various household members travelled to fulfil different needs.
- ♦ What difficulties they experienced and how best these could be resolved.
- ♦ Whether anyone in the household used the train.
- ♦ Frequency of rail travel, reason for using the train and degree of difficulty if branch lines were to close.
- ♦ Perceptions of the local branch line, rail use and privatisation.
- ♦ Personal details such as age, employment status etc.

Once the questionnaire was finalised the next stage was to both select a suitable sample site to test the sampling method and response rate and, in addition, to select suitable sites for the final survey.

4.4.2 - Site Selection

The selection of sites was carried out in two stages. The first stage was to identify which branch lines would be the most suitable and the second stage was to select a range of settlements that would reflect adequately the variation in settlement size, population, type of station, frequency of services, ease of accessibility to the station and distance to the station that existed along each branch line. The aim was to encompass as wide a sample as possible, selecting sites throughout Devon and Cornwall.

4.4.2.1 - Branch Line Selection

In Devon and Cornwall as a whole there are eight branch lines ranging in length from 4 miles (St Ives - St Erth) to 39 miles (the Tarka Line) (see table 4.2). Between them these lines serve a range of settlements from small rural villages to cities such as Plymouth and Exeter. There is a tremendous variation in levels of service, some settlements have an infrequent service with trains only stopping on request at certain times of the day and often the Sunday service is limited to the peak holiday season. Many lines serve to link seaside towns such as Looe, Barnstaple, St Ives etc. to the main line into Devon and Cornwall but along their routes there are numerous smaller settlements. The clientele may, therefore, be classed as both local and holiday trade.

Of the eight branch lines in Devon and Cornwall, four lie wholly within Cornwall, three within Devon and one, the Tamar Valley Line, falls partly within Devon and Cornwall. The

main criteria used in the selection of the branch lines to be studied were: 1) That they should be geographically spread throughout the two counties to allow as wide a sample as possible; 2) That the service should run fairly regular trains throughout the day that would be suitable for activities such as leisure use, shopping and commuting to work, school etc.; and 3) That the branch line served communities in rural locations.

Branch Line	Length of Line	Number of Stations	Number of Trains (round trips per day)	Stops at Every Station	Sunday Service	Location
St Erth-St Ives	4 Miles	4	22	No	Summer only	Cornwall
Truro-Falmouth	12 Miles	5	13	Yes	Summer only	Cornwall
Par-Newquay	21 Miles	6	4	No	Summer only	Cornwall
Looe Valley	8.5 Miles	5	10	No	Summer only	Cornwall
Tamar Valley	15 Miles	4	8	No	Summer only	Devon & Cornwall
Exeter-Paignton	28 Miles	8	15	No	All Year	Devon
Tarka Line	39 Miles	12	14	No	All year	Devon
Exeter-Exmouth	11 Miles	8	29	No	All year	Devon

Table 4.2 - Summary Of Branch Lines In Devon And Cornwall

Source - Regional Railways South Wales and West Timetable

Reference to table 4.2 indicates that the Cornish branch lines are well spread throughout the county, thus satisfying the first criteria, but that the Devon branch lines, with the exception of the Tamar Valley Line which runs along the border between Devon and Cornwall, all run from Exeter. To avoid duplication of area only one of the Devon lines running into Exeter would therefore be included in the sample and the other two would be excluded from the sample. The second criteria, regular trains, immediately ruled out the Par-Newquay line in Cornwall as this service only runs four trains per day. This was deemed insufficient to fulfil the criteria that the trains could be used for a variety of transport needs because an irregular service such as this does not permit a wide variety of journeys, of differing time scales, to be carried out. The final criteria was applied to

determine which of the three branch lines running from Exeter would be selected. Of the three lines in question, the Tarka Line (Exeter to Barnstaple), the Exeter-Paignton line and the Exeter to Exmouth line, the one serving the largest rural catchment was the Tarka line which runs for 39 miles between Exeter and Barnstaple. Along its route it serves ten villages, one small town (Crediton) and terminates in the town of Barnstaple. From the original eight branch lines under scrutiny therefore, the final selection comprised five lines: St Erth-St Ives, Truro-Falmouth, the Looe Valley line, the Tamar Valley line and the Tarka line (see figure 4.1).

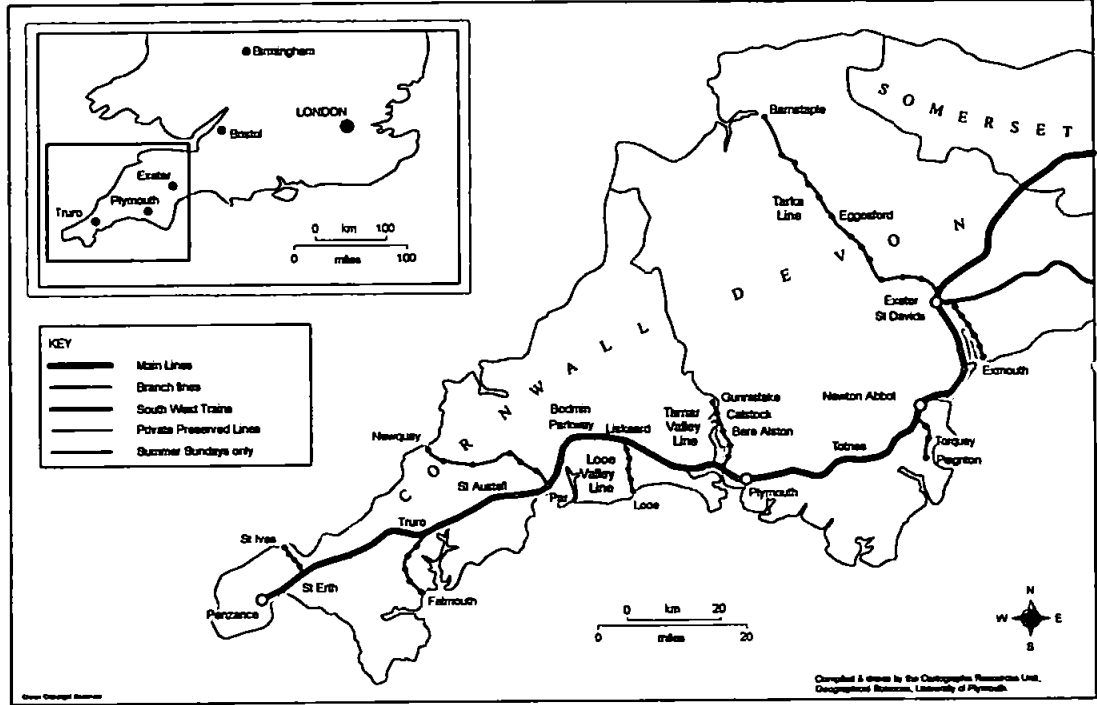


Figure 4.1 - Map Of Devon And Cornwall Railway Lines

The Exeter-Exmouth and Exeter-Paignton lines were excluded from the sample on the grounds that; geographically, these lines, along with the Tarka Line, formed a cluster around Exeter and were, therefore, not sufficiently dispersed, and neither the Exeter-Exmouth or the Exeter-Paignton lines served as many rural communities as the

Tarka Line. The Par-Newquay Line was excluded from the sample because it failed to fulfil the criteria that enough trains ran per day to allow a sufficiently wide variety of transport needs to be met.

On the basis of the above criteria it was decided that the final selection of five branch lines would allow a suitable spread of sites throughout the two counties. These range in location from the far West of Cornwall to the East of Devon. There are considerable differences between these sites. Reference to the socio-economic data contained in the 1991 census confirmed that factors such as population density, levels of car ownership and age distribution varied considerably between the different sites (see table 4.3). Thus the sample contains a wide cross section of the population as a whole.

Line	Wards	Residents per Hectare	Number Of H'holds	Total Pop'n	% Under 16 Yrs	% Pension Age & Above	% H'holds No Car
St Ives-St Erth	Lelant/Carbis Bay	4.8	1,527	3,710	15.2	34	22.3
Truro-Falmouth	Penryn	17.4	2,446	5,864	19	18.9	32.2
	Mylor	1.5	2,313	5,486	17.1	26.3	16.8
Looe Valley	Looe	7.6	2,150	5,265	16.7	28.8	27.9
	Morval	0.4	670	1,771	20.9	20.2	11.6
Tamar Valley	Gunnislake	6.8	720	1,822	22.8	17.4	19.3
	Calstock & Harrowbarrow	1.7	970	2,419	20.5	21.5	13.4
	Bere Ferrers	1.2	1,151	2,923	19.8	23	21.8
Tarka Line	Newbrooke	0.4	546	1,380	17.2	22.9	14.3
	Boniface	9.6	1,203	3,078	20.7	19.2	27.2
	Lawrence	25.7	1,337	3,064	14.9	30.6	29.2
	Yeo	0.4	1,016	2,790	22.4	15.4	10.5
	Sandford	0.4	468	1,315	21.5	15.6	12.8
	West Creedy	0.3	619	1,699	22	21.1	9.4
	Taw Vale	0.4	609	1,492	16	22.7	16.7
	Chulmleigh	0.2	781	2,001	18.4	25.6	15.2
	Chittlehampton	0.2	706	1,843	17.8	20.5	10.6
	Bishops Tawton	0.5	619	1,550	15.7	21.3	16.5

Table 4.3 - Socio-Economic Data For Branch Lines In Devon And Cornwall

Source - Census 1991

In addition, factors such as the local provision of other forms of public transport were considered. West Cornwall for example, has a much greater provision of regular bus services than the sites around branch lines in East Cornwall and Devon. Levels of service on the different branch lines also vary considerably and appear to reflect the amount of use a branch line receives (see table 4.2). Tourism is another important factor. Three of the lines in question, the Tarka, Looe Valley and St Ives-St Erth Lines, provide a key link between the main line and a major holiday destination. The final selection, therefore, includes both branch lines which appear to cater for the tourist trade together with those catering for a mix of tourists and commuters.

4.4.2.2 - Selection Of Settlements

Having selected the branch lines, the selection of suitable settlements to include in the sample was again based on certain criteria. Individual sites along each line were selected on the basis of 1) settlement size and 2) proximity/ease of access to the station. All of these sites were selected after field visits. The proximity of station to settlement was taken into account as this may influence the amount of use a station has. For certain sectors of the population, for example the elderly, a long walk to the station will rule out the use of trains as a practical form of transport. Equally, a station sited at the top/bottom of a steep hill will make access too difficult for some people. The size of the settlement may also influence the amount of use a station has. In a larger population there are likely to be more people without access to their own transport. The settlements were graded as small (less than 500 households), medium (500 - 1,000 households) and large (more than 1,000 households). The final selection, therefore, included combinations of these two factors which should allow judgements to be made about the value of branch lines to different communities. Additional factors such as the provision of other forms of transport and local facilities were

also noted as these will also influence both modes of travel and, indeed, the need to travel to gain access to certain facilities. Using these settlements as a sample it became possible to conduct a study that would investigate the role that rural branch lines played in the lives of the communities that they served and determine whether or not the local communities made use of the railways.

St Ives-St Erth

This line was the shortest to be surveyed. It lies in the West of Cornwall and appears to cater primarily for tourists. It runs from St Ives to St Erth but also carries direct trains from St Ives to Penzance (the nearest large town). It is four miles long and has four stations: Lelant Saltings, Lelant, Carbis Bay and St Ives (see table 4.4).

Settlement	Size Of Settlement*	Station	Station Accessibility	Station Parking	Signs Of Use	Regular Bus Service	Local Facilities
Lelant	Small	Lelant Saltings	1/4 mile beyond village, steep hill	Yes	No	Every 15 mins	Limited range of shops
		Lelant		No	No		
Carbis Bay	Medium	Carbis Bay	Centre of Village	Yes	Yes	Every 15 mins	Extensive facilities
St Ives	Large	St Ives	Centre of Village	Yes	Yes	Every 15 mins	Extensive facilities

* 0-500 Households = small, 500-1000 households = medium, >1000 households = large

Table 4.4 - Summary Of Stations On St Ives-St Erth Line

Two settlements were chosen. The first, Lelant, was chosen because: it is served by both Lelant Saltings (a park and ride scheme) and Lelant Station; it was the smallest settlement along the line; and both the stations lie on the outskirts of the village rather than in the centre, a distance of only a quarter of a mile but down a steep hill which made access more difficult. The second settlement, Carbis Bay, was selected because it is a medium sized settlement and the station lies in the centre of the settlement and is therefore more accessible. St Ives was omitted from the selection because it is primarily a holiday resort

and, although holiday traffic has an important role to play in boosting revenues for the line, the aim of the research was to investigate the role of rural branch lines in the lives of the communities they serve. Surveying households that comprised holiday lets would not, therefore, yield a particularly accurate result.

Truro-Falmouth

The Truro-Falmouth Line is some 12 miles in length and serves a total of five stations: Perranwell, Penryn, Penmere, Falmouth Town and Falmouth Docks (see table 4.5). Like the St Ives-St Erth line it also runs in the west of Cornwall and appears to cater for both commuters and tourists.

Settlement	Size Of Settlement*	Station	Station Accessibility	Station Parking	Signs Of Use	Regular Bus Service	Local Facilities
Perranwell	Small	Perranwell	3/4 mile beyond village, steep hill	Yes	Yes	Hourly	Limited range of shops
Penryn	Large	Penryn	Centre of Town	Yes	Yes	Every 15 mins	Extensive facilities
Falmouth	Large	Penmere	Outskirts of town	Yes	Yes	Hourly	Limited
		Falmouth Town	Centre of town	Yes	Yes	Every 15 mins	Extensive facilities
		Falmouth Docks	Centre of town	Yes	Yes	Every 15 mins	Extensive facilities

* 0-500 Households = small, 500-1000 households = medium, >1000 households = large

Table 4.5 - Summary Of Stations On The Truro-Falmouth Line

Out of the five stations only two were deemed suitable for sampling, Perranwell and Penryn, as the remaining stations lay within Falmouth (a large holiday town). Once again, this was because of the need to exclude holiday lets from the sample. The first, Perranwell, was selected because it was the smallest settlement along the line and the station is situated 3/4 of a mile away from the village up a steep hill thus making accessibility difficult. The second settlement, Penryn, was selected because it is a large settlement and the station lies in the centre of the settlement and is accessible.

Looe Valley

The Looe Valley Line is some 8 1/2 miles in length and serves a total of five stations: Coombe junction, St Keyne, Causeland, Sandplace and Looe (see table 4.6). It links the holiday destination of Looe to Liskeard in the East of Cornwall and appears to be primarily a tourist line. With the exception of Looe, none of the stations lie in close proximity to a settlement.

Settlement	Size Of Settlement*	Station	Station Accessibility	Station Parking	Signs Of Use	Regular Bus Service	Local Facilities
Isolated houses	Small	Coombe Junction	Overgrown trackway	No	No	None	None
St Keyne	Small	St Keyne	1.5 mls, steep lane	Yes	Yes	3 per day	Village store
Duloe	Small	Causeland	1.5 mls, steep lane	No	No	3 per day	Limited facilities
		Sandplace	1.5 mls, main road	Yes	No		Shop & Post office
Looe	Large	Looe	Centre of Town	Yes	Yes	Hourly	Extensive facilities

* 0-500 Households = small, 500-1000 households = medium, >1000 households = large

Table 4.6 - Summary Of Stations On The Looe Valley Line

Having eliminated the few isolated houses at Coombe Junction from the possible survey sites due to a lack of suitability there remained only three other settlements which could be said to lie on the branch line. Consequently all three settlements were chosen for the survey, St Keyne and Duloe because neither was big enough to sample on its own, and Looe. The first two settlements, St Keyne and Duloe, fitted the selection criteria because they are the smallest settlements served by the railway line and the stations of St Keyne, Causeland and Sandplace lie over a mile from the settlements along steep and narrow lanes thus limiting accessibility. Looe was a suitable sample site because it is the largest settlement along the line and the station lies in the centre of the settlement and is therefore more accessible. Once again, Looe is primarily a holiday resort which could cause

sampling difficulties but there are sufficient large residential housing estates away from the quayside and main resort area to overcome this problem.

Tamar Valley

The Tamar Valley Line is 15 miles in length and runs through the East of Cornwall and the West of Devon, linking Gunnislake to Plymouth. It is generally considered to cater for both commuters and tourists. Excluding the stations within Plymouth, the line serves four stations: Gunnislake, Calstock, Bere Alston and Bere Ferrers (see table 4.7).

Settlement	Size Of Settlement*	Station	Station Accessibility	Station Parking	Signs Of Use	Regular Bus Service	Local Facilities
Gunnislake	Medium	Gunnislake	1/2 ml, very steep hill	Yes	Yes	Infrequent	Extensive facilities
Calstock	Small	Calstock	Centre of village	Yes	Yes	Infrequent	Limited facilities
Bere Alston	Large	Bere Alston	C. 1/2 ml from centre	Yes	Yes	Hourly	Extensive facilities
Bere Ferrers	Small	Bere Ferrers	Easily accessible	Yes	Yes	Hourly	Poor facilities

* 0-500 Households = small, 500-1000 households = medium, >1000 households = large

Table 4.7 - Summary Of Stations On The Tamar Valley Line

The Tamar Line is unique amongst those chosen as it is the only line that runs through both Devon and Cornwall. It was decided that in order to be a truly representative sample the survey should include a settlement from Devon and a settlement from Cornwall. Bere Alston was the site selected for the pilot survey comprising 50 questionnaires and this therefore ruled out its inclusion in the main sample. Out of the remaining stations two, Calstock and Bere Ferrers, were sited in small settlements with easy accessibility and one, Gunnislake, was a medium sized settlement with a difficult 1/2 mile walk up a steep hill. For the main sample the settlements of Gunnislake and Bere Ferrers were selected as these represented a settlement from Devon and one from Cornwall and also fulfilled the criteria that the sample should include both large and small settlements as well as representing both

easy and difficult access to the station. The first site, Gunnislake, was selected because it was the largest settlement along the line, the station has recently been rebuilt with good park and ride facilities, the station is sited a half mile outside of the village at the top of a very steep hill making accessibility difficult, and it is situated in Cornwall. Bere Ferrers was selected because it was the smallest settlements along the line, the station was easily accessible to all, and it was situated in Devon.

Tarka Line

The Tarka Line is the longest in the survey, running for 39 miles and serving 12 stations: Newton St Cyres, Crediton, Yeoford, Copplestone, Morchard Road, Lapford, Eggesford, Kings Nympton, Portsmouth Arms, UMBERLEIGH, Chapleton and Barnstaple (see table 4.8). The line lies in the East of Devon linking Exeter to Barnstaple and appears to cater for both commuters and tourists.

Settlement	Size Of Settlement*	Station	Station Accessibility	Station Parking	Signs Of Use	Regular Bus Service	Local Facilities
Newton St Cyres	Small	Newton St Cyres	0.5 mls, level lanes	No	No	3 per hour	PO & Stores
Crediton	Large	Crediton	Outskirts of town	Yes	Yes	3 per hour	Extensive facilities
Yeoford	Small	Yeoford	Centre of village	No	No	None	PO & Stores
Copplestone	Small	Copplestone	Outskirts of village	Yes	No	None	Limited facilities
Morchard Road	Small	Morchard Road	Centre of village	Yes	No	None	Poor facilities
Lapford	Small	Lapford	1 ml across Main Rd	Yes	No	None	Limited facilities
Isolated houses	Small	Eggesford	On Main Rd	Yes	Yes	2 Hourly	None
Fortescue Cross	Hamlet	Kings Nymton	Centre of hamlet	Yes	Yes	None	Pub/garage
Kingsford	Small	Portsmouth Arms	1/2 ml, Main Rd	Yes	No	None	None
UMBERLEIGH	Small	UMBERLEIGH	Centre of settlement	Yes	Yes	None	Extensive facilities
Chapleton	Small	Chapleton	1/2 ml, Lanes	Yes	Yes	None	Poor facilities
Barnstaple	large	Barnstaple	centre of town	Yes	Yes	Several	Extensive facilities

* 0-500 Households = small, 500-1000 households = medium, >1000 households = large

Table 4.8 - Summary Of Stations On The Tarka Line

Three sites were selected to cover the diversity in sites along the line: Yeoford, Lapford and Crediton. The first settlement, Yeoford, was selected because it was a small, isolated rural village and the station lay at the centre of the village and was easily accessible. The second settlement, Lapford, was selected because it was a larger village and the station lay a mile from the centre of the village, down a steep hill and on the other side of a very busy road. The final settlement, Crediton, was selected because it is a large settlement and although the station is on the outskirts of town it is easily accessible both on foot and by bus.

The sites finally selected for the survey sample were: Carbis Bay and Lelant, on the St Ives-St Erth Line; Penryn and Perranwell, on the Truro-Falmouth Line; Looe, Duloe and St Keyne, on the Looe Valley Line; Gunnislake and Bere Ferrers, on the Tamar Valley Line; and Crediton, Lapford and Yeoford, on the Tarka Line. This sample was selected to provide examples of every combination of settlement to station. Of the twelve settlements selected six provided easy access to the station while access to the station was more difficult in the other six settlements; three of the settlements were classed as large (>1000 households), two were classed as medium (500-1000 households) and the remaining seven were classed as small (0-500 households). The facilities available within the settlements varied greatly, ranging from a single village store to an extensive choice of shops and services (see tables 4.4 - 4.8 for further detail).

4.4.2.3 - Socio-Economic Profiles Of The Selected Settlements

Having selected the sample sites, the next stage was to determine the exact number of households in each settlement and compile a socio-economic profile of these settlements. This information could then be used to verify the data collected and check that the sample

population provided an accurate representation of the whole population. Using a dataset obtained from MIDAS (Manchester Information Datasets And Associated Services) it was possible to relate postcode information, taken from local postcode directories, to enumeration districts and determine fairly accurate household counts for the settlements being studied. Having obtained the enumeration district codes for the areas it was then possible to use data from the 1991 census to build up a complete picture of population structure, car ownership etc. (see table 4.9 for further detail).

Settlement	No.H'Hold	% Under 16 yrs	% Pension Age	% H'Hold No Car	% Rail Users*	%Male	%Female
Carbis Bay	996	15.2	34	23.2	0	45.7	54.3
Lelant	372	15.2	34	21.6	0	45.7	54.3
Penryn	2,319	19	18.9	32.2	1.4	48.3	51.7
Perranwell	451	17.1	26.3	12.1	0	47.8	52.2
Looe	1,448	16.7	28.8	27.4	0.6	46.6	53.4
Duloe	150	20.9	20.2	6.9	0	48.6	51.4
St Keyne	160	20.9	20.2	13.6	6.6	48.6	51.4
Gunnislake	596	22.8	17.4	19.3	1.2	49.3	50.7
Bere Ferrers	147	19.8	23	17.2	4.8	48.2	51.8
Crediton	2,157	17.8	24.9	28.1	0	46.9	53.1
Lapford	395	16	22.7	17.5	0	48.9	51.1
Yeoford	158	22.4	15.4	5.3	6.9	49.1	50.9

* taken from 10% sample travel to work survey

Table 4.9 - Socio-Economic Profile Of Individual Settlements

4.4.3 - Sampling Techniques

The first stage in the design of a suitable sampling methodology is to specify the population to be sampled. In this case the sample population was a series of settlements located along specific railway branch lines. Having determined this the sampling unit needs to be defined. For the purpose of this study a sampling unit may be defined as individual

households, but, the survey was designed so that each person within a household, up to a maximum of five people, were able to express their views.

Having determined what the sampling unit should be, a suitable sampling method needs to be devised. The four main sampling techniques; simple random, stratified, systematic and cluster were assessed to determine which would be the most appropriate. In view of the large sample and the different locations to be surveyed the simple random sample was deemed unsuitable because of the preliminary work that would need to take place, i.e. assigning every household in the sample areas a number and then using random number tables to select those which would be used in the survey. Similarly, a stratified sample, based on characteristics of the population taken from the 1991 census, was also deemed unsuitable as this would entail preliminary interviews to identify suitable subjects before the survey could be carried out. The two remaining techniques, cluster and systematic, were both suitable for the size of the survey and, as Shaw and Wheeler (1994) point out, simple to manage and efficient in terms of time.

Rather than take a systematic sample across an entire settlement it was decided to combine the two techniques and a cluster sampling technique was adopted, with a systematic sample being taken from each cluster to ensure random selection of households. The clusters were based on type of housing and within each settlement an example of each type of housing was selected. In the majority of villages in Devon and Cornwall there are generally four main types of housing present: older, traditional housing in the centre of the settlement; council or housing association housing; estates of smaller, modern starter homes; and estates of larger, often detached or semi-detached, modern homes. Once the clusters had

been selected the number of houses was calculated and a systematic sample taken from each cluster.

4.4.3.1 - Pilot Sample

The survey was piloted at Bere Alston, a site along the Tamar Valley Line that was not to be used in the main survey. The questionnaires were delivered by hand with a reply paid envelope attached to encourage its return. A covering letter was included that gave a brief overview of the research being carried out, assured the respondent of total anonymity and explained both how to return the questionnaire and how to contact the researcher in the event of a query (see appendix 3).

In the interest of obtaining a random sample four sites within the village were selected and the questionnaires were delivered to every fourth house within the selected sites. The four sites were selected on the basis of both housing type and distance from the station. The final sample included council housing, older housing types, and two modern estates, one containing smaller semi-detached houses and bungalows and one containing larger detached housing. This approach was chosen to ensure that a totally random cross-section of the population would be contacted.

To try and ensure a good response rate an attempt was made to contact each household and explain the purpose of the research and ask if they would fill in/return the questionnaire. Approximately half the households surveyed had someone at home and a great deal of interest was expressed by people contacted in this way. One issue that was highlighted at this stage was the value that people placed on anonymity. Many respondents, particularly the elderly, needed reassurance that they could not be identified as they expressed fears of

being targeted should anyone become aware that they were living on their own and therefore relatively vulnerable to attack or burglary.

Overall, fifty questionnaires were delivered and of these some nineteen were returned, a response rate of 38%. Altogether, of the 19 households replying, the total number of respondents was 43. The design of the questionnaire, therefore, allowed a much higher response rate than a questionnaire that simply took each household to be a single entity rather than a collection of individuals, each with his or her own unique needs in terms of transport.

The aim of this piloting stage was to test both the sampling method and the response rate. At this stage, had the sampling or the response rate proved to be inadequate, it would have been possible to redesign this part of the methodology. The results of the pilot, however, suggested that the method would be suitable. A response rate of 38% is at the upper limit of the response rate suggested by Frankfort-Nachmias & Nachmias (1992) for a non-follow-up mail survey. The number of respondents who completed each household survey form gave an excellent overall response rate that covered a wide cross-section of the population in terms of age, employment, access to transport etc.

4.4.3.2 - Sample Size

This decision about how big a sample to use for the survey was based on the calculation of the standard error of the binomial frequency distribution. The general principle of sampling techniques is that sampling accuracy increases as the size of a random sample increases. Calculating the standard error of the binomial distribution makes it possible to calculate how accurate a sample of a certain size is likely to be if it is genuinely random.

In the equation below p is the percentage of a sample giving a particular response and q is the percentage of the sample giving other responses. When calculating the potential accuracy of a sample size 50% is normally used for the p and q values. The proposed sample size is represented by n. Having calculated the Standard Error the 95% confidence limits can be calculated by the formula : $X \pm 2SE$ (where X is the sample percentage).

SE = Standard Error, p% = percentage of the sample giving a particular response, q% is the percentage of the sample giving other responses.

$$SE = \sqrt{\frac{p\% \times q\%}{n}}$$

$$SE = \sqrt{\frac{50 \times 50}{2000}} = 1.12$$

95% limits p% \pm 2SE
 95% limits are 50% \pm 2(1.12)
 = 50% \pm 2.24
 = lower limit 47.76 upper limit 52.24

$$SE = \sqrt{\frac{50 \times 50}{400}} = 2.5$$

95% limits p% \pm 2SE
 95% limits are 50% \pm 2(2.5)
 = 50% \pm 5.0
 = lower limit 45 upper limit 55

The equation above shows the calculation for a sample size of 2000 which gives a standard error of 1.12 with 95% confidence limits of \pm 2.24. The sample size of 2000 was then divided by five (the number of branch lines) to give a sample size of 400 for each branch line. The standard error increased considerably to 2.5 with 95% confidence limits of \pm 5.0, suggesting that the results for the individual branch lines will not be as reliable as the entire sample of 2000.

The standard error was calculated for various sample sizes and the results indicate that there is little gain in accuracy for a correspondingly large gain in sample size. For example, if the sample size was increased to 3000 the Standard Error would only drop to 0.9 from

1.12 and a sample size of 4000 gives a Standard Error of 0.79. If the sample dropped to 1000 the Standard Error increases quite dramatically to 1.58. For the main survey, therefore, an overall sample size of 2000 questionnaires was selected as this gave an acceptable level of accuracy whilst retaining a manageable sample size. Each of the branch lines to be surveyed would receive a total of 400 survey forms distributed among selected sites along the branch line (see section 5.4.2.2 - Selection Of Settlements).

Having calculated the 95% confidence limits it can be seen that there will be less margin of error in a sample size of 2000 covering all the railway lines combined than in the sample of 400 for each individual line. The main analysis will therefore be done on the basis of the whole sample rather than on an individual line by line basis. This should decrease the possibility of error and, subsequently, increase the reliability of the results. Any analysis carried out at branch line level will, therefore, be viewed as an insight into the issues raised but not necessarily a reliable result because of the increased risk of error.

4.4.3.3 - Allocating Sample Size To Individual Settlements

The sample size of 2000 allowed 400 questionnaires to be distributed along each branch line. On three of these lines, St Ives-St Erth, Truro-Falmouth and the Tamar Valley, only two settlements had been selected and it was therefore decided to divide the questionnaires equally between each settlement (i.e. 200 to each site). On the Tamar Valley Line however this approach would not work as the settlement of Bere Ferrers was found to contain only 147 households. Rather than use an additional settlement in the sample it was decided to allocate 300 questionnaires to Gunnislake and 100 to Bere Ferrers. This approach was taken because Gunnislake, a station which has recently been rebuilt with full park and ride facilities, was considered to be of particular interest and therefore additional feedback from

the community on the amount of use this new station receives would be of value. Along the remaining two lines, the Looe Valley Line and the Tarka Line, three settlements had been selected and the questionnaires were therefore allocated on the basis of settlement size. Along the Looe valley Line the settlement of Looe, which was the biggest, was allocated 200 questionnaires and Duloe and St Keyne were allocated 100 each. On the Tarka Line the same approach was used and Crediton (the largest settlement) was allocated 200 questionnaires while Lapford and Yeoford were allocated 100 questionnaires each. (See figure 4.2 for further detail).

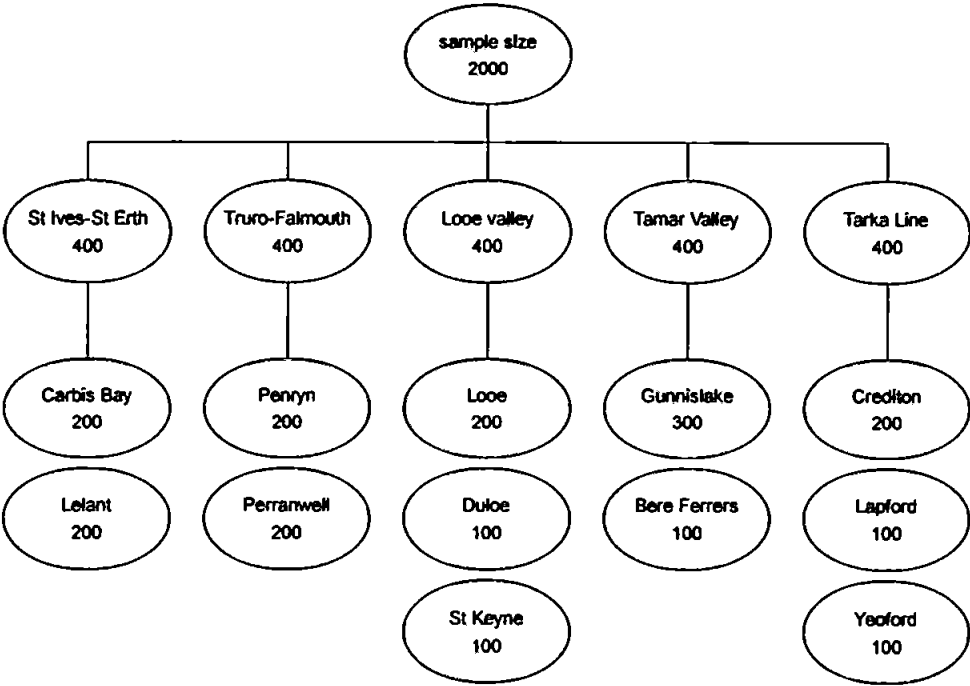


Figure 4.2 - Summary of Questionnaire Allocation by Branch Line

4.4.3.4 - Problems With Conducting The Survey

Among the problems encountered, one of the issues frequently raised was that of anonymity. A high proportion of the respondents contacted were concerned about the danger of being identified in some way. They expressed fears of attack or burglary should

certain facts become known such as work patterns or the fact that they were living alone and elderly, thus making them more vulnerable. It was important, therefore, for the researcher to be on hand, with identification, to reassure the potential respondents that it would be impossible for anyone to identify them or where they lived. This was a key factor in ensuring the response rate was as high as possible. Without this reassurance many of the respondents would have failed to reply.

A further potential problem was relating the number in the household to the number of respondents. In most cases parents pointed out that some household members were too young to be included. Where a household had detailed every member regardless of age a cut-off age of seven years was used to determine who to include in the sample. This age was selected because it is an age at which children become more mobile as they become more involved with school, friends and leisure activities therefore making the transport needs and arrangements of a family more complex.

By far the biggest problems in carrying out the survey were due to: the variation in size among different settlements; the difficulty of discerning exact boundaries within specific locations; and the necessity of avoiding areas where the housing was predominantly holiday lets. Although a cluster sampling technique was adopted, with a systematic sample being taken from each cluster, this method was only really appropriate in the larger settlements such as Looe, Crediton, Lapford and Penryn. In the smallest settlements e.g. St Keyne, Duloe, Bere Ferrers, Perranwell, Lelant and Yeoford the number of houses within the settlement was nearly equal to the number of questionnaires, hence questionnaires were delivered to every household, excluding those on the outskirts of the settlement (between 10 and 15 houses per settlement). Only two settlements failed to fit these two sampling

methods, Gunnislake and Carbis Bay. In Gunnislake it was difficult to define the boundaries between Gunnislake and Dimson/Drakewalls. The questionnaires were, therefore, delivered to every other house within the main area of the village and the outskirts, where the boundaries were blurred, were ignored. In Carbis Bay there are a tremendous number of holiday lets and hotels and guesthouses on the seaward side of the main road. Taking this into account it was decided to adopt a systematic sampling approach in the main residential area and deliver questionnaires to every third house. This problem was also apparent in Looe but there were sufficient residential estates away from the main holiday lets in both East Looe and West Looe to allow a cluster sampling approach to be maintained.

What these problems served to highlight was the gap between a theoretical methodological approach which, on paper, appears to be ideal for the survey in question, and the situation to be encountered whilst out in the field whereby a methodology may need to be adapted to take account of the situation. The design of the methodology, however, was sufficiently flexible to be able to adapt it without compromising the survey.

4.4.3.5 - Response Rates

The final survey was carried out in the same way as the final pilot stage which was distributed in Bere Alston (see section 5.4.3.1 - The Pilot sample) and the questionnaire was distributed to settlements along the five selected branch lines. The overall response rate was good and displayed a consistency between individual lines (see table 4.10 for detail).

Line	Responses	Total Sent	Percentage
Looe	150	400	37.5
Tamar	144	400	36
Truro-Falmouth	149	400	37.25
St Ives-St Erth	169	400	42.25
Tarka	148	400	37
Total	760	2,000	38

Table 4.10 - Response Rates By Branch Line

In contrast to the consistency of responses along each branch line there was considerable variation in the response rates found in individual settlements (see table 4.11 for detail).

Station/Settlement	Responses	Total Sent	Percentage
Looe	68	200	34
St Keyne	37	100	37
Duloe	45	100	45
Gunnislake	86	300	28.67
Bere Ferrers	58	100	58
Perranwell	81	200	40.5
Penryn	68	200	34
Lelant	90	200	45
Carbis Bay	79	200	39.5
Crediton	70	200	35
Lapford	33	100	33
Yeoford	45	100	45
Total	760	2,000	38

Table 4.11 - Response Rates By Individual Settlement

Both the highest and lowest response rates could be found along the same line, the Tamar Valley line. A 58% response rate was obtained for Bere Ferrers, which was extremely high, compared to a response rate of 28.67% from Gunnislake, which was noticeably lower than the average. This variation needs to be accounted for. In the case of Bere Ferrers it would appear to be due to the fact that there is more awareness of the convenience of rail travel

because of the difficulty and length of the road journey compared to the rail journey to Plymouth. The lack of response from the residents of Gunnislake, however, is more difficult to explain. The village has recently had a major investment in the form of a new park and ride railway station and yet the community seems to be relatively indifferent to discussing issues of rural transport and rail privatisation. Possibly it is because they feel their branch line must have a secure future after such an investment and therefore such a survey does not concern them. Equally, however, this apparent indifference to the branch line might stem from the length and difficulty of the journey to the station.

The number of spoiled survey forms, i.e. incorrectly filled in, was very low and comprised only 7 of the responses returned (0.35%). The number of blank forms returned was higher, a total of 19 were returned, some 0.95% of the responses. Overall, however, these figures are marginal and suggest that the questionnaire design allowed the majority of those who wished to respond and fill in the questionnaire to do so.

With a response rate of 38% overall, although towards the upper end of the response rate suggested by Frankfort-Nachmias & Nachmias (1992) for non follow-up mail questionnaires, it was important to test for bias in the sample. It was decided to check for this by using a validation technique suggested by Moseley et al. (1977) which consisted of comparing three categories from the survey (age distribution, sex ratio and car ownership) with the same three categories from the census. The results could be subjected to analysis to test for any over or under representation in the data which might give rise to bias. Techniques such as chi-squared tests could be used in the analysis.

4.4.4 - Data Analysis

At the design stage of the survey the method of data analysis must be considered. It is important to be able to code the response in such a way that suitable analysis techniques may be carried out. The majority of data were coded into nominal values and the only information that was not coded in any way was number in household, number of cars and motorcycles, number of drivers, years at address and age of respondent. Unlike the rest of the questionnaire these categories are not fixed in any way as they are open ended questions with no set responses. This type of data, therefore, is best coded once the results of the survey have been input into a database. Once the range of the data is known suitable methods of dealing with, and analysing, these categories can be devised. Should this information need to be coded into interval data at a later date, e.g. transforming age into suitable groups for analysis, the recoding could be carried out as part of the analysis using a statistical analysis programme called SPSS.

4.4.4.1 - Database Design

The first stage of the design process involved devising a method whereby household data, which was the same for every respondent in a household, could be held separately to the information on individual respondents. This was necessary in order to avoid duplication of information which could bias the results of the survey. The problem was overcome by creating two data bases, the first containing all the information about individual respondents and the second, which was linked to the first by assigning each household and each individual an identification number, containing the information that related to the entire household e.g. number of occupants, number of cars, years at address etc. This meant that the two types of information could be kept separate and analysed in isolation. The identification numbers assigned to each individual and the household to which they

belonged allowed cross-referencing and analysis to be used thus building up profiles of both individual respondents and the household to which they belonged.

A data file containing Postcodes, number of households, number of cars per household and number of respondents by age and sex was also created as this could be linked to a dataset obtained from MIDAS (Manchester Information Datasets And Associated Services) which listed postcodes for Devon and Cornwall and identified them by enumeration district and number of households. This data could then be cross-referenced against SAS (Small Area Statistics - taken from the 1991 census) for the purpose of checking the validity of the data. Any additional information given by a respondent was typed into a notes section in the main database where it could be accessed and analysed separately. A simple system of searching using key words was devised, making it possible to group responses into categories and use the data to express the key areas of concern to the respondents.

The design of the databases was such that the data inputting could be carried out on a form similar in structure to the survey form (see appendix 4). Each question had a dropdown box containing all the responses and therefore the mouse, rather than the key board, could be used for data inputting. This method cut back on operator error as only a limited series of responses could be given and, with no typed input, keyboard errors were not present.

A database called Lotus Approach was used and the data entered into the database from which it could then be imported into SPSS (a statistical analysis programme) for analysis using a DBF format (a standard format for database files which is common to most databases). Preliminary analysis was carried out using cross-tabulations linked to the main

database. As the database was updated the cross-tabulations automatically updated which gave a running total on certain key variables such as age and sex of respondents.

4.4.4.2 - S.P.S.S.

The major analysis was carried out using SPSS for Windows version 6.0. This package was selected as it is a powerful tool for statistical analysis which is capable of handling large data sets. The Windows version was used as this provides an easy interface, mouse driven, which by-passes the need to type in a complex series of commands.

4.5 - Determining The Impact Of Rail Privatisation

One of the principal themes being explored by this thesis is the potential impact of rail privatisation on both the local branch line network and on the lives of the communities served by the branch lines. It is considered likely that this impact will manifest itself in two ways. The first measure of this impact is likely to be found in the perceptions of those members of rural communities who use the train together with the attitudes expressed by non-rail users. The second impact should be more easily discernible and will be detected in the changes taking place throughout the UK as the rail network is privatised. These changes can be related to the travel needs and current travel arrangements expressed by the questionnaire respondents and conclusions can be drawn as to what the impact of such changes will be.

4.5.1 - Perceptions Of The Travelling Public

A series of questions in the survey asked people to express their levels of agreement with certain statements about their local branch line and rail privatisation. The responses to this section of the survey should enable the researcher to detect any particular beliefs, e.g. that

rail privatisation may lead to closures and cutbacks, or that privatisation could influence peoples attitude to using the train as a 'reliable' form of transport. Furthermore, the results of the questionnaire survey should indicate the perceptions of rail travel and privatisation held by both train users and non-train users and highlight any differences between the two groups. Questions such as 'do non-rail users have a more negative outlook on the reliability and future of the railways compared to those people who regularly use the train?' and 'are rail users concerned that local services may be threatened with closure or cutbacks?' are among those issues that will be investigated. A valuable source of additional information proved to be the page that was left blank for any additional comments. A high proportion of respondents (46%) used this page to express their concerns about future developments on the railways and, furthermore, many respondents explained how they had already stopped using rail transport due to timetable changes that had already taken place. Using all of this information it should be possible to determine how much impact the perception of rail privatisation has already had on rail usage.

4.5.2 - Monitoring The Progress Of Rail Privatisation

Determining the actual impact of rail privatisation is much more straight forward and involves noting any changes in the rail network that result from privatisation. Although it may be argued that the actual privatisation process, particularly the reshaping of rail way services has been on going for many years now, in the main it is the currently reported changes that are of concern to the majority of today's rail users. A substantial minority of the respondents to the questionnaire did, however, express the opinion that the decline of rural services has been a lengthy process. Nonetheless, the survey is primarily concerned with the more immediate changes that have occurred since privatisation was an officially acknowledged policy. Any of these changes, whether connected to timetabling of trains,

service levels or service standards, may be classed as potential impacts and are worthy of note. Media coverage of such changes are likely to influence the perceptions of the population in the area being studied.

In addition, alterations to service levels or standards on any of the branch lines being surveyed can be noted and related to the results of the survey. One section of the questionnaire asked rail users to specify how frequently they used the train, why they used the train and what the impact of cutbacks and closures would be. Another section in the questionnaire asked respondents about the types of journey made and the form of transport used. This information can be used to determine which sectors of the population are dependent on rural rail services and the levels of dependency on rail services highlighted by the survey can be assessed. Once the levels of dependency on rail services are established it will be possible to determine the potential impact on the lives of the rural population that changes in rail services might have.

This chapter has described the methodological approaches used in designing a survey which has generated the required information about the relationship between rural communities and branch line services. There were two areas where the need for additional work was deemed possible. The first was if the responses to the questionnaire raised additional issues which had not been covered, and the second was if certain sectors of the population failed to respond and the result was an unbalanced sample. In the end very few additional issues were raised and the responses to the open ended invitation for additional comments on the back page were sufficiently comprehensive as to eliminate the need for additional questioning. The high level of response to the questionnaire also ensured that an

even spread of respondents from every walk of life was obtained which, again, eliminated the need for additional work.

Using the information generated by the questionnaire it should be possible to carry out a detailed analysis which will ascertain how journeys are carried out, which members of the community are most dependent on branch line services and how the attitudes and perception of people can influence their travel arrangements. This can then be related to the possible impacts of rail privatisation and the effect this may have on either individual members of a community or the community as a whole. In the next chapter the survey results will be evaluated which will permit a general profile of the respondents to be built up, this information will then be verified by checking certain variables against the same variables taken from the census data to determine where any bias in the results may be found.

CHAPTER 5 - Results And Data Verification

The aim of this chapter is twofold. First, it will start by setting out the results of the survey that was carried out along five branch lines throughout Devon and Cornwall which will provide a detailed profile of both the individual respondents and the households that took part in the survey. Second, the results will then be used to verify the data and ascertain if there is any bias that could affect the analysis that will be carried out in subsequent chapters. The chief objective of this chapter is, therefore, not to carry out a detailed analysis of the results but to examine the results, check for any potential bias and highlight key issues which will be the subject of further, more detailed, analysis to be carried out in chapters six and seven.

The chapter will begin by setting out the survey results and evaluating both the types of household and the profile of the individual respondents that took part in the survey. The results were split into two databases, both of which will be used in this chapter. The first of these databases dealt with the details of households which enabled measures such as car ownership and average household size to be evaluated. The second database contained details of individual respondents and allowed a more detailed analysis of the individuals living in these households to be developed. It was the second database which contained all the information about travel and transport, rail use and opinions about branch lines and rail privatisation. By evaluating the results from both databases it will be possible to devise a suitable analysis strategy which will allow a comprehensive investigation into the value of branch lines to rural communities and the possible impacts of rail privatisation.

Having detailed the survey results and obtained a profile of the respondents and the households that took part in the survey the results will then be checked for any bias in the data using a series of validation techniques suggested by Moseley et al (1977). Several variables were selected for the verification of the data and the results drawn from these variables were compared to the results from the same variables in the 1991 census. The variables selected were the age and gender distribution of the respondents, levels of car ownership and average household size.

5.1 - General Household Characteristics

In this section the characteristics of the households from which the respondents came will be detailed. This preliminary analysis was carried out using SPSS for windows and takes the form of frequency distributions.

There were a total of 760 households in the sample and these were distributed fairly evenly along the branch lines that were surveyed. Some 400 questionnaires had been delivered along each branch line and, with the exception of the St Ives-St Erth Line, the number of replies were consistently similar (see table 5.1, below).

Branch Line	Number of Households	% of total
Tamar Valley	144	18.9
Looe Valley	150	19.7
Tarka Line	148	19.5
St Ives-St Erth	169	22.2
Truro-Falmouth	149	19.6
Total	760	100%

Table 5.1 - Number Of Households Participating In Survey

The number of households in the sample from each village, however, varied considerably from as high as 90 households (11.8% of the sample) from Lelant to 33 households (4.3% of the sample) from Lapford (see table 5.2, below). Although the percentages are low, the actual number of households in each settlement is sufficient to allow analysis of individual settlements to be carried out should this become necessary. The bulk of the analysis will be carried out at the level of the whole sample, however, with the branch line as the smallest unit of analysis, because smaller samples tend to give more inconclusive results.

Branch Line	Village	Number of Households	% of total
Tamar Valley	Bere Ferrers	58	7.6
	Gunnislake	86	11.3
Looe Valley	Looe	68	8.9
	Duloe	45	5.9
	St Keyne	37	4.9
Tarka Line	Crediton	70	9.2
	Lapford	33	4.3
	Yeoford	45	5.9
St Ives-St Erth Line	Carbis Bay	79	10.4
	Lelant	90	11.8
Truro-Falmouth Line	Perranwell	81	10.7
	Penryn	68	8.9
Total		760	100%

Table 5.2 - Households By Village

Household size also varied considerably and ranged from 153 households containing one person to the largest household in the sample which contained nine persons. The most common household size in the sample was two persons, which accounted for 41.3% of the sample (table 5.3, below). The average household size for the sample data was calculated at 2.51 which compares with an average of 2.38 in Devon and 2.44 in Cornwall (Census 1991). Clearly, larger households are slightly over-represented in the survey results. The

the implications of which will be explored further in section 5.5 (Verification of the Survey Data) when the average household size for each branch line and settlement will be calculated and compared to the census data.

Household size	Number of Households	% of total
One	153	20.1
Two	314	41.3
Three	113	14.9
Four	130	17.1
Five	37	4.9
Six	9	1.2
Seven	3	0.4
Nine	1	0.1
Total	760	100%

Table 5.3 - Household Size

An important determining factor, when looking at issues of travel and mobility, is the number of drivers in the household. The majority of households contained at least one driver, with two drivers being the most common but, nevertheless, a relatively high proportion of households (10.4% of the sample) contained no drivers at all (see table 5.4, below).

Number of drivers in household	Number of households	%of total
None	79	10.4
One	242	31.8
Two	378	49.7
Three	45	5.6
Four	15	2.0
Five	1	0.1
Total	760	100%

Table 5.4 - Number Of Drivers In Household

Equally important is the number of vehicles that a household has access to. Again, members of a household with no access to a motor vehicle are likely to be at a disadvantage with regard to mobility. The majority of households have access to at least one motor vehicle but the number of households without a car comprised 15.5% of the sample compared to the census figure of 24.6% in Cornwall and 27.3% in Devon without cars (Census 1991). Households without a car are, therefore, under-represented in the sample and this will be explored further in section 5.5 (verification of the Survey Data) to see whether this bias is common to all settlements or whether certain areas are the major contributor to this under-representation (see table 5.5, below).

Number of cars/vans in household	Number of households	% of total
None	118	15.5
One	381	50.1
Two	223	29.3
Three	31	4.1
Four	7	0.9
Total	760	100%

Table 5.5 - Number Of Cars/Vans In Household

In response to the question about the availability of motorcycles, the majority of households (94.1%) replied that they did not possess a motorcycle. This indicates that the use of a motorcycle is not a major contributor to mobility in rural areas and that the majority of people are dependent on other means of transport. Any further analysis on the role of motorcycles as a potential factor in rural mobility can therefore be eliminated.

Number of motorcycles in household	Number of households	% of total
None	715	94.1
One	38	5.1
Two	6	0.8
Three	1	0.1
Total	760	100%

Table 5.6 - Number Of Motorcycles In Household

The next series of questions asked about the availability of local bus services. The first of these questions dealt with the principal destination of the bus which, in the majority of cases, was the nearest town. This suggests that the bus service will enable most of the respondents to carry out essential tasks, such as shopping, personal business and work as local towns are often a focus for these activities. Very few respondents (2.8%) were unaware of the destination of the local bus service (see table 5.7, below).

Destination	Number of households	% of total
Nearest town	733	96.4
Next village	6	0.8
Don't know	21	2.8
Total	760	100%

Table 5.7 - Principal Destination Of Bus

Having established where the bus was going, the next question dealt with the frequency of bus services. The majority of households appear to be well served, with 50.6% of households having access to a service that ran at least once an hour or more. A further 14.9% did not know the frequency of bus services, suggesting that these are the households who do not use the bus. Only 6% of the households in the sample were served by a bus

which ran less than daily suggesting that, overall, the level of provision is adequate and will enable those people who use the services to carry out their daily business.

Frequency of bus	Number of households	% of total
Every 15 mins	30	3.9
Every 30 mins	132	17.4
Hourly	223	29.3
Less than hourly	83	10.9
Twice daily	38	5.1
Daily	95	12.5
Four times a week	14	1.8
Twice weekly	28	3.7
Weekly	4	0.5
Don't know	113	14.9
Total	760	100%

Table 5.8 - Frequency Of Bus Services

The final question about bus services dealt with the distance to the nearest bus stop which can be of great importance in determining who will be able to use the bus. For the elderly and infirm in particular, the distance that has to be travelled to get to a bus stop can render that service unusable. The majority of respondents, however, live within 250 yds of a bus stop and only 12.5% of the respondents live a half mile away or further. For this minority, access to bus services could be difficult and one line of further analysis that may be useful will be to compare those people experiencing travel and transport problems with those who live at a distance of half a mile or more from bus services to see if any relationship exists.

Distance to bus stop	Number of households	% of total
0-250 yds	410	53.9
250-500 yds	222	29.2
1/2 mile	79	10.4
>1/2 mile	16	2.1
Don't know	33	4.3
Total	760	100%

Table 5.9 - Distance To Nearest Bus Stop

The final question in the general household section of the survey dealt with the distance to the nearest railway station. The preliminary field work carried out around the branch line stations indicated that many of these stations were situated on the outskirts of settlements, often entailing a fairly long walk through narrow lanes or up steep hills. This is potentially a major factor in determining the amount of use a branch line receives and will therefore be a key area for further analysis and investigation. As expected, the majority of respondents (c.75%) live a half a mile or more from the station which could make using the train a less attractive proposition than using a bus service which is more accessible. Far fewer respondents were unaware of the exact location of the nearest railway station, however (see table 5.10, below).

Distance to nearest railway station	Number of households	% of total
0-250 yds	59	7.8
250-500 yds	128	16.8
1/2 mile	198	26.1
1 mile	223	29.3
Up to 2 miles	106	13.9
Up to 5 miles	39	5.1
Don't know	7	0.9
Total	760	100%

Table 5.10 - Distance To Nearest Railway Station

Using the information discussed in this section it is possible to build up a picture of the households that took part in the survey and the transport facilities that are available to them. The number of households that replied to the survey are evenly distributed along each branch line but the figures for individual settlements are considerably more varied. The average size of household that took part in the survey is larger than the comparable household size in Devon and Cornwall suggested by the census data. This indicates that there are more families represented in the sample than would be expected if the sample was a perfect cross-section. Similarly there are more households with cars than the census data indicates and households without cars are under-represented in the sample data. Motorcycles are owned by a small minority of households which would suggest that the motorcycle is not a significant form of transport in rural areas. Very few households are without a member that can drive and the majority of households contain two drivers. The overall provision of bus services seems to be good with most of the respondents having access to fairly frequent services running to the nearest town. The majority of the households in the sample live considerably closer to a bus stop than they do to a railway station which could be an important factor in determining levels of use.

Using these results it is possible to select certain key areas for further investigation. The first of these is to verify household size and car ownership on a settlement by settlement and branch line by branch line basis to determine if the over representation of families and car owners is common to all the settlements/branch lines or whether the bias arises from specific areas. A further area that warrants additional analysis is examining the role that distance from a bus stop and railway station has in determining the use of bus/rail services.

In the next section, emphasis will be on building up a detailed profile of the individual respondents who form part of the households detailed above. Again, the information will be used to determine suitable areas for further analysis.

5.2 - General Characteristics Of The Respondents

In this section the results of the second database, which contained details of individual respondents, will be set out allowing a more detailed picture of the individuals living in the households which took part in the survey to be developed. Respondents were evenly distributed throughout each of the branch lines under scrutiny and ranged from 20.6% of respondents living along the Tamar Valley Line to 19% on the Truro-Falmouth Line (see table 5.11 for further detail).

Branch Line	Number of respondents	% of total
Tamar Valley Line	359	20.6
Looe Valley Line	348	20.0
Tarka Line	357	20.5
St Ives-St Erth Line	346	19.9
Truro-Falmouth Line	330	19.0
Total	1,740	100%

Table 5.11 - Distribution Of Respondents By Branch Line

Response rates from individual settlements were not as well distributed. There was considerable variation when the data were analysed on a village by village basis, ranging from 11.4% of respondents living in Gunnislake to 3.6% living in Lapford. (see table 5.12 for further detail). As a result of this variation it was decided that the smallest unit for analysis would be branch lines rather than the individual village. Nevertheless, although the percentages are small, the absolute number residing in each village is sufficiently large

should further analysis become necessary at settlement level. The bulk of the analysis will, however, be carried out using the entire data set which can be used to determine the answers to the key questions such as: how and why people travel; what problems they encounter; who uses the train; the level of dependency on rural railways; and attitudes towards rail privatisation, service standards and the local branch line? Analysis based on individual branch lines could, however, be used to determine any broad geographical differences between areas and help to explain whether or not certain areas rather than specific groups of people display a greater dependence on rural rail services.

Branch Line	Village	Number of respondents	% of total
Tamar Valley Line	Bere Ferrers	160	9.2
	Gunnislake	199	11.4
Looe Valley Line	Looe	152	8.7
	Duloe	114	6.6
	St Keyne	82	4.7
Tarka Line	Crediton	165	9.5
	Lapford	63	3.6
	Yeoford	129	7.4
St Ives-St Erth Line	Carbis Bay	170	9.8
	Lelant	176	10.1
Truro-Falmouth Line	Perranwell	173	9.9
	Penryn	157	9.1
Total		1,740	100%

Table 5.12 - Distribution Of Respondents By Individual Settlement

Having established the geographical distribution of the respondents the next area for scrutiny was to establish the identifiable characteristics of the respondents. Respondents were divided almost equally between both sexes, the slightly higher percentage of females being a trend displayed throughout the population as a whole, but females within the sample do seem to be slightly over represented as the figure for Cornwall (taken from 1991

census data) is 52.2% female and the figure for Devon is 52.1% female (see table 5.13). This will be examined in more detail in section 5.5 - Verification of the Survey Data when the data are checked by both settlement and branch line to see if this bias is common to all areas or specific to certain places. In addition, the gender of a respondent will be used as a measure for analysing the way in which people travel and the modes of transport used. This can be used to determine whether gender has any influence on travel and transport arrangements in rural areas.

Gender	Number of respondents	% of total
Male	804	46.2
Female	936	53.8
Total	1,740	100%

Table 5.13 - Distribution Of Respondents By Gender

The age distribution of the respondents ranged from 7 yrs old, which was the cut off age for respondents, to 97 yrs old. Seven to sixteen years represented 14% of the sample, seventeen to sixty years (the economically active sector of the population) represented 59% of the sample and over sixty years, who are generally retired from an economically active life, represented 27% of the sample (see table 5.14 for further detail). The age distribution of the respondents will be used as one of the measures for the verification of the survey data in section 5.5 and, in addition, further analysis will be carried out to examine whether the age of a respondent has any influence over the type of transport used and the level of travel problems experienced. This should help to determine whether certain age groups are more likely to use specific forms of transport, such as the train, and whether certain age groups are more disadvantaged because of problems with accessibility.

Age	Number of respondents	% of Total
7-11yrs	125	7.2
12-16yrs	126	7.2
17-21yrs	109	6.3
22-25yrs	52	3.0
26-30yrs	103	5.9
31-35yrs	103	5.9
36-40yrs	122	7.0
41-45yrs	140	8.0
46-50yrs	171	9.8
51-55yrs	115	6.6
56-60yrs	106	6.1
61-65yrs	124	7.1
66-70yrs	100	5.7
71-75yrs	118	6.8
76-80yrs	78	4.5
81-85yrs	28	1.6
>86yrs	20	1.1
Total	1,740	100%

Table 5.14 - Age Of Respondents

Employment status was also considered to be an important characteristic which could explain certain trends in the data set. Further analysis will be carried out in subsequent chapters to determine whether the employment sector a person belongs to has any influence on travel and transport arrangements in rural areas and whether any specific groups are operating at a disadvantage. The majority of the sample were employed (40.9%) with the retired making up the second largest group (27%). A relatively small percentage (3%) were unemployed. (see table 5.15 for further detail).

Employment status	Number of respondents	% of total
Employed	711	40.9
Self-employed	21	1.2
Job seeking	53	3.0
Student	327	18.8
Housewife/husband	144	8.3
Retired	469	27
Disabled	15	0.9
Total	1,740	100%

Table 5.15 - Employment Status Of Respondents

Equally important were the fundamental characteristics of people's transport and travel arrangements. A high percentage of people (74.4%) reported always having access to a car, though not necessarily because they were able to drive. However, more than one in ten respondents (13%) replied that they never had access to a car. The remainder of the sample had limited access to a car, ranging from occasionally to evenings and weekends (see table 5.16 for further detail). This is another area that warrants further analysis as those respondents who rarely or never have access to a car are the group most likely to be dependent on alternatives such as the train

Access to a car	Number of respondents	% of total
Always	1,294	74.4
Daytime	23	1.3
Evenings	18	1.0
Weekends	21	1.2
Evenings and weekends	151	8.7
Occasionally	7	0.4
Never	226	13.0
Total	1,740	100%

Table 5.16 - Access To A Car

With reference to travel and transport problems, slightly more than one in ten (13.5%) of all respondents reported having problems (see table 5.17). However, the figures for individual journey types indicate that there is a considerable variation in the type of problem experienced ranging from only 1.3% of respondents reporting problems travelling to school to 9% of respondents having problems travelling to leisure activities (see chapter six for more detailed analysis)

Problems with travel	Number of respondents	% of total
No	1,505	86.5
Yes	235	13.5
Total	1,740	100%

Table 5.17 - Number Of Respondents With Travel And Transport Problems

The results of this section indicate that the data set provides a fairly realistic representation of the broader population from which the sample is drawn. The sample does, however, contain more members of the female gender than comparable data from the census indicates suggesting a slight bias in the male-female ratio. Individual respondents are evenly distributed between the branch lines but not throughout the settlements where numbers of respondents are more varied. The majority of respondents have access to a car at all times, regardless of whether or not they are the driver. However, a significant 13% of the respondents have no access to a car. Possibly because of the lack of access to a car, more than one in ten respondents report having travel problems.

Later on in the current chapter the age and gender distribution of the respondents will be examined in greater detail for the purpose of data verification, and then in the next two chapters various issues will be examined in more detail and cross tabulations will be used

to determine whether there are specific groups of people who depend heavily on the rail service and would be particularly disadvantaged should change occur. The way in which people travel to and from a variety of activities and daily tasks will also be examined in greater detail and related to factors such as age, gender and employment status. Relationships between the variables will be explored to see if there are any factors, such as age, gender or employment status of a respondent, which play a role in determining who may have travel problems, what the nature of these problems is likely to be and how they could best be solved.

In the next section the characteristics of the rail users themselves will be examined to give some insight into how and why the train is being used as a form of transport. The responses to the questions about rail use should allow a suitable analysis strategy to be developed, which will help to focus attention on some fundamental questions concerning the value of rural branch lines and the level of use they receive.

5.3 - Characteristics Of Rail Users

In this section the general characteristics of those respondents who use the train are detailed. In response to the question about rail travel, just over 50% of the sample reported using the train (see table 5.18). This suggest that the majority of respondents are indeed rail users but fails to determine whether or not this constitutes regular use or fairly infrequent use.

Train user	Number of respondents	% of total
No	847	48.7
Yes	893	51.3
Total	1,740	100%

Table 5.18 - Number Of Respondents Who Use The Train

Asking respondents how often they used the train provided more detail. Frequency of use varied considerably with the majority of rail users only using the train on a less than monthly basis (see table 5.19 for further detail). Further analysis of this will be carried out in subsequent chapters when the sample will be grouped by age, gender, occupation and access to a car to determine whether there are specific groups of people who are particularly dependent on the availability of rail transport. Frequency of use will also be related to factors such as distance to the nearest railway station to see if this has any influence on how often people use the train.

Frequency of use	Number of respondents	% of total
Never	847	48.7
Daily	40	2.3
1-3 times a week	69	4.0
Fortnightly	68	3.9
Monthly	134	7.7
Less than once a month	582	33.4
Total	1,740	100%

Table 5.19 - Frequency Of Rail Use

When respondents were asked whether they used branch line services, main line services or a combination of both the responses indicate that more people use the whole railway network, i.e. a combination of both branch and main line, than use the branch line alone. Some 17% of respondents used the branch line only and a further 8.8% of respondents never used the branch line but chose instead to travel to the nearest main line station to make their journey (see table 5.20 for further detail).

Type of service	Number of respondents	% of total
N/A	847	48.7
Branch line	296	17
Main line	153	8.8
Branch & main lines	444	25.5
Total	1,740	100%

Table 5.20 - Type Of Service Used

The results of the question about the impact of rail closures or cutbacks suggested that a substantial minority would experience problems if the service were to close or be cutback. Just under 25% of the whole sample reported that they would experience either severe problems or some difficulty should the rail service experience change and when the non-rail users are excluded, some 46.4% of all rail users would experience severe problems or some difficulty (see table 5.21 for further detail).

Impact of rail closure/cutback	Number of respondents	% of total
N/A	847	48.7
Severe problems	150	8.6
Some difficulty	263	15.1
Minor inconvenience	302	17.4
No problem	178	10.2
Total	1,740	100%

Table 5.21 - Impact Of Rail Closure Or Cutback

One final question in this section asked rail users why they use the train. This question provided a framework for responses and asked respondents to tick as many as applied. The responses to this question suggest that the convenience of rail travel followed by a preference for the train as a form of transport are the most common reasons for using the train (see table 5.22 for further detail). A high proportion of rail users cited 'other reasons'

for why they used the train and the replies to this varied from using the train if the car was off the road for repairs or servicing to using the train as a treat or special day out for the family. By far the most common 'other' reason, however, was travel to London because of both the length of the journey by car and the parking and traffic problems encountered on arrival in London.

Reason for Using the Train	% Replying Yes
Convenient form of transport	49.4%
Preferred form of transport	34.6%
Quicker than the bus	26.9%
Concern for the environment	17.5%
Reliable form of transport	17.1%
Only available transport	13.1%
Cheapest form of transport	9.0%
Other reasons	29.3%

Table 5.22 - Reasons For Using The Train

Using the data gathered in the question about modes of transport used for specific journeys, it was possible to determine the percentage of journeys for different purposes that were carried out by train (see table 5.23, below).

Journey	% Carried out by Train
Travel to school or college	7.4%
Travel to shops beyond village	7.3%
Travel to visit friends/family	7.0%
Travel to work	5.2%
Travel to hospital	3.9%
Travel to use leisure facilities	3.8%
Travel for personal business	3.2%
Travel to visit a Dentist	1.5%
Travel to visit a Doctor	0.6%

Table 5.23 - Percentage Of Journeys Carried Out By Train

Table 5.23 reflects the use of the train by the entire sample and indicates that, overall, the train is most commonly used for travel to school or college, travel to shops beyond the village and travel to visit friends/family. The percentages are low, less than 10% of journeys are made by train. However, when the same data are looked at by individual branch lines these percentages rise considerably along certain lines. This will be the subject of further analysis in chapter eight.

The results of this section indicate that just over half the sample (51.3%) use the train. The majority of this use was, however, infrequent, with most respondents using the train less than monthly. Although some of the respondents reported never using branch line services, choosing instead to travel to the nearest mainline station, the majority used a combination of branch and mainline to complete their journeys. A substantial proportion of rail users (46.4%) reported that they would experience severe problems or some difficulty should rail services suffer closure or cutbacks. This suggests that branch line services are of considerable importance to specific members of the communities served by rail. The most common reason given for using the train was the convenience of rail travel, though overall less than 10% of all journeys are carried out by rail.

The results in this section suggest several areas for further investigation, particularly with regard to isolating specific groups of rail users and determining the factors that influence rail use. Frequency of use will be assessed in terms of various factors such as distance to the station and car ownership. Answers to the question about the impact of cutbacks or closures will be related to age, gender and employment sector of the respondent to determine which group or groups of respondents would be most disadvantaged by any changes to branch line services. The types of journey made and the problems encountered

on these particular journeys will also be examined in detail to determine who uses rail services most regularly and whether the availability of rail services mitigates the mobility problems that can occur in rural areas.

In the next section, the responses to a series of statements about rail services, the local branch line and rail privatisation will be explored. This will give some insight into the way in which the respondents value the local branch line and the rail services available to them as well as providing an initial overview of the attitudes that respondents hold towards rail privatisation.

5.4 - Attitudes And Perceptions

In this section the responses to a series of statements concerning branch lines, rural rail services and rail privatisation will be set out. This will provide an insight into the attitudes that are held by respondents which could influence their use of the rail service as a form of transport. Further analysis will then be carried out in subsequent chapters to see if certain attitudes and beliefs are common to specific groups.

The first set of questions in this section asked respondents to indicate the extent of their agreement or disagreement with a series of statements concerning train use. All respondents were asked to reply to this section regardless of whether or not they used the train. The majority of respondents felt that the train was comfortable and reliable, roughly half the respondents were critical and felt that the train was too expensive or too infrequent and inconvenient to use and a surprisingly small proportion of the sample felt that the station was too far away despite the location of many stations. A considerable number of

respondents held no opinion which, perhaps, reflects disinterest among non-rail users (see table 5.24, below).

Statement	% Agree strongly	% Agree	% No opinion	% Disagree	% Disagree strongly
The train is comfortable	16.8	58.4	19.4	4.3	1.1
The train is reliable	14.9	49.7	23.8	9.5	2.1
The train is too expensive to use	24.4	31.9	26.8	14.7	2.2
Train times are inconvenient or too infrequent	17.2	33.3	33.3	15.2	1
The station is too far away to use	6.8	11.1	18	43.8	20.3

Table 5.24 - Statements About Rail Use

The next series of statements in this section concerned the local branch line. Again, all the respondents were asked to reply to this section regardless of whether or not they used the train and the results indicate that, with the exception of the statement regarding tourism, the level of agreement with these statements was much lower than the response to the general statements about rail use (see table 5.25, below). One statement, regarding the convenience of service times, was used twice (first regarding train times generally and second with regard to branch line services) and it is interesting to note that while only 36% of respondents agreed/agreed strongly that services on the branch line run at inconvenient times some 50.5% agreed/agreed strongly that train times generally were inconvenient and too infrequent. This would appear to indicate that there is a willingness to defend the local branch line whereas other rail services can be viewed more critically. The value of the branch line to the tourist industry was agreed by over three quarters of all respondents whereas less than 50% felt that the line was of personal importance. This is worth noting because in many of the settlements surveyed the link to tourism is strong and it is this industry which provides much of the employment in the area.

Statement	% Agree strongly	% Agree	% No opinion	% Disagree	% Disagree strongly
The branch line is important to tourism	43.5	33.4	17.3	4.5	1.3
People depend on the branch line to go to work	24.7	33.3	30.2	10.2	1.6
The branch line is important to me	21.1	26.4	34.1	14.1	4.3
Services on the branch line run at inconvenient times	10.1	25.9	42.5	19.3	2.2

Table 5.25 - Statements About The Local Branch Line

The final series of statements in this section deal with issues concerning rail privatisation and what people believed might happen to services on the branch line. A large majority of respondents agreed with a statement that privatisation could mean branch line closure and this was closely matched by the percentage agreeing that privatisation could mean cuts to services on the branch line. A very low percentage agreed that privatisation could mean improvements to branch line services. The remaining two statements concerned improvements to services; both what this would mean in terms of levels of use and also whether passengers would be willing to pay for improvements. A high percentage agreed that improvements would mean more use but very few respondents agreed that they would be willing to pay for this. It is also worth noting that far fewer respondents lacked an opinion on the subject of service cutbacks or closures because of rail privatisation (see table 5.26 for further detail).

Statement	% Agree strongly	% Agree	% No opinion	% Disagree	% Disagree strongly
Privatisation could mean closure	50.3	31.1	13	3.6	2
Privatisation could mean cuts	42.3	34.9	16.7	3.6	2.5
Privatisation could mean improvements	3.3	10.3	32.8	34.8	18.8
Improvements would mean more use	28.6	42.6	21.8	5.9	1.1
I would pay more for improvements	3.2	11.3	27.3	38.7	19.5

Table 5.26 - Statements About Rail Privatisation

The results in this section suggest that most people feel that trains are a comfortable and reliable form of transport which can be expensive to use and are often too infrequent or inconveniently timed. Very few respondents feel the stations are too distant, despite previous observations that railway stations on branch lines are not always conveniently sited. The majority of respondents agree that the branch line is of importance to tourism but fewer people feel it is of personal value. Nonetheless tourism is an important factor in ensuring the economic viability of many south-western rural communities and it is worth noting the role that many people feel the branch line plays in supporting this industry. The branch line is also viewed as being of value to people travelling to work. Some 58% of respondents agreed with this despite the fact that only 5.2% of all journeys to work are carried out by train (see table 5.23).. There is a considerable disparity, therefore, between perception of use and reality, which is that branch lines are relatively underused. The outlook for the future of the branch line, in the opinion of the survey respondents, is bleak. A considerable majority agreed with statements suggesting that privatisation could lead to cut backs or closures. This is of particular interest as it could lead to people making alternative travel arrangements before any problems arise. Equally, of course, it could deter people from starting to use the train for regular journeys because of fears for the future of the service. Very few respondents felt that privatisation could lead to improvements, despite a belief that improvements would lead to more use, and very few respondents agreed that they would be willing to pay more for an improved service. The attitudes and beliefs summarised in this section will be analysed in more detail in subsequent chapters. In particular, the responses of different sectors of the population will be evaluated to see if, for example, rail users hold different opinions to non-rail users or car owners have different beliefs to non car owners.

In the next section the data will be checked for any bias by comparing certain variables with the same variables from the 1991 census. The preliminary results suggest that certain variables that were selected for data verification over or under represent certain sectors of the population.

5.5 - Verification Of The Survey Data

The verification of the survey data was carried out using the validation technique suggested by Moseley (1977) which was to compare certain categories of sample data with the same categories from the census (see discussion in chapter four). The categories selected were age distribution, gender ratio, car ownership levels, and average household size. There were, however, problems with calculating age distribution. Owing to the exclusion of children under seven years from the sample data it was impossible to use the main database to calculate age distribution because an accurate assessment of the number of people in each age group was no longer feasible. This problem was overcome by using the figures for number of people per household taken from the household database. These figures could be compared to the main database and the number of under sevens who had been excluded calculated. The total number of people living in the households that were sampled rose from 1740 to 1909, an increase of 169 under sevens. Once this calculation had been made it was possible to carry out a Chi Square test using observed values from the database and expected values from the census data. The age distribution was tested by comparing survey results with the census for three broad age groups; under sixteen, sixteen to retirement age, and retirement age and above (see table 5.27). Two hypotheses were set. H_0 stated that there was no difference between the populations of the sample data and the census data and H_1 stated that there was a difference between the two populations. The significance level at

which H_0 would be rejected and H_1 would be accepted was set at 95%. The test was carried out for each branch line in turn.

Branch Line	Under 16	16-Pension Age	Pension Age	χ^2	D.F.	Significance
Tamar	102	200	91	9.32	2	0.01 (99%)
	82.33	228.77	81.9			
	$\chi^2= 4.69$	$\chi^2= 3.62$	$\chi^2= 1.01$			
Looe	91	206	91	8.82	2	0.05 (95%)
	68.87	217.59	101.54			
	$\chi^2= 7.11$	$\chi^2= 0.62$	$\chi^2= 1.09$			
Tarka	106	228	66	18.64	2	0.001 (99.9%)
	75.08	236.72	88.2			
	$\chi^2= 12.73$	$\chi^2= 0.32$	$\chi^2= 5.59$			
St Ives-St Erth	60	172	140	3.15	2	Inconclusive
	56.6	188.9	126.5			
	$\chi^2= 0.2$	$\chi^2= 1.51$	$\chi^2= 1.44$			
Truro-Falmouth	61	185	110	14.77	2	0.001 (99.9%)
	64.4	211.6	80			
	$\chi^2= 0.18$	$\chi^2= 3.34$	$\chi^2= 11.25$			

NB. Line 1 represents observed counts from the survey data and line 2 represents expected counts from the census data.

Table 5.27 - Summary Of Tests Carried Out On Age Distribution By Branch Line

Although the results of the test carried out for the St Ives -St Erth branch line (table 5.27) suggest that there is no statistically significant difference between the age distribution of the census data and the survey data and therefore that H_0 should be accepted and H_1 rejected, this is not a conclusive result. The size of the chi square indicates that although there are no statistically significant differences between the two data sets it is not possible to state that there is a strong statistical probability that the two data sets exhibit no differences. To be able to state a 95% probability that there are no differences between the two data sets the chi square would need to fall below 0.103. Nonetheless, the result of the chi square test suggests that there is a reasonably close match between the two data sets; certainly the under 16 age group is a close match (only contributing 0.2 to the overall chi square) but differences between observed and expected counts suggest that pensioners are over represented (10.6% more than expected) and those in the middle age band are under

represented (8.9% fewer than expected). The results for the other four branch lines all showed a 95% or greater significance level suggesting that there are real differences between the two data sets (see table 5.27 for further detail). In each case H_0 was rejected and H_1 accepted. Overall, there seems to be a broad geographical divide with pensioners over represented in the west of Cornwall and the under-16s over-represented in the east of Cornwall and Devon.

Settlement	Under 16	16-Pension Age	Pension Age	χ^2	D.F.	Significance
Bere Ferrers	45 33.1 $\chi^2=4.28$	78 95.5 $\chi^2=3.21$	44 38.4 $\chi^2=0.82$	8.31	2	0.05 (95%)
Gunnislake	57 51.5 $\chi^2=0.58$	122 135.2 $\chi^2=1.29$	47 39.3 $\chi^2=1.51$	3.38	2	Inconclusive
Looe	25 26.9 $\chi^2=0.13$	84 87.7 $\chi^2=0.16$	52 46.4 $\chi^2=0.67$	0.96	2	Sig. similarity (90%)
Duloe	36 26.9 $\chi^2=3.08$	68 76.1 $\chi^2=0.86$	25 26 $\chi^2=0.04$	3.98	2	Inconclusive
St Keyne	30 20.5 $\chi^2=4.4$	54 57.7 $\chi^2=0.24$	14 19.8 $\chi^2=1.7$	6.34	2	0.05 (95%)
Crediton	43 32 $\chi^2=3.78$	100 103.2 $\chi^2=0.09$	37 44.8 $\chi^2=1.36$	5.24	2	0.10 (90%)
Lapford	19 12.6 $\chi^2=3.25$	40 48.5 $\chi^2=1.49$	20 17.9 $\chi^2=0.25$	4.99	2	0.10 (90%)
Yeoford	44 38.6 $\chi^2=0.25$	88 80.7 $\chi^2=0.66$	9 21.7 $\chi^2=7.43$	8.84	2	0.05 (95%)
Carbis Bay	38 29.2 $\chi^2=2.65$	87 97.5 $\chi^2=1.13$	67 65.3 $\chi^2=0.04$	3.82	2	Inconclusive
Lelant	22 27.4 $\chi^2=1.06$	85 91.4 $\chi^2=0.45$	73 61.2 $\chi^2=2.27$	3.78	2	Inconclusive
Perranwell	33 32.1 $\chi^2=0.02$	85 106.5 $\chi^2=4.34$	70 49.4 $\chi^2=8.6$	12.96	2	0.005 (99.5%)
Penryn	28 31.9 $\chi^2=0.48$	100 104.3 $\chi^2=0.18$	40 31.8 $\chi^2=2.11$	2.77	2	Inconclusive

Table 5.28 - Summary Of Tests Carried Out On Age Distribution By Settlement

Closer scrutiny of the census data suggested, however, that there was considerable variation in age distribution between the different settlements so a further series of chi square tests were carried out on individual settlements rather than whole branch lines. The results of this testing (see table 5.28 overleaf) gave a completely different set of results. For five of the settlements (Gunnislake, Duloe, Carbis Bay, Lelant and Penryn) the results are inconclusive. Although the results implied that there were no statistically significant differences between the age distribution displayed in the survey data and that displayed in the census, they also did not indicate that there were significant similarities. Only Looe displayed a significant similarity between data sets. In this one instance there was a 90% probability that there were no real differences between the data sets. The remainder of the settlements ranged between a 90%, 95% and, in the case of one settlement, Perranwell, a 99.9% probability that there were real differences between the two data sets. Overall, six of the settlements display significant differences, five display no significant differences but do not display significant similarities and only one settlement, Looe, displays a 90% probability that there are significant similarities and even here elderly people are over represented. Caution will, therefore, need to be exercised in interpreting some of the analysis, table 5.28 indicates clearly that in some settlements certain age groups are under or over represented by comparison with the data from the 1991 census. The broad geographical divide apparent at branch line level, which suggested that in the far west of Cornwall the elderly were over represented in the sample data while in the east of Cornwall and Devon under-16s were over represented, has been replaced with a more complex distribution at settlement level.

When individual settlements are looked at the elderly are certainly over represented in three of the settlements but in the fourth, Carbis Bay, the sample contains more under-16s than

the census indicates. Similarly, along the Looe Valley Line which had displayed an over representation of under-16s in the sample, the pattern in individual settlements suggests that the sample contains an over representation of elderly in the town of Looe itself but that the over representation of under-16s remains the same in Duloe and St Keyne.

The differences displayed either at settlement or branch line level do not invalidate the data; they simply serve to highlight areas of potential bias. Clearly, when the data are analysed at settlement level and the sample becomes smaller there is more variation in the potential bias. Although some of the analysis will be carried out on the basis of age of respondent which could introduce the risk of bias, the majority of this analysis will be carried out using the whole sample and, when the data are looked at on the basis of the whole sample, comparison with the census results from Devon and Cornwall indicate that there is a stable pattern emerging whereby respondents under 16 yrs and those of pension age and above are clearly over represented in the sample (see figure 5.1). Ideally the data set should contain more respondents in the middle age groups but because the analysis to be carried out will compare groups within the sample rather than treating the sample as a perfect cross-section, this will not have a detrimental affect on the results.

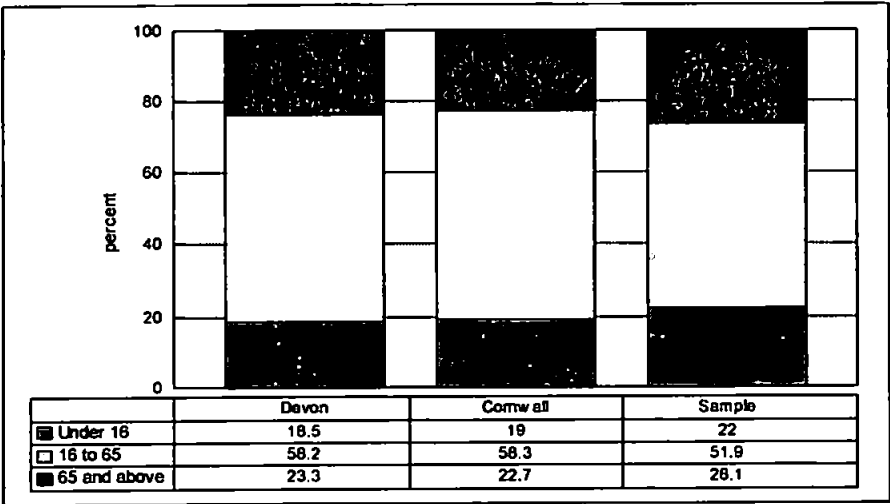


Figure 5.1 - Comparison Of Age Distribution For Whole Sample

Having determined how the overall age distribution of the sample population compares with the census data, the next measure by which the data will be verified is the gender distribution. The results discussed in section 5.2 indicate that there is an overall bias towards females in the sample data. This data will be checked by both branch line and settlement to see if this bias is common to all areas or specific to certain places.

The data were first checked by comparing observed counts from the survey with expected counts from the 1991 census data along each branch line. A series of chi square tests were carried out on the data using a 95% significance level. The results were inconclusive and indicate that although there are no statistically significant differences between the data sets the chi square for each test is too high to be able to say there are significant similarities between the census data and the sample data (see table 5.29 for further detail). It is also apparent from the results that the expected over representation of females throughout the sample is not common to every branch line. Along the St Ives-St Erth line there are in fact more males in the sample than would be expected from the ratio of males-females displayed in the census.

Branch Line	Males	Females	χ^2	D.F.	Significance
Tamar	167	192	0.52	1	Inconclusive
	173.8	185.2			
	$\chi^2= 0.27$	$\chi^2= 0.25$			
Looe	163	185	0.02	1	Inconclusive
	164.6	183.4			
	$\chi^2= 0.01$	$\chi^2= 0.01$			
Tarka	158	199	1.9	1	Inconclusive
	171	186			
	$\chi^2= 0.99$	$\chi^2= 0.91$			
St Ives-St Erth	168	178	0.84	1	Inconclusive
	159.5	186.5			
	$\chi^2= 0.45$	$\chi^2= 0.39$			
Truro-Falmouth	148	182	1.07	1	Inconclusive
	157.4	172.6			
	$\chi^2= 0.56$	$\chi^2= 0.51$			

Table 5.29 - Summary Of Tests Carried Out On Gender Distribution By Branch Line

At branch line level the bias towards an over representation of females in the sample is reasonably consistent and only one line, St Ives-St Erth, displays a bias towards males. The next stage is to test whether this consistent over representation of females, which is to be found at the level of the whole sample and at branch line, is the same at the level of the individual settlement or whether there is more variation in the pattern.

Using observed counts from the survey data and expected counts from the census data, a series of chi square tests were carried out on the number of males and females in each settlement. Using the same hypotheses that were used to verify the age distribution and a significance level of 95%, none of the chi square calculations proved to be significant (see table 5.30). These results were also inconclusive because they only proved that there were no statistically significant differences between the gender distribution of the census data and the gender distribution of the survey data rather than proving that there were significant similarities. Nonetheless, the results were very consistent and the bias towards an over-representation of females is, in the main, confirmed at settlement level. The only variation is that settlements along the St Ives-St Erth line continue to show a bias towards an over-representation of males and the town of Looe also displays an over representation of males.

Again, the differences displayed either at settlement or branch line level do not necessarily invalidate the data they simply serve to highlight areas of potential bias. Clearly, when the data are analysed at settlement level and the sample becomes smaller there is more variation in the potential bias whereas at the branch line level the picture is more stable. The majority of the analysis will, however, be carried out using the whole sample and, when the data are looked at on the basis of the whole sample, comparison with the census

results from Devon and Cornwall indicate that there is a stable pattern emerging whereby female respondents are clearly over represented in the sample and male respondents under represented. Ideally the data set should contain more male respondents but although some of the analysis will be carried out on the basis of gender of respondent which could introduce the risk of bias, the main analysis will compare groups within the sample rather than treating the sample as a perfect cross-section and so this will not have a detrimental affect on the results.

Settlement	Male	Female	χ^2	D.F.	Significance
Bere Ferrers	75 77.12	85 82.88	0.11	1	Inconclusive
Gunnislake	92 98.11	107 100.89	0.75	1	Inconclusive
Looe	76 70.83	76 81.17	0.71	1	Inconclusive
Duloe	49 55.4	65 58.6	1.44	1	Inconclusive
St Keyne	38 39.85	44 42.15	0.17	1	Inconclusive
Crediton	73 77.39	92 87.61	0.47	1	Inconclusive
Lapford	25 30.81	38 32.19	2.14	1	Inconclusive
Yeoford	60 63.34	69 65.66	0.35	1	Inconclusive
Carbis Bay	84 77.69	86 92.31	0.94	1	Inconclusive
Lelant	84 80.43	92 95.57	0.29	1	Inconclusive
Perranwell	78 82.69	95 90.31	0.51	1	Inconclusive
Penryn	70 75.83	87 81.17	0.87	1	Inconclusive

Table 5.30 - Summary Of Tests Carried Out On Gender Distribution By Settlement

For car ownership it was again decided that the best way of determining whether or not there was a difference between the sample population and the general population from

which the census data was drawn would be to use a chi square test as suggested by Moseley (1977). The significance level was set at 95%. Results from section 5.2 suggest that the proportion of households in the sample without a car is much lower than census results from Devon and Cornwall indicate would be the case. The sample data will be checked by both branch line and settlement to see if this bias is common to all areas or specific to certain places.

Branch Line	No cars	One car	Two cars	Three+ cars	χ^2	D.F.	Significance
Tamar	17	77	45	5	9.56	3	0.025 (97.5%)
	29.95	71.28	35.28	7.49			
	$\chi^2= 5.6$	$\chi^2= 0.46$	$\chi^2= 2.67$	$\chi^2= 0.83$			
Looe	22	82	39	7	7.76	3	0.05 (95%)
	32.23	83.99	28.67	5.11			
	$\chi^2= 3.3$	$\chi^2= 0.05$	$\chi^2= 3.72$	$\chi^2= 0.69$			
Tarka	21	71	47	9	7.08	3	Inconclusive 0.1 (90%)
	33	69.71	37.15	8.14			
	$\chi^2= 4.36$	$\chi^2= 0.02$	$\chi^2= 2.61$	$\chi^2= 0.09$			
St Ives-St Erth	34	82	44	9	6.68	3	Inconclusive 0.1 (90%)
	38.03	92.11	32.11	6.76			
	$\chi^2= 0.43$	$\chi^2= 1.11$	$\chi^2= 4.4$	$\chi^2= 0.74$			
Truro-Falmouth	24	69	48	8	10.58	3	0.01 (99%)
	36.8	71.52	33.97	6.7			
	$\chi^2= 4.45$	$\chi^2= 0.09$	$\chi^2= 5.79$	$\chi^2= 0.25$			

Table 5.31 - Summary Of Tests Carried Out On Car Ownership By Branch Line

The first series of tests compared the census data with the data collected for each branch line. The results of these tests indicate that three of the five branch lines, the Tamar Line, the Looe Valley line and the Truro-Falmouth line, exceed or equal the significance level set and therefore there are significant differences between the census data and the sample data. On the other two lines, the St Ives-St Erth and the Tarka line, the results were inconclusive because the significance level did not exceed 90% and while it was not possible to state that there were significant similarities between the two data sets the results did not display any significant differences. The number of households without cars are consistently under

represented along every branch line (see table 5.31). Using the individually calculated chi square values it is also possible to note that the contribution to chi square from households with two cars is also large and that the greatest over representation of car ownership comes from this category.

To check whether this pattern of an under representation of households without a car and an over representation of households with two cars is a consistent one the data were also checked at settlement level. The test was carried out for each settlement in turn but, because the number of households with three or more cars was often low and fell below the expected frequency of five which can invalidate a chi square test, the data were amalgamated to give three categories: no cars, one car and two or more cars. The results of the tests were fairly inconclusive. In the majority of settlements there are no statistically significant differences nor similarities between levels of car ownership among survey respondents and the levels of car ownership recorded in the census. In only two settlements, Carbis Bay and Penryn, were there significant differences between the two data sets. In Carbis Bay there was a 95% probability that there were real differences between the levels of car ownership observed in the survey data and those of the census data and in Penryn there was a 99.5% probability that the two data sets are different. For the majority of settlements the differences displayed were generally consistent in that there were fewer households than expected with no cars and more households than expected with two cars (see table 5.32). The overall picture is, therefore, a stable one although when the data are analysed at settlement level and the sample becomes smaller there is slightly more variation in potential bias.

Settlement	No Car	One car	Two+ Cars	χ^2	D.F.	Significance
Bere Ferrers	5	29	24	3.19	2	Inconclusive
	9.98	27.67	20.36			
	$\chi^2 = 2.48$	$\chi^2 = 0.06$	$\chi^2 = 0.65$			
Gunnislake	12	48	26	1.94	2	Inconclusive
	16.6	42.74	26.66			
	$\chi^2 = 1.27$	$\chi^2 = 0.65$	$\chi^2 = 0.02$			
Looe	16	36	16	1.41	2	Inconclusive
	18.63	36.92	12.44			
	$\chi^2 = 0.37$	$\chi^2 = 0.02$	$\chi^2 = 1.02$			
Duloe	2	25	18	0.44	2	Inconclusive
	3.11	24.8	17.1			
	$\chi^2 = 0.4$	$\chi^2 = 0.001$	$\chi^2 = 0.04$			
St Keyne	4	21	12	0.36	2	Inconclusive
	5.03	21.24	10.73			
	$\chi^2 = 0.21$	$\chi^2 = 0.002$	$\chi^2 = 0.15$			
Crediton	13	38	19	3.16	2	Inconclusive
	19.67	33.18	17.15			
	$\chi^2 = 2.26$	$\chi^2 = 0.7$	$\chi^2 = 0.2$			
Lapford	6	20	7	1.35	2	Inconclusive
	5.78	17.23	10			
	$\chi^2 = 0.008$	$\chi^2 = 0.45$	$\chi^2 = 0.9$			
Yeoford	2	13	30	3.03	2	Inconclusive
	2.38	18.41	24.21			
	$\chi^2 = 0.06$	$\chi^2 = 1.59$	$\chi^2 = 1.38$			
Carbis Bay	19	36	24	5.84	2	0.05 (95%)
	18.8	44.4	15.8			
	$\chi^2 = 0.002$	$\chi^2 = 1.59$	$\chi^2 = 4.25$			
Lelant	15	46	29	1.62	2	Inconclusive
	19.44	45.45	25.11			
	$\chi^2 = 1.01$	$\chi^2 = 0.006$	$\chi^2 = 0.6$			
Perranwell	13	33	35	1.18	2	Inconclusive
	9.8	34.91	36.29			
	$\chi^2 = 1.04$	$\chi^2 = 0.1$	$\chi^2 = 0.04$			
Penryn	11	36	21	11.13	2	0.005 (99.5%)
	21.9	33.46	12.65			
	$\chi^2 = 5.43$	$\chi^2 = 0.19$	$\chi^2 = 5.51$			

Table 5.32 - Summary Of Tests On Car Ownership By Settlement

The results of these tests do not necessarily indicate that the sample is unrepresentative of the population as a whole. Although car ownership is often taken as a standard measure of comparison it is not necessarily a reliable indicator due to the speed with which car ownership levels can increase. Car ownership is one of the most mobile census indicators that can be used. The trend towards higher levels of car ownership which can be seen

among survey respondents may well be explained by the general increase in car ownership since the census, which has been an accepted trend in the UK over recent decades.

The census data currently in use is, at the time of writing, five years old and it must be accepted that considerable change could have occurred in a five year period. Indeed, this interpretation was used by Moseley et al (1977) when the car ownership data that had been collated showed the same patterns as the survey currently being analysed. Any analysis will, therefore, need to take account of the fact that households without a car are consistently under represented and those with two cars are over represented but, although it cannot be proven, there is a possibility that the results overall merely reflect the trend towards increased car ownership that can be detected in recent census surveys.

The final measure by which the data has been looked at for the purpose of verification is household size. The average household size in the survey data was calculated from the household data base and compared to the average household size calculated from the census data. Initial results in section 5.1 suggest that, by comparison with average household size for Devon and Cornwall, larger households are slightly over represented in the sample data. When these results are looked at in more detail, at the level of the individual branch line, the average household size can be seen to vary considerably across the different branch lines. The average household size taken from the sample was compared to the average household size taken from the census 1991 data set. The results shown below in table 5.33 indicate that on two of the branch lines, Truro to Falmouth and the Looe Valley line, there is no difference between the sample data and that taken from the census and the average household size is the same. Along the St Ives to St Erth line the average household size in the sample can be seen to be smaller than that of the census

indicating that families are under represented among the households that responded to the survey. The over representation of larger households that was apparent when the whole sample was looked at is a direct result of the over representation of larger households (families) that can be seen in the Tamar Valley and Tarka line samples.

Branch Line	Average size from Census Data	Average size from Survey Data
Tamar Valley	2.61	2.76
St Ives-St Erth	2.30	2.21
Truro-Falmouth	2.41	2.40
Looe Valley	2.62	2.62
Tarka	2.60	2.70

Table 5.33 - Comparison Of Average Household Size By Branch Line

To check whether this bias is a consistent one, the data were then examined at settlement level (table 5.34, below). The pattern was indeed consistent for settlements along the Tamar Valley line, the Looe Valley line and the Tarka Line but on the remaining two lines the pattern at settlement level had changed. On the St Ives-St Erth line, which had displayed a smaller average household size than that of the census, the two settlements contrasted sharply. Lelant continued to display a smaller average household size but in Carbis Bay the average household size was larger than that of the census, suggesting that in this settlement families are over represented by comparison with the census. Along the other branch line in west Cornwall (Truro to Falmouth) the pattern also changed at settlement level. While the overall picture at branch line level suggested that the average household size was the same as the census, the individual settlements contrasted sharply. In Penryn the average household size was larger than that of the census suggesting that families are over represented in the sample and at Perranwell the average household size was smaller than that of the census suggesting that families might be under represented.

Village	Average size from Census Data	Average size from Survey Data
Bere Ferrers	2.72	2.88
Gunnislake	2.51	2.64
Carbis Bay	2.30	2.43
Lelant	2.31	2.00
Penryn	2.39	2.47
Perranwell	2.44	2.32
Looe	2.36	2.36
Duloe	2.87	2.87
St Keyne	2.64	2.64
Crediton	2.37	2.57
Lapford	2.38	2.39
Yeoford	3.04	3.13

Table 5.34 - Comparison Of Average Household Size By Settlement

The results of this data verification exercise indicate that throughout the survey data certain groups are over or under represented which presents a potential bias in the results. The majority of the analysis, however, will be carried out using a series of chi square tests which compare groups within the sample and predict an expected count which is based on the distribution of the sample being tested. The risk of bias is not, therefore, as great because the analysis results are based on the observed number of respondents behaving or responding in a particular way and predict the statistical likelihood of this behaviour differing from the number of respondents who would be expected to behave or respond in a particular way. Analysis at the level of the whole sample should, therefore, eliminate the risk of bias and it is only if the analysis is carried out at the level of branch line or settlement, when the behaviours of the same groups in different locations are compared, that the risk of bias re-emerges.

All the data have been tested using the whole sample, the sample at branch line level and the sample at settlement level and, in the majority of cases, significant differences between census data and survey data were found. The age distribution of the survey respondents represents a sample in which, overall, under sixteen's and people of pension age are over represented by comparison with the census data. At branch line level a geographical dimension to the age distribution of respondents was found to exist, with an over representation of pensioners in the west of Cornwall and an over representation of under sixteen's in east Cornwall and Devon. Any analysis that is carried out at branch line level, using age distribution as a measure, will, therefore, have to be treated with caution. Although it may give an indication of what is happening to the sample population it will not be possible to state that the results can be applied to the wider population from which the sample is drawn. The gender distribution of the survey respondents indicated that throughout the sample females were over represented though the results of the chi square tests were inconclusive and, although not displaying significant similarities, did not suggest that there were significant differences between the survey data and the census data. The analysis at lower levels indicated that the over representation of females was not consistent throughout the sample. At branch line level males were over represented along the St Ives-St Erth line and at settlement level Lelant, Carbis Bay and Looe displayed a higher than expected count for males. The results of any analysis carried out on the basis of gender of respondent must therefore acknowledge that the sample is slightly biased towards an over representation of females, though if the data are analysed at branch line level the over representation of males along the St Ives-St Erth line will have to be taken into account.

With regard to car ownership the sample data displayed a consistent under representation of households without a car while, generally, households with two or more cars were over

represented. This consistency may indicate changes in car ownership levels that have occurred since the 1991 census was recorded and, as such, merely represents a recognised trend towards increased car ownership. The lack of statistically significant differences in the majority of cases in combination with existing trends towards increased car ownership suggests that this measure may be taken to represent the existing patterns in the wider population. The final measure by which the data were verified was average household size. When the data are examined at branch line level two of the lines, Truro-Falmouth and the Looe valley, may be deemed representative of the average household size to be found in these areas. Along the other lines there were differences and families appear to be over represented along the Tamar Valley line and the Tarka line and under represented along the St Ives-St Erth Line. At settlement level however this pattern was less stable and along the two lines in the west of Cornwall, St Ives-St Erth and Truro-Falmouth families were over represented in Carbis Bay and Penryn and under represented in Lelant and Perranwell.

The results from this chapter have allowed a clear picture of the data set to be built up. The general patterns that are displayed help to build up a profile of the respondents and the households that they come from. It has been possible to identify key areas for analysis in subsequent chapters, for example factors influencing rail use such as distance to the station and car ownership. Clearly, there are considerable differences between the different locations that were sampled which suggests that comparisons between the different branch lines should form part of the analysis that will follow, though the results must be viewed cautiously because of the risk of bias. The sample does not provide a perfect representation of the wider population from which it is drawn and throughout the data set certain groups are consistently over or under represented. The potential for bias in the results of the

analysis does exist, though because the majority of the analysis will make comparisons within the sample the risk of this having a detrimental affect on the results is not too great.

CHAPTER 6 - Results And Analysis: Rural Travel And Transport

The analysis in this chapter will focus upon questions about travel and transport asked in the survey and some related issues, such as how people travel, what modes of transport they use and what problems they experience. This analysis will be directed at determining whether or not there are any specific groups who appear to be particularly reliant on certain types of transport (such as public transport) and, whether any of these groups appear to be operating under a particular disadvantage, experiencing greater travel difficulties than other groups. The following chapter will then focus more specifically on rail travel and explore more fully the issues surrounding the use of the train and the opinions held by both rail users and non-rail users concerning rail travel and rail privatisation.

6.1 - Travel And Transport In Rural Areas

This section will examine in detail the travel arrangements of the respondents, paying particular attention to the type of journey made and the mode of transport used. The way in which people travel to and from a variety of activities and daily tasks will be related to factors such as age, gender and employment status. The data will be analysed using a series of chi square tests identifying differences in travel arrangements between specific groups of people. Throughout these tests a significance level of 95% will be used and two hypotheses will be tested; the null hypothesis (H_0) which states that there is no difference in the modes of transport used for specific journeys and the alternative hypothesis (H_1) which states that there is a real difference in the modes of transport used. Should the significance level of 95% be exceeded in any test the null hypothesis will be rejected and the alternative hypothesis accepted.

6.1.1 - Travel Arrangements

Before analysing specific groups of respondents it is important that the general trends in travel arrangements are examined. One of the questions in the survey asked respondents to indicate the principal mode of transport used to gain access to certain facilities and activities. It was hoped that this question would clarify how people travel, what modes of transport are most commonly used and provide the basis for determining whether there were any specific groups who were dependent on public transport (especially branch line services). The activities specified were: travel to work; travel to school/college; shopping; personal business (e.g. bank, insurance etc.); visiting a doctor; visiting a dentist; visiting/attending hospital; visiting friends/relatives; and using leisure facilities. The responses to this question (see table 6.1 for percentage of respondents using each mode of transport) indicate that, with the exception of travelling to school or college, the majority of all these journeys were carried out by car.

Journey	Walk	Car	Lift	Cycle	M'cycle	Bus	Train	Taxi	Plane
Travel to work	11.8	71.9	3.2	1.2	1.9	4.2	5.2	0.4	0.2
Personal business	10.8	75.4	1.9	0.1	0.8	7.4	3.2	0.4	0
Dentist	12.8	74.7	3.0	0.2	0.6	6.7	1.5	0.5	0
Doctor	21.8	68.7	2.7	0.1	0.6	4.8	0.6	0.7	0
Hospital	0	84.2	4.6	0	0.4	5.9	3.9	1.0	0
Leisure activities	4.3	80.9	3.2	0.5	0.6	6.2	3.8	0.5	0
Travel to school/college	23.7	26.1	5.3	1.1	0	34.8	7.4	1.6	0
Shopping beyond village	0.5	79.0	2.8	0.2	0.4	9.5	7.3	0.3	0
Visits to friends/family	0.7	82.6	3.3	0.05	0.5	5.4	7.0	0.4	0.05

Table 6.1 - Modes Of Transport Used By Journey

Table 6.1, above, highlights the importance of the car. An overwhelming majority of all journeys are carried out by car whether it is the family car, or a neighbour or relative's car or a taxi. A great many journeys are also carried out on foot, which is often the second

most common mode of transport. The use of public transport is comparatively low among the survey respondents and the bus is more commonly used than the train. There are, however, two journeys, travel to work and travel to visit friends and family, for which the proportion of respondents using the train exceeds the proportion using the bus. The reasons given by respondents for using the train, which will be explored more fully in chapter seven, may help to explain this phenomenon. Overall, it is clear that, although the majority of respondents use the car for the journeys that they make, there is a small but significant group of people for whom rail services are a vital link with the wider world.

One key question is whether there are specific groups of people who are more dependent on alternative modes of transport to the car. To examine this in more detail different journey types were cross tabulated with other factors which might indicate those particular sectors of the population more likely to rely on alternative modes of transport to the car. The factors which were deemed likely to have a significant influence on modes of travel were gender, age and employment status.

6.1.2 - Analysing Journey Type And Mode Of Transport Used By Gender Of Respondent

In this section a broad hypothesis will be explored that travel arrangements in the study area are partly determined by the gender of the traveller. The data will, therefore, be subjected to a series of chi square tests to evaluate any significant differences in the modes of transport used by the different sexes. The first journey type to be analysed was travel to work. When the data are viewed graphically there are distinct differences in the way that men and women travel to work. Whereas 78% of men travel to work by car only 65% of women do so, which indicates that 35% of women who work have to find an alternative

means of transport. Some 6% of women rely on the train as the principal means of transport (see figure 6.1 for further detail).

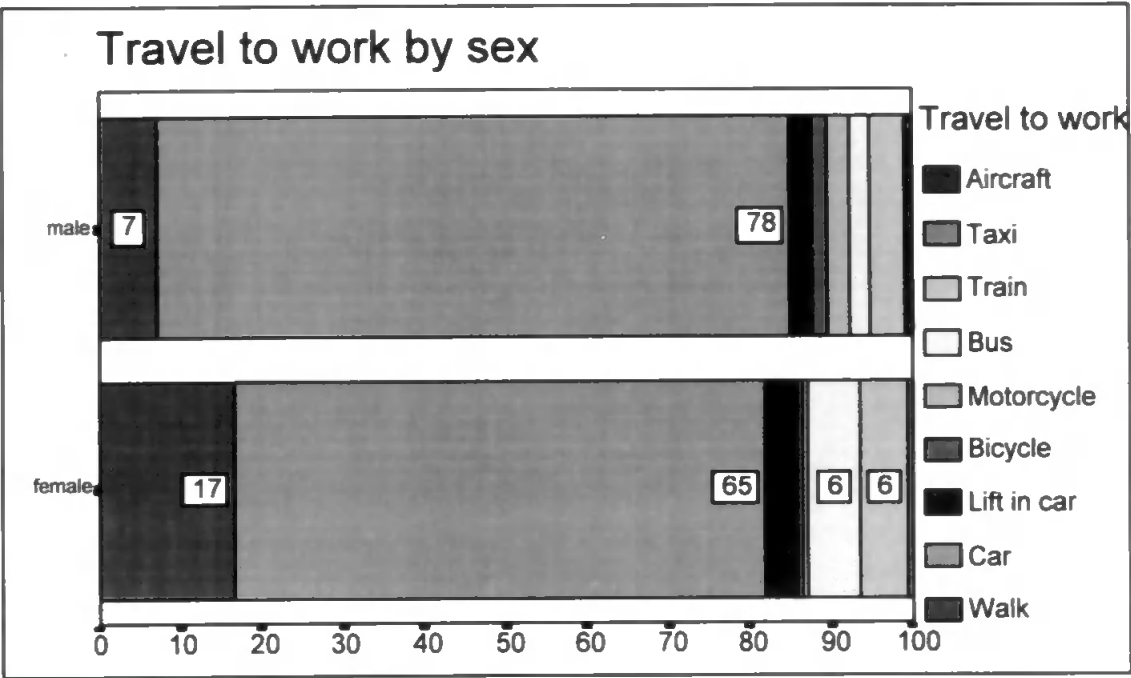


Figure 6.1 - Modes Of Transport To Work By Gender

To test whether this difference in transport arrangements was significant the data were subjected to a statistical test, chi square. The results of the chi square test indicated a 99.9% probability that there were real differences in the way in which men and women travel to work and that the gender of the traveller has a bearing on the modes of transport used (see table 6.2 for further detail).

GENDER		Count			
		Exp	male	female	Row
		Val	1	2	Total
TRA_WORK					
Walk	1		32	66	98
			51.8	46.2	11.8%
Car	2		344	256	600
			317.3	282.7	72.1%
Lift in car	3		12	15	27
			14.3	12.7	3.2%
Bicycle	4		8	2	10
			5.3	4.7	1.2%
Motorcycle	5		13	3	16
			8.5	7.5	1.9%
Bus	6		10	25	35
			18.5	16.5	4.2%
Train	7		20	23	43
			22.7	20.3	5.2%
Taxi	8		1	2	3
			1.6	1.4	.4%
Column			440	392	832
Total			52.9%	47.1%	100.0%

Chi-Square	Value	DF	Significance
Pearson	39.21843	7	.00000
Likelihood Ratio	40.34517	7	.00000

Minimum Expected Frequency = 1.413

Cells with Expected Frequency < 5 = 3 OF 16 (18.8%)

Table 6.2 - Chi Square Test On Travel To Work By Gender

The table above (6.2) gives details of both the observed count (i.e. the number of people actually using a particular mode of transport) and the expected count (the number of people who would be expected to use a particular form of transport given the distribution of the data set). When this table (6.2) is examined in detail it becomes apparent that there is a sharp contrast between the travel arrangements of men and women. Far more women than expected either walk to work or use the bus or train and far fewer than expected use a car. For men the picture is reversed, with fewer than expected either walking or using the

bus or train and far more than expected using a car. These results suggest that modes of travel used in the study area are indeed partly determined by the gender of the traveller and, furthermore, indicate that women are less likely to have access to a car and will therefore be more dependent on alternative means of transport, such as public transport. To test this supposition other journey types were evaluated.

Another journey for which the travel arrangements of men and women appear to differ is travel to the shops. Viewed graphically, figure 6.2 clearly displays a noticeable difference in the way that men and women travel to the shops. Public transport plays an important role in the transport requirements of women with over 20% of women using public transport to get to the shops. Nearly one in ten women use the train for the purpose of shopping. When a chi square test was used to verify whether or not this difference was statistically significant the results gave a 99.9% probability that there is a real difference in modes of travel to the shops used by men and women.



Figure 6.2 - Travel To Shops By Gender

The remaining categories for type of journey were all subjected to a chi square test to determine whether or not the differences between the way in which men and women travel were statistically significant for all categories of journey. For every category of journey bar one there was a 99.9% probability that there was a real difference in the modes of transport used by men and women. The only category for which the significance level was lower was travel to school or college. The results of the chi square test on this category of journey were inconclusive as there was only a 90% probability that the differences between modes of transport used by males and females was statistically significant. This is likely to be due to the fact that the majority of those travelling to school or college are too young to drive and consequently equally reliant on alternative modes of transport.

Having established that gender of respondent does indeed have a bearing on the way in which different types of journey are carried out the next stage in the analysis was to determine whether any of the other factors mentioned (i.e. age and employment status) influenced the way in which journeys were undertaken.

6.1.3 - Analysing Journey Type And Mode Of Transport Used By Age Of Respondent

In this section a broad hypothesis that travel arrangements in the study are partly determined by the age of the traveller will be explored. The data will be subjected to a series of chi square tests to see if there are any significant differences in the modes of transport used by the different age groups.

However, not all journey types are suitable for testing. When the data on travel to work were analysed by age group the results indicated that the only group heavily dependent on alternative means of transport to the car were those who were too young to drive. Only

18.8% of those in the 12-16yrs group went to work (i.e. part time jobs held out of school hours) by car, the majority of journeys were carried out by alternative means of transport i.e. bus (31.3%), on foot (18.8%), train (12.5%), taxi (12.5%) or bicycle (6.3%). This is of interest because it suggests that rail transport has a considerable role to play in the mobility of young people. Travel to work, however, is not the best measure of mobility within specific age groups as the majority of people in certain age groups, for example the very young (under 11 years) and the elderly (generally over 65 years), are automatically excluded because they do not work. Equally, travel to school or college which is predominantly carried out by those under the age of 21 yrs and travel for personal business such as banking or insurance (generally carried out by older age groups) were also deemed unsuitable measures of transport and travel arrangements related to age. Although age was not considered relevant with regard to travel to work, travel to school or travel for personal business, other categories of journey did indicate that there was indeed a relationship between age and mode of transport used.

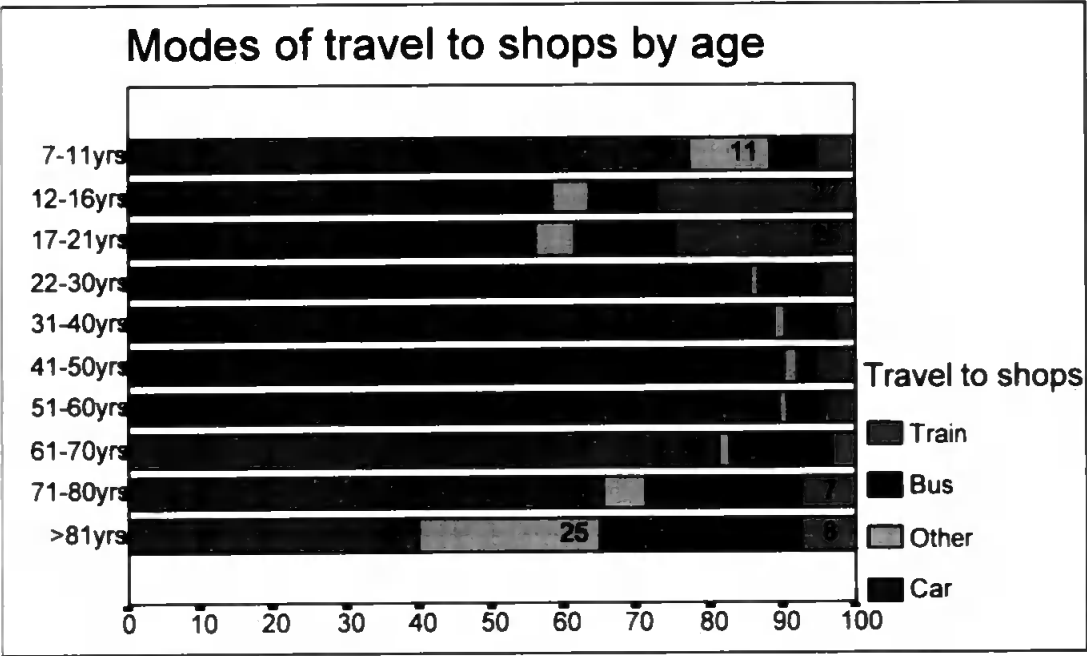


Figure 6.3 - Travel To Shops By Age

NB - For the purpose of the analysis categories which were too small to fulfil the criteria for a chi square test were amalgamated under the heading 'other'. Other therefore includes taxi, bicycle and motorcycle.

Figure 6.3, above, indicates that there are considerable differences in the way that certain age groups travel to the shops. For both the young (those under 21 yrs of age) and the elderly (those over 71 yrs of age) there is a considerable reliance on alternative means of transport to the car. There are, however, differences in the mode of transport favoured for these journeys. The under twenty ones rely heavily on the train for travelling to the shops with 27% of 12-16 yrs and 25% of 17-21 yrs using the train while the elderly rely more heavily on the bus and, if over 81 yrs, other modes of transport such as taxis.

GROUP age group by TRA_SHOP Travel to shops beyond village

	Count Exp Val	TRA_SHOP				Row Total
		Car	Other	Bus	Train	
AGEGROUP		2	3	6	7	
7-11yrs	1.00	61	9	5	4	79
		62.8	2.9	7.5	5.8	5.0%
12-16yrs	2.00	58	5	9	27	99
		78.7	3.6	9.4	7.2	6.3%
17-21yrs	3.00	50	5	12	22	89
		70.8	3.2	8.5	6.5	5.7%
22-30yrs	4.00	124	2	12	7	145
		115.3	5.3	13.8	10.6	9.2%
31-40yrs	5.00	186	3	14	6	209
		166.2	7.6	19.9	15.3	13.3%
41-50yrs	6.00	269	6	7	16	298
		237.0	10.8	28.4	21.8	18.9%
51-60yrs	7.00	190	3	10	9	212
		168.6	7.7	20.2	15.5	13.5%
61-70yrs	8.00	175	3	30	7	215
		171.0	7.8	20.5	15.7	13.7%
71-80yrs	9.00	123	11	40	14	188
		149.5	6.8	17.9	13.7	11.9%
>81yrs	10.00	16	10	11	3	40
		31.8	1.4	3.8	2.9	2.5%
Column Total		1252	57	150	115	1574
		79.5%	3.6%	9.5%	7.3%	100.0%

Chi-Square	Value	DF	Significance
Pearson	292.99837	27	.00000
Likelihood Ratio	228.44373	27	.00000

Minimum Expected Frequency - 1.449;
Cells with Expected Frequency < 5 - 6 OF 40 (15.0%);

Table 6.3 - Chi Square Of Age With Mode Of Transport To The Shops

To ascertain whether or not this observable difference in the modes of travel adopted by different age groups was statistically significant a chi square test was carried out. The results indicated that there was a 99.9% probability that there were real differences in the way that different age groups travelled (see table 6.3 for further detail). The result of the chi square test confirms the differences in modes of travel noted in figure 6.3. In the 12-16 yrs and 17-21 yrs groups far fewer than would be expected use the car and many more use the train. Table 6.3 indicates, for example, that in the 12-16 yr old group one would only expect 7 people to use the train for travelling to the shops whereas in reality 27 people in this age group do so. Equally, at the opposite end of the age ranges the bus is the predominant form of transport and although it was expected that 17 71-80 yr olds in the sample would use the bus the actual count was 40. Among the middle age groups the figures for those using the car are higher than the expected counts and tend to be lower than expected for bus, train and other.

Another journey for which the travel arrangements contrast sharply is travel to visit friends and family. There is still a clearly visible difference between the transport arrangements of the young and the elderly by comparison with the middle age groups, but the underlying pattern of transport arrangements has changed. While the use of rail has decreased sharply among the under 21s, the elderly can now be seen to favour the bus and train equally on this type of journey. This indicates that the type of journey and, most probably, the distance to be covered, have a bearing on the mode of transport. It is a factor which will be considered in more depth in chapter seven when the use of the train is analysed in more detail.

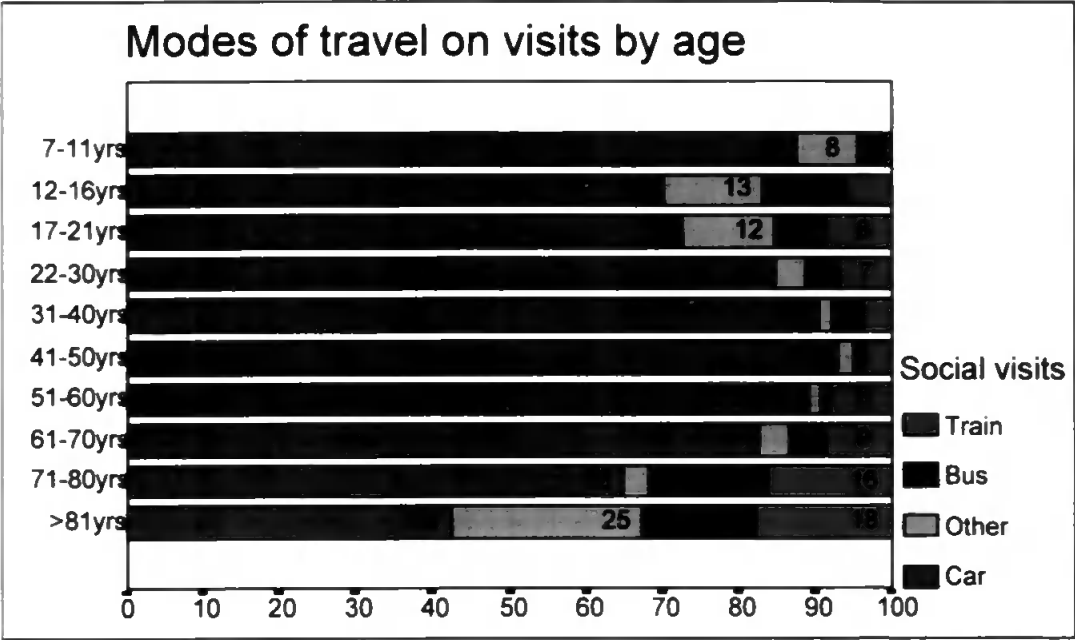


Figure 6.4 - Travel On Social Visits By Age

NB - For the purpose of the analysis categories which were too small to fulfil the criteria for a chi square test were amalgamated under the heading 'other'. Other therefore includes taxi, bicycle and motorcycle.

The results of a chi square test carried out on this data indicated that there was a 99.9% probability that there were real differences in the travel arrangements adopted by different age groups. When the remaining categories of journey were analysed the results of the chi square tests confirmed that there are real differences in the way that specific age groups travel. All the categories of journey that were subjected to a chi square test (Travel to the shops, to visit friends/relatives, to attend doctor/dentist/hospital appointments and leisure activities) resulted in a 99.9% probability that age of respondent has a bearing on the mode of transport used. For each of these journeys the pattern of transport arrangements varied and, while the underlying trend of the under 21s and the elderly depending on alternatives to a car remained, it is becoming increasingly clear that the type of journey in terms of destination and distance is a controlling factor in determining which alternative, bus or train, will be used.

The analysis so far suggests that certain characteristics, such as age or gender of respondent and type of journey, have a bearing on modes of transport used for different journeys. Both young people and the elderly appear to be particularly dependent on alternative means of transport to the car, especially public transport. Equally, women also appear to be more reliant on alternative means of transport to the car. Public transport, including the train, plays a key role in the mobility of female respondents, the young (under 21 yrs) and the elderly (over 71 yrs). One final characteristic, employment status, was examined to determine whether or not this too has a bearing on the modes of travel used for specific journeys. To a certain extent this may help to both categorise and confirm those groups most dependent on public transport rather than the car. From the results so far it seems likely that students, the retired and housewives will be highlighted as the groups most likely to rely on alternative modes of transport to the car.

6.1.4 - Analysing Journey Type And Mode Of Transport Used By Employment Status

Once again, three categories of journey; travel to work, travel for the purpose of personal business and travel to school or college, were excluded from the analysis of journey type and mode of transport by employment status as the journey would not be common to all categories of employment. The remaining journey types were deemed to be common to all categories of employment and were therefore subject to statistical analysis.

In figure 6.5, below, there is a clearly observable difference between the way in which different categories of employment carry out a journey to the shops. Students, in particular, appear to be heavily reliant on means of transport other than the car. Only 62% of student journeys to the shops are carried out by car and over 20% of these journeys are carried out on the train. Among the retired and disabled the bus becomes a more common mode of

transport and, although some 73% of journeys to the shops among this category are carried out by car, some 17% of journeys are by bus.

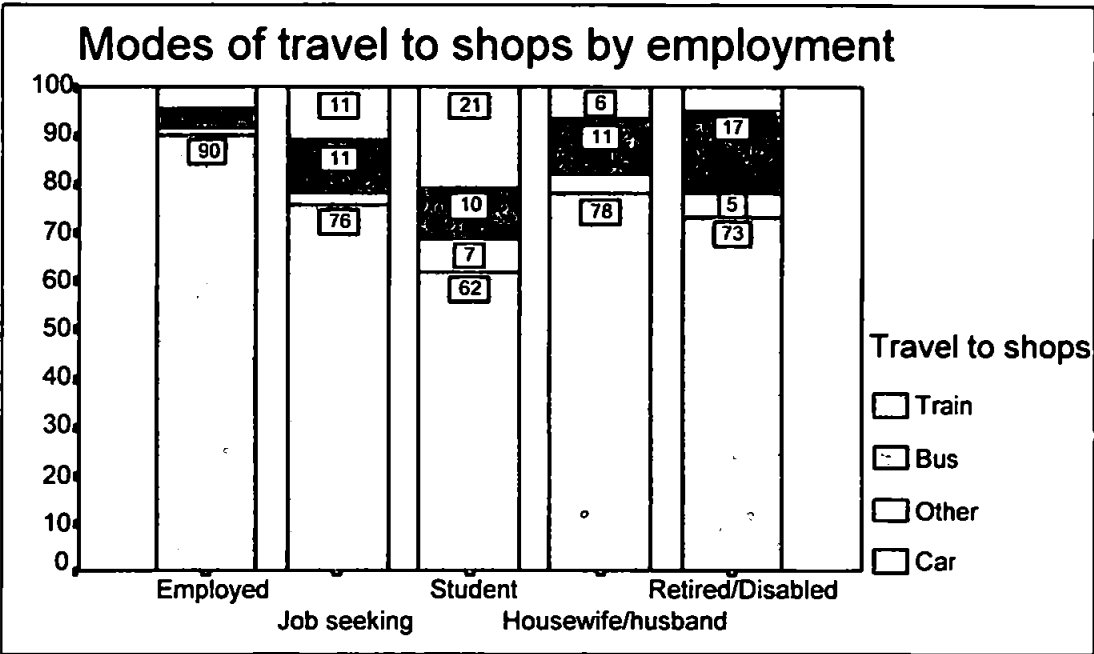


Figure 6.5 - Travel To Shops By Employment Status

NB - For the purpose of the analysis categories which were too small to fulfil the criteria for a chi square test were amalgamated under the heading 'other'. Other therefore includes taxi, bicycle and motorcycle.

To ascertain whether or not this observable difference in the modes of travel adopted by different employment groups was statistically significant the data were subjected to a chi square test. The results indicated that there was a 99.9% probability that there were real differences in the way that different employment groups travelled, H_0 was therefore rejected and H_1 was accepted (see table 6.4 for further detail).

:

		JOB					
TRA_SHOP	Count	Employed	Job	Student	Housewif	Retired/	Row
	Exp Val	/S'emp.	seeking		/husband	Disabled	
		1	2	3	4	5	
Car	2	618 544.1	35 36.6	150 192.5	111 113.0	338 365.9	1252 79.5%
Other	3	10 24.8	1 1.7	17 8.8	6 5.1	23 16.7	57 3.6%
Bus	6	26 65.2	5 4.4	25 23.1	16 13.5	78 43.8	150 9.5%
Train	7	30 50.0	5 3.4	50 17.7	9 10.4	21 33.6	115 7.3%
Column		684	46	242	142	460	1574
Total		43.5%	2.9%	15.4%	9.0%	29.2%	100.0%
Chi-Square	Value		DF		Significance		
Pearson	164.67503		12		.00000		
Likelihood Ratio	149.92394		12		.00000		
Minimum Expected Frequency - 1.666							
Cells with Expected Frequency < 5 - 3 OF 20 (15.0%)							

Table 6.4 - Chi Square Of Travel To Shops By Employment Status

In table 6.4, above, the differences between the various employment groups are clearly highlighted. As expected, students and the elderly are indeed more dependent on alternative means of transport. For example, 78 people in the retired/disabled category actually caught the bus to go shopping whereas the expected number of people was 43. For students the reliance on public transport was similar but the train was the favoured mode of transport and the results indicate a sharp contrast between the expected count for students catching the train to go shopping which was 17 and the actual number of students catching the train which was 50. By contrast the employed sector was much more likely to use a car and far fewer than expected used other modes of transport such as the bus and train. Both the job seeking and housewife/husband categories behaved as predicted by the test and the actual counts and expected counts were remarkably similar for each form of transport. This proved to be surprising as it had been surmised that housewives/husbands, being

predominantly female, would turn out to be one of the specific groups who are more dependent on alternative means of transport to the car.

Despite having to reject one of the suppositions, i.e. that housewives would be more dependent on alternative means of transport to the car, the chi square revealed that the observed differences in modes of transport used to travel to the shops by different employment categories are real. To test this supposition further the remaining categories of journey; travel to visit friends and family, travel to visit a doctor/dentist/hospital and travel to carry out leisure activities were all subjected to a chi square test.

TRA_VISI Travel to visit friends/relatives by JOB Employment status:

		JOB					Row Total
Count Exp Val		Employed 1	Job seeking 2	Student 3	Housewif /husband 4	Retired/ Disabled 5	
TRA_VISI							
Car	2	653	39	241	116	340	1389
		589.1	41.3	260.3	116.5	381.7	82.6%
Other	3	10	4	36	8	25	83
		35.2	2.5	15.6	7.0	22.8	4.9%
Bus	6	16	4	24	6	42	92
		39.0	2.7	17.2	7.7	25.3	5.5%
Train	7	34	3	14	11	55	117
		49.6	3.5	21.9	9.8	32.2	7.0%
Column Total		713	50	315	141	462	1681
		42.4%	3.0%	18.7%	8.4%	27.5%	100.0%

Chi-Square	Value	DF	Significance
Pearson	111.75730	12	.00000
Likelihood Ratio	111.32589	12	.00000

Minimum Expected Frequency = 2.469;
Cells with Expected Frequency < 5 = 3 OF 20 (15.0%);

Table 6.5 - Chi Square Of Travel On Social Visits By Employment Status

The chi square carried out on visits to friends and family by employment status, table 6.5 above, served to confirm previous observations. The results indicated that, once again,

there was a 99.9% probability that there are real differences in the modes of transport used by different employment sectors. Again, the travel behaviour of housewives was remarkably similar to that which would be expected which confirms that the original supposition was wrong. What the table also serves to highlight, however, is a contrast in the type of transport used on different types of journey. Among the elderly and disabled the emphasis has shifted from predominant use of the bus to a greater use of the train. Often, in Devon and Cornwall, residents have moved to the area from throughout the UK and therefore many journeys to visit friends and family are carried out over considerable distances. This was borne out by many of the comments on the original questionnaires where people, often the elderly and infirm, expressed a preference for the train due to the distance of the journey involved. Students, however, who have been consistent users of rail services, no longer use the train in the numbers expected and instead use bus services or 'other' modes of transport such as lifts, bicycles and motorcycles. It is likely that this is due to considerations of cost as long distance rail travel in the UK is generally considered to be expensive. This issue will be explored further in chapter seven when responses to questions about factors influencing rail use such as cost, comfort and convenience will be explored.

The results of the remaining chi square tests confirmed that there are real differences in the way that different employment sectors carry out specific journeys. For each of the remaining journeys, travel to doctor/dentist/hospital and travel to carry out leisure activities, there was a 99.9% probability that there are real differences in the way that each of the employment sectors carry out a journey. The underlying trends of the use of alternative means of transport displayed by students and the elderly remain but the patterns of transport differ considerably according to the type of journey being made. For trips to the doctor or dentist the use of rail services is minimal; the elderly continue to favour the

bus but students tend to use 'other' transport arrangements such as cycling or walking. On trips to hospital or to use leisure facilities the use of the train again becomes more important to the elderly and, although students continue to make 'other' arrangements for trips to hospital, they too use the train more to gain access to leisure facilities.

The analysis so far has highlighted the fact that there are very real differences in the way that men and women, different age groups and different employment sectors carry out a journey. Furthermore, it has been possible to determine specific groups who tend to be more dependent on public transport or other means of travel than a car. These groups are; women, the young (under 21 yrs), the elderly (over 71 yrs), students and the retired or disabled. The use of the train fluctuates and appears to be dependent on the type of journey, most probably related to both distance and destination. Overall, use of the bus appears to be the most consistent although its popularity among different groups again seems to depend on the type of journey being undertaken. To take this theme further the next section will look in detail at those who expressed problems in carrying out certain journeys. This analysis will attempt to determine whether or not it is the same specific groups of people reliant on alternative means of transport to the car who experience travel difficulties and, also, whether it is a particular mode of transport which causes these problems.

6.2 - Travel Problems In Rural Areas

One of the questions asked respondents whether or not they experienced any travel problems, and then clarified the issue by asking them to detail which journeys they had problems with. A further question then asked what would help solve these problems. Altogether 13.5% of the sample reported having difficulty with travel and transport (see table 5.17, chapter 5). Problems with specific journeys, however, varied considerably from

9% of the sample having problems travelling to leisure activities to 1.3% of the sample having problems travelling to school.

The type of journey with which problems may be associated will be cross tabulated with the gender, age and employment status of the respondent. Further analysis will then look at the means of transport used on these journeys to determine whether or not it is the type of transport which gives rise to the problems.

6.2.1 - Analysing Travel Problems By Gender Of Respondent

Preliminary analysis of the data does indeed suggest that women are more likely to experience travel problems than men. Although the difference is relatively small, 16% of women experiencing problems as opposed to 10% of men, there is nonetheless an observable difference. Statistical testing using chi square showed this difference to be significant at the 99.9% probability level (table 6.6).

		GENDER		
	Count Exp Val	male	female	Row Total
		1	2	
TRA_PROB				
No	1	722 695.4	783 809.6	1505 86.5%
Yes	2	82 108.6	153 126.4	235 13.5%
	Column Total	804 46.2%	936 53.8%	1740 100.0%
Chi-Square				
	Value	DF		Significance
Pearson	13.99021	1		.00018
Likelihood Ratio	14.23963	1		.00016
Minimum Expected Frequency - 108.586				
Number of Missing Observations: 0				

Table 6.6 - Chi Square Of Travel Problems By Gender Of Respondent

These results confirm the supposition that women will be more likely to experience travel problems than men. When the actual and expected values are compared it becomes

apparent that, in the case of women, fewer than expected experience no problem while more than expected do experience problems. For men this situation is reversed and they are less likely to experience travel problems than the expected count would predict.

Having established that women do indeed experience more problems with travel and transport than men, the next stage is to try and establish whether there are any specific journeys which prove to be more difficult. Each of the journeys in question; travel to work, travel to school or college, travel to the shops, travel to carry out personal business, travel to visit friends and family, travel to a doctor, dentist or hospital and travel to leisure activities, were cross tabulated with the gender of the respondent and a series of chi square tests were run on the data. The results of these tests indicate that women do indeed experience more travel problems on certain journeys. There is a 99% probability that the relationship between gender of respondent and the level of travel problems experienced on visits to friends/family, shopping trips, travel to leisure activities and visits to the dentist is a real one and a 95% probability that gender of respondent is directly related to travel problems experienced on trips to carry out personal business and trips to the hospital. The results of the test carried out on travel to work, travel to school or college and travel to the doctor, were inconclusive. Despite the lack of statistically significant differences in the level of problems experienced on some journeys the results indicate that for every journey that was analysed the actual number of women experiencing problems exceeded the expected number whereas in every case the number of men experiencing problems was less than the expected count. By calculating the percentage of women experiencing problems on each type of journey it was therefore possible to rank journeys according to their difficulty (see table 6.7 for further detail).

Journey Type	%Women Experiencing Problems
Leisure Activities	10.7
Visits to Friends/Family	9.9
Shopping Trips	8.8
School/College	5.8
Hospital	4.7
Work	4.1
Dentist	3.3
Personal Business	2.8
Doctor	2.4

Table 6.7 - Percentage Of Women Experiencing Problems For Each Journey Type

The results displayed in table 6.7, above, indicate that travel to leisure activities, closely followed by visits to friends and family and shopping trips, are the journeys most likely to prove difficult for women. The journeys least likely to cause difficulties are visits to the doctor or dentist and trips to carry out personal business. A likely explanation for this can be found in the data on modes of transport which indicates that the journeys that women have the most difficulties with are those which, excluding the use of a car, are commonly carried out on public transport whereas the journeys that women experience the least problems with are more commonly carried out on foot. This supposition will be discussed in more detail later on in the chapter.

The results in this section confirm the supposition that women, possibly because they tend to rely more on alternative means of transport to the car, do indeed experience more problems concerning travel and transport arrangements. It has also been possible to pinpoint specific journeys which prove to be the most difficult. In the next section the relationship between age and the level of travel problems experienced will be explored further to test the supposition that those people who are more dependent on alternative

means of transport to the car are the same people who experience the most travel and transport problems.

6.2.2 - Analysing Travel Problems By Age Of Respondent

So far the results of the analysis suggest that both young people (under 21 yrs) and the elderly (over 71 yrs) are more likely to be dependent on alternative means of transport to the car. This suggests that they may be more likely to experience problems with travel and transport. When the data are viewed graphically (see figure 6.6, below) there does seem to be a distinct trend whereby those in the age groups mentioned are experiencing more travel problems than other age groups. This would suggest that the link between the age of respondents, the means of transport most commonly used and, consequently, the level of travel problems experienced, does indeed exist.

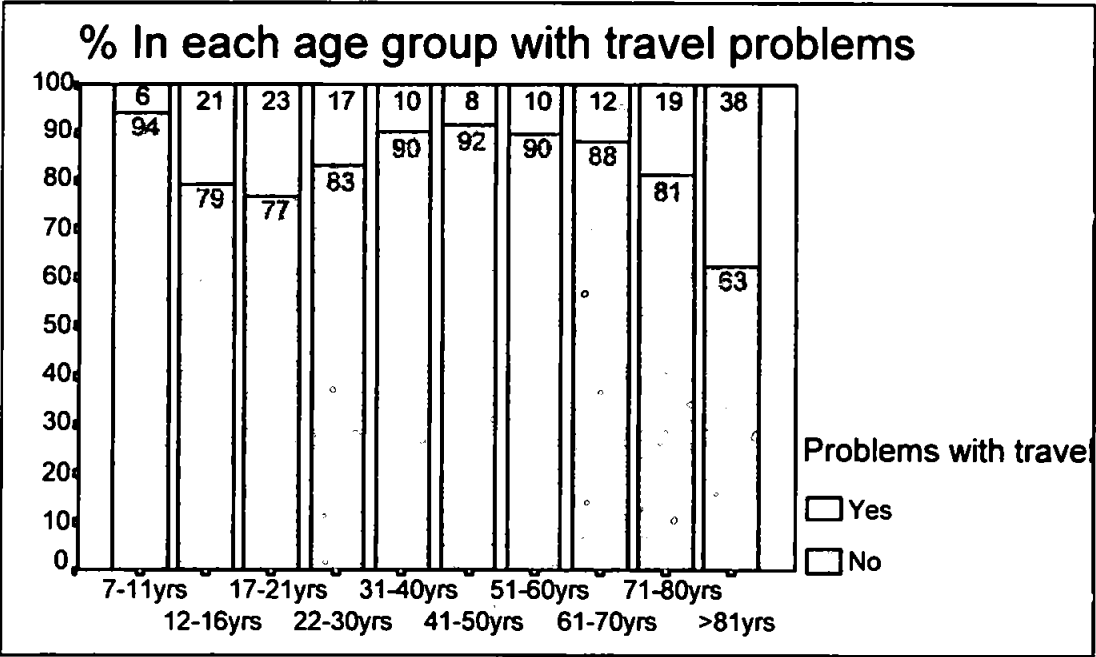


Figure 6.6 - Travel Problems By Age

To test this supposition the category concerning travel problems was cross tabulated with the age of the respondent and then subjected to a chi square test to look for any statistical

probability that a relationship between the two exists. The results of the chi square test indicate that there is a 99.9% probability that there is a real difference between the level of travel problems experienced and the age of the respondent (see table 6.8 for further detail).

AGEGROUP age group by TRA_PROB Problems with travel:

AGEGROUP	Count Exp Val	TRA_PROB		Row Total
		No	Yes	
		1	2	
7-11yrs	1.00	118 108.1	7 16.9	125 7.2%
12-16yrs	2.00	100 109.0	26 17.0	126 7.2%
17-21yrs	3.00	84 94.3	25 14.7	109 6.3%
22-30yrs	4.00	129 134.1	26 20.9	155 8.9%
31-40yrs	5.00	203 194.6	22 30.4	225 12.9%
41-50yrs	6.00	285 269.0	26 42.0	311 17.9%
51-60yrs	7.00	199 191.2	22 29.8	221 12.7%
61-70yrs	8.00	198 193.7	26 30.3	224 12.9%
71-80yrs	9.00	159 169.5	37 26.5	196 11.3%
>81yrs	10.00	30 41.5	18 6.5	48 2.8%
Column Total		1505 86.5%	235 13.5%	1740 100.0%

Chi-Square	Value	DF	Significance
Pearson	63.18561	9	.00000
Likelihood Ratio	57.45929	9	.00000
Minimum Expected Frequency - 6.483			

Table 6.8 - Chi Square Of Travel Problems By Age Of Respondent

It can therefore be accepted that the age of the respondent is indeed partly responsible for the level of travel and transport problems experienced. Furthermore, the result of the chi square tends to confirm previous observations. The same age groups who were more reliant

on using alternative means of transport to the car are also the age groups who experience more travel problems than would be expected in a normal distribution. Both under 21 yr olds and over 71 yr olds experience much higher levels of problems than expected whereas those in the middle age groups experience fewer problems than expected. The only alteration to previous observations is that the 22-30 yrs age group also tend to experience a higher than expected level of travel problems.

Having established the link between age of respondent and the level of travel problems experienced, the next stage in the analysis is to try and establish whether there are any specific journeys which prove to be more difficult. Three categories were excluded from this analysis, travel to work, travel to school or college and travel to carry out personal business, as these are not journeys that are common to every age group. Each of the remaining journeys in question; travel to the shops, travel to visit friends and family, travel to a doctor, dentist or hospital and travel to leisure activities, were cross tabulated with the age of the respondent and a series of chi square tests were run on the data. The results of these tests indicate that certain age groups do indeed experience more travel problems on specific journeys. There were four journeys for which there was a >99% probability that there was a relationship between age of respondent and the level of travel problems experienced. These were travel to leisure activities, travel to the shops, travel to hospital and travel to visit friends and family. The pattern of age groups experiencing a greater number of problems than expected remained the same and, in every case it was the young (under 21 yrs) and the elderly (over 71 yrs) (see table 6.9, for example, travel to visit friends and family).

AGEGROUP	Count Exp Val Row Pct Col Pct	PROB_VIS		Row Total
		No	Yes	
		1	2	
7-11yrs	1.00	116	6	122
		112.8	9.2	7.3%
		95.1%	4.9%	
		7.5%	4.7%	
12-16yrs	2.00	107	14	121
		111.9	9.1	7.2%
		88.4%	11.6%	
		6.9%	11.0%	
17-21yrs	3.00	94	12	106
		98.0	8.0	6.3%
		88.7%	11.3%	
		6.0%	9.4%	
22-30yrs	4.00	142	10	152
		140.5	11.5	9.0%
		93.4%	6.6%	
		9.1%	7.9%	
31-40yrs	5.00	212	9	221
		204.3	16.7	13.1%
		95.9%	4.1%	
		13.6%	7.1%	
41-50yrs	6.00	291	12	303
		280.1	22.9	18.0%
		96.0%	4.0%	
		18.7%	9.4%	
51-60yrs	7.00	208	9	217
		200.6	16.4	12.9%
		95.9%	4.1%	
		13.4%	7.1%	
61-70yrs	8.00	201	18	219
		202.5	16.5	13.0%
		91.8%	8.2%	
		12.9%	14.2%	
71-80yrs	9.00	156	24	180
		166.4	13.6	10.7%
		86.7%	13.3%	
		10.0%	18.9%	
>81yrs	10.00	27	13	40
		37.0	3.0	2.4%
		67.5%	32.5%	
		1.7%	10.2%	
Column Total		1554	127	1681
		92.4%	7.6%	100.0%

Chi-Square	Value	DF	Significance
Pearson	63.79941	9	.00000
Likelihood Ratio	49.64479	9	.00000

Minimum Expected Frequency - 3.022

Cells with Expected Frequency < 5 - 1 OF 20 (5.0%)

Table 6.9 - Chi Square Of Problems Travelling To Visit Friends And Family By Age

Although specific age groups have been identified as suffering a higher level of travel problems than would be expected this has still not fully identified the most disadvantaged age group. By using calculated percentages for rows and columns it was possible to both compare observed and expected counts, thereby pinpointing the specific age groups experiencing these problems. This allowed the percentage of people in each age group experiencing problems to be identified which gives a measure for the most disadvantaged group in terms of travel difficulties.

In table 6.9, which shows problems experienced while travelling to visit friends and family, the cross tabulation contains not only observed and expected counts but also row and column per cents. Analysis of these figures reveal that, within the same age groups (under 21 yrs and over 71 yrs), more than 10% suffer travel problems on this particular journey whereas in other age groups the percentage is lower. The highest percentage suffering travel difficulties in any particular age group are the over 81 yr olds. The results indicate that 32.5% of all over 81 yr olds suffer problems which, although they only make up 2.4% of the sample overall, is still a very high percentage. The next most 'disadvantaged' group in terms of making this journey are 71-80 yr olds among whom 13.3% suffer travel difficulties on this particular journey.

The evidence so far suggests that the elderly (over 71 yrs and especially over 81 yrs) are the most disadvantaged age group in terms of making specific journeys. To confirm this observation the percentage counts on the other three journeys which proved to have a high statistical probability that there was a real relationship between age group and level of travel problems experienced were calculated. For travel to the shops the over 81 yr olds were again highlighted as the most 'disadvantaged' as 27.5% in this age group experienced

problems in making the journey. The other age groups, 71-80 yrs and under 21yrs, still suffered more problems than expected but while 12.2% of the under 21 yr olds experienced problems just under 10% in the 71-80 yrs group suffered problems (this was still higher than for most age groups but 10% and above should be seen as the level at which a problem becomes more marked because at this point at least one in ten are experiencing difficulty). The third journey which proved to be significant, travel to leisure activities, confirmed that over 81 yr olds are particularly 'disadvantaged' in terms of making specific journeys. In this case some 26.9% of over 81 yr olds experienced problems which, again, was the highest percentage in any age group. For this particular journey young people, who have already been identified as suffering from more travel problems than the expected count predicts, also displayed a high percentage suffering from problems in travelling. Altogether 14.3% of all 12-16 yr olds, 15.6% of all 17-21 yr olds and 12.8% of all 22-30 yr olds experienced difficulty in making the journey. It must be noted that for some journeys the 22-30 yr age group has displayed a slightly higher incidence of travel problems than would be expected and therefore this group can also be counted amongst those who may be operating under some disadvantage (see table 6.8). The final journey which proved to be significant was travel to hospital and for this journey the over 81 yr olds are again the most disadvantaged group. They were the only group for which the level of travel problems exceeded 10% and, in this case, some 13% of the over 81 yr olds suffered travel difficulties.

The results of this section confirm previous observations, i.e. that those groups of people who are most reliant on alternative modes of transport to the car tend to be the groups who experience the highest proportion of travel and transport difficulties. In terms of age it is generally the under 21s and the over 71s who experience a higher proportion of travel

problems than would be expected, though to these two groups can be added the 22-30 yr olds who, for certain journeys, also experience a higher than expected level of problems.

6.2.3 - Analysing Travel Problems By Employment Sector Of Respondent

In previous sections the types of journey that people undertake and the different modes of transport used have been explored. Certain employment sectors have been found to have less access to a car for making journeys and are subsequently more reliant on alternative modes of transport to the car. In this section the level of travel problems experienced by different employment sectors will be examined, and the relationship between level of travel problems experienced and the employment sector to which a respondent belongs will be explored. Particular attention will be paid to determining whether or not it is the same groups of people who are more reliant on alternative means of transport to the car that are experiencing a greater level of problems.

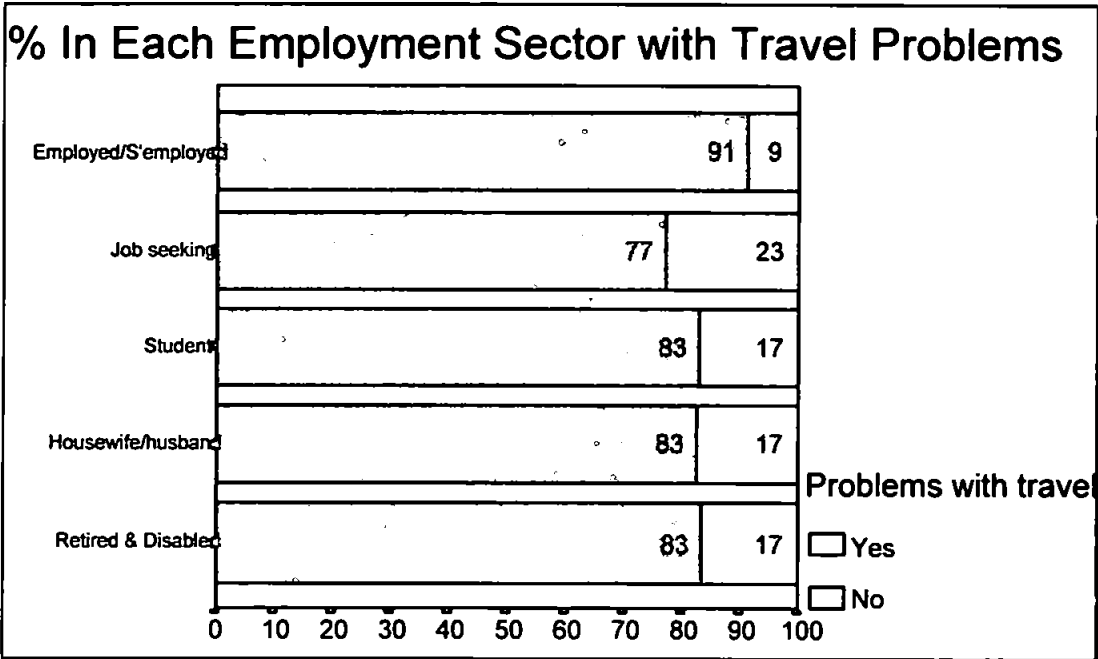


Figure 6.7 - Travel Problems By Employment Sector

The above chart, figure 6.7, is not particularly conclusive in identifying specific groups who are experiencing travel problems. It suggests that the job seekers experience the highest proportion of travel problems, students, housewives and the retired and disabled experience an equal level of problems and the employed sector experiences far fewer problems. This indicates that the previous supposition, that those people who are more reliant on alternative forms of transport to the car experience a greater level of travel problems, may be too simplistic and that there are other factors influencing these results. To explore this more completely a chi square test was carried out on the data (see table 6.10, below).

JOB Employment status by TRA_PROB Problems with travel

JOB	Count Exp Val	TRA_PROB		Row Total
		No	Yes	
		1	2	
Employed/S'employ	1	669 633.1	63 98.9	732 42.1%
Job seeking	2	41 45.8	12 7.2	53 3.0%
Student	3	272 282.8	55 44.2	327 18.8%
Housewife/husband	4	119 124.6	25 19.4	144 8.3%
Retired/Disabled	5	404 418.6	80 65.4	484 27.8%
Column Total		1505 86.5%	235 13.5%	1740 100.0%

Chi-Square	Value	DF	Significance
Pearson	27.51989	4	.00002
Likelihood Ratio	28.35173	4	.00001

Minimum Expected Frequency - 7.158

Table 6.10 - Chi Square Of Travel Problems By Employment Sector

The results of the chi square test carried out on travel problems and employment sector indicate that there is a 99% probability that a difference in the level of problems

experienced by different employment sectors exists. However, this test is still not particularly conclusive as it fails to isolate which groups are especially vulnerable to experiencing travel problems. All this test shows is that the employed sector experience fewer problems than expected and the other sectors experience more problems than expected. When the contribution of each cell to the chi square result is calculated the cell containing observed and expected counts for experiencing travel problems in the employed sector is found to contribute nearly a half of the overall chi square. To explore this issue more fully two further chi square tests were calculated. The first amalgamated the job seeking, students, housewives and retired/disabled categories into one category called non-employed sector and compared this to the employed sector. The second eliminated the employed sector and carried out a chi square test on the other four categories to determine which employment sector was the most disadvantaged in terms of the level of travel problems experienced. Table 6.11 shows the results of the first of these additional tests.

EMPLOY employed and non-employed by TRA_PROB Problems with travel:

	Count Exp Val	TRA_PROB		Row Total
		No	Yes	
		1	2	
EMPLOY	1.00	669	63	732
employed		633.1	98.9	42.1%
	2.00	836	172	1008
non-employed		871.9	136.1	57.9%
	Column Total	1505	235	1740
		86.5%	13.5%	100.0%

Chi-Square	Value	DF	Significance
Pearson	25.96226	1	.00000
Continuity Correction	25.24336	1	.00000
Likelihood Ratio	27.15140	1	.00000

Minimum Expected Frequency - 98.862

Number of Missing Observations: 0

Table 6.11 - Chi Square Of Travel Problems Experienced By Employed And Non-Employed Sectors

Table 6.11 confirms that there is indeed a statistically significant difference between the level of travel problems experienced by the employed and non-employed sectors. However, the strongest contribution to the overall chi square is still the cell containing observed and expected counts for travel problems in the employed sector. This cell contributes 13.03 to the overall total but is more closely matched by the cell containing the observed and expected counts for travel problems in the non-employed sector. The evidence so far suggests that respondents from the employed sector are much less likely to experience travel problems than the expected count would predict and, conversely, respondents in the non-employed sectors are much more likely to experience travel problems.

To try and determine which of the non-employed sectors are the most disadvantaged, i.e. the most likely to experience travel problems, a further chi square test was carried out which eliminated the employed sector and analysed only those respondents from the non-employed sectors. The results of this test are displayed in table 6.12, below.

JOB Employment status by TRA_PROB Problems with travel

JOB	Count Exp Val	TRA_PROB		Row Total
		No	Yes	
		1	2	
Job seeking	2	41 44.0	12 9.0	53 5.3%
Student	3	272 271.2	55 55.8	327 32.4%
Housewife/husban	4	119 119.4	25 24.6	144 14.3%
Retired/disabled	5	404 401.4	80 82.6	484 48.0%
Column Total		836 82.9%	172 17.1%	1008 100.0%
Chi-Square		Value	DF	Significance
Pearson		1.28575	3	.73252
Likelihood Ratio		1.20033	3	.75293
Minimum Expected Frequency - 9.044				

Table 6.12 - Chi Square Of Travel Problems By Non-Employed Sectors

The results of the chi square test carried out on travel problems experienced by the non-employed sectors of the sample population were not significant, i.e. there were no statistically significant differences in the level of travel problems experienced by each of these employment sectors. Although this result is inconclusive and suggests that no significant differences exist, this does not mean that there are no differences in the level of problems experienced. The results in table 6.12, above, indicate that c.33% more job seekers experience problems than would be expected and when the overall contribution to the chi square is calculated this cell has actually contributed 1.0 out of a total chi square of 1.28575. These results suggest that, overall, job seekers are the most disadvantaged group in terms of the level of travel problems experienced.

This result proves to be particularly interesting as previous analysis in this chapter has suggested a link between reliance on alternative means of transport to the car and the level of travel problems experienced. This link has consistently been displayed in terms of age and gender and, had the results of the current series of tests followed this pattern the most disadvantaged employment sectors would have been students and the elderly and disabled. This changed supposition will now be explored further by looking at individual journey types and seeing if the link between job seekers and a higher than expected level of travel problems is a consistent one or whether different journeys prove to be more difficult for different employment sectors.

Three categories were excluded from this analysis, travel to work, travel to school or college and travel to carry out personal business, as these are not journeys that are common to every employment sector. Each of the remaining journeys in question; travel to the shops, travel to visit friends and family, travel to a doctor, dentist or hospital and travel to

leisure activities, were cross tabulated with the employment sector of the respondent and a series of chi square tests were run on the data. The results of these tests (summarised below in table 6.13) indicate that certain employment sectors do indeed experience more travel problems on specific journeys.

Journey Type	Sig. Level	Biggest Contribution to χ^2
Visits to Doctor	Inconclusive	Retired/Disabled
Visits to Dentist	Inconclusive	Housewives/Husbands
Visits to Hospital	99.9%	Job Seeking
Visits to Leisure Activities	99.9%	Job Seeking
Visits to Shops	99.9%	Retired/Disabled
Visits to Friends/Family	99.9%	Retired/Disabled

Table 6.13 - Results Of Chi Square Tests Carried Out On Problems Experienced By Employment Sectors For Specific Journey Types

The above results, which ignore the employed sector which experiences far fewer travel problems than expected for all types of journey, indicate that for the majority of journeys there is a 99.9% probability that there is a real difference in the level of travel problems experienced by the different employment sectors. For two of the journey types (visits to the doctor and visits to the dentist) the result was inconclusive. Although the overall pattern of travel problems indicate that job seekers are the most disadvantaged in terms of travel problems, analysis of specific journeys suggests that the retired and disabled, as a group, consistently suffer from travel problems on a variety of journey types.

These results suggest that the problems experienced are not necessarily due to lack of access to a car and an increased reliance among certain groups on alternative means of transport. Analysis of travel problems by employment sector has served to confirm that the

elderly and disabled do indeed suffer from a higher than expected level of travel problems. Students, however, who were also expected to display this trend, do not seem to experience any more travel problems than the expected counts predict. Instead, the job seekers have been highlighted as another group experiencing difficulties. It could be that the nature of the journeys undertaken, together with the timing of the journey and the destination, have an impact on the difficulties encountered. Transport for students, whether to school or college, is often organised by the local authority or the college in question. In the case of colleges and universities they are often located in major population centres which immediately gives access to a range of facilities without the need to organise transport to access them. For the elderly and job seekers, however, destinations may well be more varied and they may seek access to places which are not well served by local transport arrangements. Furthermore, the timing of the journeys that they wish to make may not fit in with local timetabling arrangements.

Overall, the results of the analysis so far suggest that: 1) women tend to be disadvantaged in terms of lack of access to a car and, as a consequence, exhibit a higher level of reliance on alternative means of transport thereby suffering a higher than expected level of travel difficulties; 2) that certain age groups, specifically the under 21s and the over 71s, are both more reliant on alternative means of transport to the car and experience a greater than expected level of travel problems; 3) certain employment sectors can be highlighted as more reliant on alternative means of transport to the car, notably students and the elderly and disabled, and other employment sectors experience a greater than expected level of travel problems, specifically the job seekers and the elderly and disabled. The overall trend in these results is that persons more reliant on alternative means of transport to the car

appear more likely to experience travel problems. The following section, therefore, explores further this relationship between travel problems and mode of transport.

6.2.4 - Analysing Travel Problems By Mode Of Transport

In this section the relationship between the level of travel problems experienced and the mode of transport used will be explored. The analysis so far has revealed that certain groups in the population do not have access to a car and therefore are more reliant on alternative means of transport such as the bus, the train, taxis or lifts from other people. Further analysis has highlighted the fact that these same groups are often admitting to experiencing a greater level of travel problems than would normally be expected. This suggests that there may be a link between the mode of transport used and the level of travel problems experienced. To explore this more fully the mode of transport used on specific journeys will be cross tabulated with the level of travel problems experienced on the journey and the results will be subjected to statistical analysis in the form of a chi square test to determine whether there are any statistically significant differences between the problems experienced using different modes of transport.

Journey Type	Sig. Level	Biggest Contribution to χ^2
Travel to carry out personal business	99.9%	Bus
Visits to Doctor	99.9%	Bus
Visits to Dentist	99.9%	Bus
Travel to Hospital	99.9%	Train
Travel to use leisure facilities	99.9%	Train
Travel to school or college	99.9%	Train
Travel to Shops	99.9%	Train
Visits to Friends/Family	99.9%	Train
Travel to work	99.9%	Train

Table 6.14 - Summary Of Results Of Chi Square Tests Carried Out On Travel Problems By Mode Of Transport

All nine journeys (travel for personal business, travel to a doctor, dentist or hospital, travel to leisure activities, travel to the shops, travel to visit friends and family, and travel to school/college and work) were analysed. The results of the chi square tests carried out indicate that for each of the journeys in question there is a 99.9% probability that there is a real relationship between the mode of transport used and the degree of travel problems experienced. In every case those using the car were experiencing far fewer travel problems than the expected count predicted while those using alternative means of transport were experiencing far more travel problems than predicted. By calculating the individual contribution to the overall chi square it was possible to determine for each journey which mode of transport was causing the most problems (see table 6.14).

The results in table 6.14 are of particular interest as they serve to highlight two key issues. The first is that those people who are dependent on public transport appear to experience a far greater degree of travel problems. The second is that there seems to be an underlying pattern in the travel and transport arrangements of these people which indicates that while the bus is more likely to be used for more localised journeys, i.e. visits to doctors and dentists, the train will often be used for longer journeys. This is likely to be due to two main factors; firstly, the main destination of the train is generally a larger settlement rather than the next village and secondly, the train is quicker than the bus on longer journeys because it takes a more direct route.

The results also suggest that, overall, rail users are the most disadvantaged group in terms of the high proportion of travel problems that they experience. For six out of the nine journeys analysed, the train was the mode of transport where the difference between the number of people expected to experience problems and the number actually experiencing

problems was the greatest. Despite these problems the train remains a key mode of transport for these people suggesting that there are no valid alternatives and therefore their dependence on local rail services is considerable. The type of problems that are causing difficulties have, so far, not been identified and will be explored more fully in the next chapter.

This chapter has focused on the travel and transport arrangements adopted by the survey respondents and, furthermore, examined the travel problems experienced by specific groups of people. The aim of this has been threefold: firstly, to identify the importance of various modes of transport; secondly, to identify specific groups who are more reliant on alternative modes of transport to the car; and thirdly, to determine whether there are specific groups of people who experience difficulties with travel and transport arrangements. The analysis has clearly identified the extent to which the rail system is significant to the community and, in addition, has uncovered a considerable discrepancy between the use of the car and the use of all other modes of transport. Rail use is particularly low, accounting for less than 10% of all journeys, and this has considerable implications for those people who depend on the local branch line as they could lose out substantially should the line suffer cutbacks or closures as a result of financial constraints. It may be important, therefore, to look at means of encouraging people to move from road to rail. First, however, it is necessary to explore more fully what factors are preventing rail use. In the next chapter the issues surrounding rail travel will be explored and the analysis will evaluate the factors which influence rail use together with the role of perceptions held about rail services and rail privatisation, which may well prove to be an additional factor in influencing the amount of use a branch line receives.

CHAPTER 7 - Results And Analysis: Rail Use In Rural Areas

From the analysis carried out in the previous chapter it has been possible to identify specific groups who are more dependent on using alternative forms of transport to the car. All of these specific groups are potential train users and in this chapter the relationship between these particular groups and the amount they use the train will be explored. Furthermore, it has also been possible to identify the groups who seem to be particularly disadvantaged in making journeys, i.e. they experience more problems with travel and transport than other groups. When the link between the level of travel problems experienced and the mode of transport used was examined there also proved to be a strong correlation between the level of travel problems experienced and the use of public transport, with rail users appearing to be the group most likely to experience travel problems. Despite this, people still continue to use the train and the benefits must, therefore, outweigh the negative experiences.

This chapter will, therefore, examine in greater detail the relationship between those groups already identified as being dependent on alternative forms of transport to the car and the levels of rail use to be found among members of these groups. The frequency with which members of these groups use the train will also be explored. The analysis will then consider why people use the train and what factors may influence their use of the train including distance to the railway station, access to a car and the attitudes and perceptions of both rail users and non rail users to service standards, cost and rail privatisation.

This analysis should make it possible to both highlight the groups most dependent on branch line services and, also, to determine who will be most affected by any changes to

service or closures on branch lines brought about by rail privatisation. Factors affecting rail use should also be highlighted which will allow the potential for increasing rail use to be explored. The final analysis will also include a breakdown of the data sets by branch line to explore the possibility that it is specific areas rather than specific groups of people that display a greater dependency on rail lines.

7.1 - Use Of Local Rail Services

Previous analysis in chapter six highlighted the fact that gender, age and employment status influence the principal mode of transport adopted by people for specific journeys. Although the majority of journeys are carried out by car it was possible to determine specific groups who were more dependent on public transport. Furthermore, among these groups it was possible to detect a pattern whereby the train was used for some journeys and the bus was used for others. In this section these groups will be examined in relation to train use in order to investigate further those people who are particularly dependent on rail services.

Analysis in chapter six also highlighted the fact that rail users seem to be more likely to experience travel problems than users of other modes of transport, including the bus. Relatively high proportions of rail users suggest, however, that the benefits of the train as a mode of transport outweigh the negative experiences that some people undergo and therefore the advantages and disadvantages attached to rail use will be explored in some detail to determine why people use the train.

7.1.1 - Frequency Of Use

When the data for gender of respondent were cross tabulated with train use and frequency of use the results confirmed that women are, in the main, much more likely to be dependent

on rail services than men. When a chi square test was applied to the results there was a 99% probability that rail use was influenced by gender (see table 7.1) and a 99% probability that gender was an influence on frequency of use (see table 7.2).

TRAIN_US Train user by SEX Sex				
		SEX		Row Total
		Count	Exp Val	
		male	female	
		1	2	
TRAIN_US				
No	1	418	429	847
		391.4	455.6	48.7%
Yes	2	386	507	893
		412.6	480.4	51.3%
Column Total		804	936	1740
		46.2%	53.8%	100.0%

Chi-Square	Value	DF	Significance
Pearson	6.56213	1	.01042
Continuity Correction	6.31800	1	.01195
Likelihood Ratio	6.56528	1	.01040

Minimum Expected Frequency = 391.372

Number of Missing Observations: 0

Table 7.1 - Rail Use By Gender

In table 7.1, above, the differences between the two sexes are clearly displayed. Womer are much more likely to use the train than the expected count would predict and, conversely, men are far less likely to use the train than expected. This does not, however, indicate frequency of use and when frequency of use was cross-tabulated with gender of respondent the results suggested that the pattern of use for each sex was completely different.

Table 7.2, below, displays a very clear trend which delineates the use of the train by the different sexes. Men are more likely to use the train on a daily basis than the expected count would predict whereas fewer women than would be expected use the train on a daily basis. When the data for less frequent use are examined, however, the figures for women

using the train exceed the expected count while the figures for men fall below the expected count.

RAIL_FRE Frequency of train use by SEX Sex

		SEX		Row Total
Count Exp Val		male	female	
		1	2	
RAIL_FRE				
0		418	429	847
Never use train		391.4	455.6	48.7%
1		20	20	40
Daily		18.5	21.5	2.3%
2		23	46	69
1-3 times a week		31.9	37.1	4.0%
3		31	37	68
Fortnightly		31.4	36.6	3.9%
4		45	89	134
Monthly		61.9	72.1	7.7%
5		267	315	582
Less than monthl		268.9	313.1	33.4%
Column Total		804	936	1740
		46.2%	53.8%	100.0%

Chi-Square	Value	DF	Significance
Pearson	16.82852	5	.00484
Likelihood Ratio	17.14744	5	.00423

Minimum Expected Frequency - 18.483

Number of Missing Observations: 0

Table 7.2 - Frequency Of Rail Use By Gender

This reinforces previous observations which suggest that women use the train to fulfil a greater variety of needs. Any changes to train timetabling brought about by the privatisation process would need to consider this factor. It would not be sufficient to retain mainly those services which will enable a commuter to travel to work on a daily basis as these journeys only account for a small proportion of journeys made. Instead it would be more advisable to continue to provide a varied timetable which enables the majority of users to carry out a variety of tasks in local towns. Particular consideration would need to

be paid to the needs of women, for example the timing of trains to fit in around the school timetable so that trips for the purpose of shopping would be possible.

The results of the same tests carried out on age of respondent and employment status of respondent gave similar results. The same groups that had previously been shown to be more dependent on alternative means of transport to the car can be highlighted as the groups who make more use of the train. This use is not evenly spread, however, and the same differences in frequency of use that are noticeable between men and women are highlighted amongst different age groups and employment sectors.

When the data for rail use and frequency of use were analysed by age group the chi square test carried out on the data predicts a 99% probability that rail use and frequency of use are influenced by the age of the respondent. Those under twenty-one years of age and over seventy years of age were highlighted as the groups where the actual use exceeds the expected count that was predicted by the chi square test. Frequency of use amongst these groups differs considerably, however, and while the under twenty-ones use the train more than expected on a daily, 1-3 times weekly, fortnightly and monthly basis, the over seventy's tend to use the train more than the expected count predicted by the chi square test only on a less than monthly basis. It is clear then, that although both the young and the elderly do depend on the train the dependency levels are different as the young make much more frequent use of rail services. This helps to confirm a previous observation that the use of bus or train varied considerably according to type of journey. The elderly had more commonly used the bus for local journeys but switched to the train for longer journeys, especially visits to friends and family which would be a less frequent journey.

The final category to be examined in this section yielded similar results to the first two categories. There was a 99% probability that rail use and frequency of use are influenced by the employment status of the respondent. The employed, job seeking and housewife/househusband groups used the train less than the expected count would predict while students and the elderly and disabled made more use of the train than expected. This verifies previous results which highlighted students and the elderly and disabled as being more dependent on alternative forms of transport to the car. Once again, frequency of use varied considerably among the different groups. The retired and disabled used the train more than the expected count on a monthly or less than monthly basis whereas students use the train more than expected on a daily, 1-3 times a week, fortnightly and monthly basis. Job seekers and housewives/husbands tend to use the train as the expected values would predict and there is very little variation among these groups. Among the employed sector there is a marked difference in frequency of use. Members of this group use the train more than the expected values would predict on a daily basis but much less than the predicted levels for any other frequency.

The complexity of rail use among different sectors of the population is becoming more apparent. Each clearly identifiable group use the rail services to fulfil specific journey types and are, therefore, dependent on the availability of rail services throughout the day and week. For men there is a need for a daily service, presumably timed to fit around working hours, whereas women require a more flexible service that can be used throughout the week and, most importantly throughout the day, with services timed to fit in around school hours. Many respondents complained of the difficulty in using rail services which did not fit school hours, something which may in fact account for why rail use among housewives is less than expected. The elderly and disabled, and indeed those over fifty, are in the main

looking for a service which is available for long distance travel, generally on a less than monthly basis. Such services would, presumably, need to link in with main line services ensuring that the wait between trains is not too protracted. Under twenty ones and students by contrast require the same flexibility of service that is required by women together with a regular daily service. To ensure a successful branch line service all these varied needs will have to be considered. Together these disparate groups make up the clientele of the branch lines and unless all these varying needs are catered for this clientele will have to make alternative travel arrangements.

7.1.2 - The Advantages And Disadvantages Of Local Rail Services

Analysis in chapter six highlighted the fact that those who use rail services tend to experience a greater level of travel problems than would be expected. Despite this the local branch line services continue to be used and therefore there must be benefits associated with rail travel which outweigh the more negative aspects. In this section the reasons that people give for using the train will be analysed and related to other factors such as the availability of alternative forms of transport, to determine what attracts a person to rail travel. None of the selected study sites were isolated from alternative modes of transport and therefore a conscious decision is made to use the train. Among the questions that will be asked in this section will be the extent to which car owners use the local branch line. Does the fact that a car is available preclude the use of the train or do the benefits associated with rail services lead car owners to leave their cars at home and take the train instead? The data provided by respondents who experience travel problems will then be assessed to determine what these problems are. One of the questions asked respondents to detail what the solution to these problems might be and although many of them replied that

access to a car would be the ideal solution there were also many responses to the question about improvements to rail services.

When respondents were asked why they travel by train only 13.1% stated that it was the only available form of transport for the intended journey (see table 7.3 for further detail). The majority viewed rail travel as the most convenient form of transport despite the problems that apparently accompany it. For many people it was the preferred form of transport and over 25% of respondents used the train because it was quicker than the bus. Environmental concerns also featured in the list and 17.5% of respondents cited concern for the environment as a reason for using the train. This is likely to become a more important issue in the future as towns and cities become increasingly polluted and congested by the increase in the number of cars on the road and could well become a major selling point for rail transport of the future. Fewer respondents cited the train as a reliable form of transport which could highlight one of the problems associated with rail transport, that of reliability. Many respondents used the additional comments section at the back of the questionnaire to express concern that branch line services could be unreliable with trains both delayed and cancelled without warning. The absence of manned stations contributed to this problem because it was virtually impossible for passengers to get any information about whether a train was delayed or cancelled. Many respondents suggested that a fixed telephone, similar to that found on unmanned line crossings, could be installed, enabling passengers to inquire about the train.

Reason for Using the Train	% Replying Yes
Convenient form of transport	49.4%
Preferred form of transport	34.6%
Quicker than the bus	26.9%
Concern for the environment	17.5%
Reliable form of transport	17.1%
Only available transport	13.1%
Cheapest form of transport	9.0%
Other reasons	29.3%

Table 7.3 - Reasons For Using The Train

A further potential complaint about rail travel is cost, very few respondents felt that it was the cheapest form of transport available. This needs to be considered by any future franchisee as cheaper fares could well bring increased revenue due to an increased client base. The alternative would, of course, be to dramatically increase the costs associated with car use, a move often cited as the answer to the environmental problems brought about by motor vehicles, but limited initiatives such as slightly higher petrol costs have, so far, proved to be ineffective and, as Carpenter (1994) points out, "If free market forces determine the matter, such increases may not occur for many years". (Carpenter 1994, pp.360).

At the bottom of table 7.3 is a category simply entitled 'other reasons' which gave rail travellers the opportunity to cite additional reasons for using the train. Some 29.3% of respondents had other reasons for using the train and, interestingly, the majority of these were regular car users. Of the respondents who replied to this question some 67.3% always had access to a car and yet those with continuous access to a car made up 77.2% of respondents who cited other reasons for using the train. Table 7.4, below, displays a breakdown of the reasons given under the heading 'other'. These could be grouped into five broad categories ranging from long distance travel, with London proving to be a major

destination, to the ability to travel without an adult which has obvious appeal to young people.

'Other' Reason	% Respondents
Long distance travel, e.g. London	48%
Travel for pleasure, e.g. family treat	29.4%
Convenience, e.g. avoid parking problems	10.8%
Car unavailable, e.g. broken down	10.4%
Ability to travel without an adult	1.4%

Table 7.4 - Other Reasons For Using The Train

Clearly the train is a very convenient mode of transport where long distance travel is concerned and regular car users recognise the benefits associated with leaving the car behind and taking the train instead. It is important to note that, although much of the journey will be carried out on the main line, the majority of these journeys start and finish at local branch line stations (only 21.2% of respondents citing other reasons for using the train used the main line only).

Lack of access to a car does not appear to be a major factor in determining rail use; only 13.1% of respondents use the train because there is no alternative and responses to questions about why people use the train seem to indicate that access to a car does not deter train use. Only 10.4% of those citing other reasons for using the train did so because the car was unavailable for some reason. To explore this question more fully the data on access to a car were cross-tabulated with the data on rail use, a chi square test was carried out, and row, column and total percentages were calculated (see table 7.5).

TRAIN_US Train user by CARUSE Use of Car:

		CARUSE			
		Count			
		Exp Val			
		Row Pct	Always	Sometime	Never
		Col Pct		s	
		Tot Pct	1.00	2.00	3.00
TRAIN_US					Row Total
no	1	693	90	64	.847
		629.9	107.1	110.0	48.7%
		81.8%	10.6%	7.6%	
		53.6%	40.9%	28.3%	
		39.8%	5.2%	3.7%	
yes	2	601	130	162	.893
		664.1	112.9	116.0	51.3%
		67.3%	14.6%	18.1%	
		46.4%	59.1%	71.7%	
		34.5%	7.5%	9.3%	
Column Total		1294	220	226	1740
		74.4%	12.6%	13.0%	100.0%

Chi-Square	Value	DF	Significance
Pearson	55.13170	2	.00000
Likelihood Ratio	56.58254	2	.00000

Minimum Expected Frequency - 107.092
Number of Missing Observations: 0

Table 7.5 - Rail Use By Access To A Car

In table 7.5, above, the data clearly shows that the majority of rail users always have access to a car. Altogether 67.3% of rail users always have access to a car with a further 14.6% sometimes having access to a car and 18.1% of rail users never having access to a car. The proportion of rail users within each group gives more of an indication of dependency, however, and while only 46.4% of those who always have access to a car use the train this proportion increases to 71.7% of those who never have access to a car. This is confirmed by the results of the chi square test which indicate that there are significant differences in rail use among the different categories of car access. Rail use among those who always have access to a car is less than would be expected whereas those with limited or no access to a car use the train more than the expected count predicts. Obviously, although a high percentage of those with constant access to a car do choose to use the train, the group most dependent on rail services are those who never have access to a car followed by those who sometimes have access to a car. Frequency of use also needs to be considered and in table

7.6, below, the data on access to a car were cross-tabulated with the data on frequency of use, a chi square test was carried out, and, again, row, column and total percentages were calculated.

RAIL_FRE Frequency of train use by CARUSE Use of Car:

		CARUSE			
		Count			
		Exp Val			
		Row Pct	Always	Sometime	Never
		Col Pct			
		Tot Pct	1.00	2.00	3.00
RAIL_FRE					Row Total
Never use train	0	693	90	64	847
		629.9	107.1	110.0	48.7%
		81.8%	10.6%	7.6%	
		53.6%	40.9%	28.3%	
		39.8%	5.2%	3.7%	
Daily	1	11	13	16	40
		29.7	5.1	5.2	2.3%
		27.5%	32.5%	40.0%	
		.9%	5.9%	7.1%	
		.6%	.7%	.9%	
1-3 times a week	2	19	26	24	69
		51.3	8.7	9.0	4.0%
		27.5%	37.7%	34.8%	
		1.5%	11.8%	10.6%	
		1.1%	1.5%	1.4%	
Fortnightly	3	36	12	20	68
		50.6	8.6	8.8	3.9%
		52.9%	17.6%	29.4%	
		2.8%	5.5%	8.8%	
		2.1%	.7%	1.1%	
Monthly	4	86	22	26	134
		99.7	16.9	17.4	7.7%
		64.2%	16.4%	19.4%	
		6.6%	10.0%	11.5%	
		4.9%	1.3%	1.5%	
Less than monthl	5	449	57	76	582
		432.8	73.6	75.6	33.4%
		77.1%	9.8%	13.1%	
		34.7%	25.9%	33.6%	
		25.8%	3.3%	4.4%	
Column Total		1294	220	226	1740
		74.4%	12.6%	13.0%	100.0%

Chi-Square	Value	DF	Significance
Pearson	186.48061	10	.00000
Likelihood Ratio	164.56253	10	.00000
Minimum Expected Frequency = 5.057			
Number of Missing Observations: 0			

Table 7.6 - Frequency Of Rail Use By Access To A Car

The breakdown of frequency of use (table 7.6 above) confirms that although those with access to a car comprise some 46.4% of rail users, they tend to use the train less frequently

than those who never or sometimes have access to a car. The results of the chi square test, which was significant at 99.9%, show considerable differences in frequency of rail use among the different categories of car access. For those with little or no car access, observed rail use exceeds expected rail use in every category except less than monthly use. Those who always have access to a car, however, use the train less than the expected count predicts in every category apart from less than monthly use. Nonetheless, it is worth noting that some 27.5% of daily rail users always have access to a car and this group forms the majority of rail users on fortnightly, monthly and less than monthly travel.

Having determined that a substantial number of those who always have access to a car choose to use the train, the next task is to try and determine what attracts car drivers to using the train. The results are similar to those for the whole sample, but a higher proportion of those who always have access to a car replied that they use the train because it is a convenient form of transport, suggesting that the convenience of rail transport outweighs the advantages of independent transport. Similarly, a higher proportion of those who always have access to a car replied that they had other reasons for using the train, for example, long distance travel.

Reason for Using the Train	% Replying Yes
Convenient form of transport	51.7%
Preferred form of transport	34.8%
Quicker than the bus	23.5%
Concern for the environment	17.1%
Reliable form of transport	17.0%
Only available transport	4.2%
Cheapest form of transport	6.5%
Other reasons	33.3%

Table 7.7 - Reasons That Car Drivers Use The Train

So far, the reasons that people give for using the train have been related to the availability of an alternative form of transport, the car, to determine whether this has an influence on rail use. The results of this enquiry suggest that while those who always have access to a car do use the train in substantial numbers there are significant differences in rail use among different categories of car use. Rail use among those who always have access to a car was significantly lower than the expected counts would predict, whereas among those who seldom or never have access to a car, rail use was much higher than expected. Overall, however, there seem to be few differences in reasons for using the train between the sample as a whole and a sample comprising those who always have access to a car. The convenience of the train as a form of transport appears to be common to both car users and non-car users alike.

Analysis in previous chapters has also identified differences between age groups, employment sectors and males and females in both the way they travel, the amount they use the train and the frequency of this use. To allow further insight into what attracts people to use the train the data were examined in relation to these groups to try and determine how specific sectors of the population benefit from the availability of rail transport.

Figure 7.1 - Reasons for Using the Train by Age



Age	7-11yrs	12-16yrs	17-21yrs	22-30yrs	31-40yrs	41-50yrs	51-60yrs	61-70yrs	71-80yrs	>81yrs
■ Cheap	1.8	31.8	11.3	6	8.3	6	0.8	10.5	7.1	8.7
■ Available	12.5	20	38.7	16.4	9.2	10.4	7.4	8.9	9.8	8.7
■ Reliable	14.3	17.6	16.1	14.9	11	23.1	9.9	16.9	25	21.7
■ Environment	23.2	16.5	21	14.9	19.3	23.1	12.4	16.1	14.3	8.7
■ Quick	10.7	37.6	35.5	32.8	23.9	26.9	24	25.8	28.6	8.7
■ Other	33.9	11.8	16.1	34.3	39.4	23.9	40.5	21.8	33.9	34.8
■ Preferred	19.6	24.7	27.4	35.8	33.9	38.9	35.5	39.5	42	30.4
■ Convenient	41.1	51.8	38.7	41.8	35.8	55.2	51.2	57.3	58	39.1

When the data were examined using gender as a factor there were no real differences between the two sexes and the convenience of rail transport was the most frequently cited reason. When the data were examined on the basis of age, however, considerable differences could be detected. (see figure 7.1, overleaf). Although the convenience of rail transport continued to attract the highest proportion of affirmative answers overall, figure 7.1 clearly illustrates the different concerns of the different age groups. The top three reasons for the whole sample which were convenience, preference and 'other' were compared to the top three reasons for each age group. The 7-11 yrs group saw rail travel as convenient, cited other reasons for using the train and were concerned about the environment. In the 12-16yrs bracket rail travel was viewed as convenient, quicker than the bus and the cheapest form of transport. The 17-21 yrs group viewed rail travel as convenient, the only available transport and quicker than the bus. The remaining age groups mirrored the sample as a whole and, with the exception of the 41-50yr olds and 61-70yr olds who ranked quicker than the bus higher than 'other', gave convenience, preference and 'other' as the principal reasons for using the train. Previous analysis had highlighted the under 21s and the over 71s as the groups most dependent on rail services but when frequency of use was examined it was the younger age group that appeared to be most dependent on rail services as they were more frequent travellers. These results indicate that they also use the train for different reasons, namely convenience, speed, cost, environmental concerns and because it is the only available transport.

Figure 7.2 - Reasons for Using the Train by Employment Sector



Employment Sector	Employed	Job seeker	Student	Housewife	Retired
■ Cheap	5.3	4.2	18.3	7.1	7.6
■ Available	10.8	41.7	20.3	11.4	8.4
■ Reliable	15.2	16.7	16.8	17.1	19.4
■ Environment	17.3	16.7	22.3	10	14.8
■ Quick	26.6	33.3	30.5	24.3	23.6
■ Other	34.4	4.2	19.3	32.9	31.6
■ Preferred	35	33.3	26.4	41.4	37.3
■ Convenient	48	45.8	45.2	48.6	54.8

Similar results were found when the reasons for different job sectors were explored. Although, in the main, the top three reasons mirrored the reasons given by the whole sample there were notable differences among students and jobseekers. For students the main reasons for using the train were convenience, quicker than the bus and a preferred mode of transport whereas job seekers cited convenience and the train as the only available transport, with preferred mode of transport and quicker than the bus joint third. The most dramatic 'spike' visible in figure 7.2 is for job seekers, 41.7% of whom said that the train was the only available transport.

The aim of this section has been to determine what attracts people to use the train, i.e. the benefits of using the train. Overall, very few respondents cited the train as the only available means of transport and the majority of respondents cited the convenience of rail travel. Among those who always have access to a car the convenience of rail transport was, again, the reason most often cited. When the different groups already identified as being particularly dependent on the train were examined, however, the reasons varied from group to group but two sectors of the population, the 17-21 yr. age group and job seekers cited the train as the only available transport as their primary reason for using the train, suggesting that they would be particularly hard hit should the provision of rail services change. All respondents seem to agree that the convenience of rail transport is a major factor in determining use of the train and although many rail users suffer travel and transport problems the convenience of the train seems to outweigh this.

Having determined what the benefits associated with rail travel are, the nature of the problems rail travellers experience need to be explored so that both the advantages and disadvantages of rail use can be clearly identified. In chapter six the mode of transport used

for specific journeys was cross-tabulated with travel problems on that particular journey and the train was identified as the mode of transport most likely to cause problems. This result is confirmed by a chi square test in which the number of respondents experiencing travel problems is cross-tabulated with train use and the column and row percentages are calculated (see table 7.8).

		TRA_PROB		
		No	Yes	
TRAIN_US	Count			Row
	Exp Val			Total
	Row Pct			
	Col Pct			
	Tot Pct			
		1	2	
no	1	795	52	847
		732.6	114.4	48.7%
		93.9%	6.1%	
		52.8%	22.1%	
		45.7%	3.0%	
yes	2	710	183	893
		772.4	120.6	51.3%
		79.5%	20.5%	
		47.2%	77.9%	
		40.8%	10.5%	
Column		1505	235	1740
Total		86.5%	13.5%	100.0%
Chi-Square		Value		DF
Pearson		76.66368		1
Continuity Correction		75.43990		1
Likelihood Ratio		80.96225		1
Significance				
Pearson				.00000
Continuity Correction				.00000
Likelihood Ratio				.00000
Minimum Expected Frequency - 114.394				
Number of Missing Observations: 0				

Table 7.8 - Travel Problems By Rail Use

The result of the chi square test (table 7.8), which is significant at the 99.9% level, clearly shows that the level of travel problems experienced is influenced by rail use. Travel problems experienced by non-rail users were significantly lower than the expected count predicts and, conversely, much higher than predicted among rail users. Whereas only 6.1% of non-rail users experience problems the proportion of rail users experiencing problems increases sharply to 20.5% and, altogether, some 77.9% of all those respondents who indicated that they experience travel problems are rail users. By examining the possible

solutions to these problems, indicated by the respondents who experience travel problems, it is possible to determine what the key problems are. In table 7.9, below, the potential solutions are summarised for a) all respondents experiencing travel problems and b) rail users experiencing problems. In each case the percentage of respondents replying affirmatively to the solution has been shown.

Solution to Travel Problems	% Of All Respondents	% Of Rail Users
Late evening trains	46.8%	53.6%
More frequent trains	41.7%	49.2%
Sunday rail services	41.7%	48.6%
More convenient train times	35.7%	42.6%
Access to a car	34.9%	31.7%

Table 7.9 - Solutions To Travel Problems

It is possible to rank the solutions according to the number of respondents who replied that this would solve their travel problems and from the ranking one can assume that the absence of rail services late in the evening presents a considerable obstacle to problem free travel, some 53% of rail users experiencing problems felt that this would solve their travel problem. The next most pressing problem appears to be train frequency, 49.2% of rail users experiencing problems and 41.7% of all respondents experiencing problems felt that this could solve these problems. The lack of a Sunday rail service on most branch lines, except in the peak summer period, also causes problems to travellers as does the timing of trains. Considerably fewer respondents suggested that access to a car would solve their travel problems which indicates that the majority of those respondents who do experience problems are particularly dependent on alternative forms of transport such as the train.

The points raised above are worthy of careful consideration because they not only clearly identify the main disadvantages associated with rail travel (which are lack of late evening services, infrequent trains, lack of a Sunday service and inconvenient train times) they also identify ways in which rail services could be improved thus potentially increasing the number of rail travellers.

So far it has been possible to identify both the advantages and disadvantages associated with rail travel. In the next section potential constraints on rail use will be examined and these will include both physical factors and attitudes towards branch line services.

7.2 - Factors Influencing Rail Use

Among the physical factors that will be explored in this section will be distance to the railway station. It was noted during the preliminary field work that took place in the preparation for this survey that many stations lay at a distance from the villages they served and that, furthermore, the journey to the station was through narrow, winding lanes, often with a steep hill to ascend. It seems likely that this will have some influence on rail use. A further factor which will be explored is the relationship between the availability of bus and car as an alternative means of transport, the distance to the railway station and the frequency with which an individual uses the branch line. Additionally, the concept that perception of a service will influence the use of the service will be explored. Groups which should, in theory, be inclined to use the train but don't will be scrutinised more closely to see if there is any link between rail use and perception.

7.2.1 - Physical Factors

Distance to the railway station is suspected to be a major influence on rail use due to the difficulty in gaining access to the station. In figure 7.3, which graphs rail users and non-rail users by distance from the station, the percentage of rail users declines sharply as distance increases, with a subsequent rise in the percentage of non-rail users. At a distance of one mile from the station the proportion of non-rail users exceeds the proportion of rail users suggesting that this is probably the maximum distance at which to live from the station for rail use to be an effective form of transport.

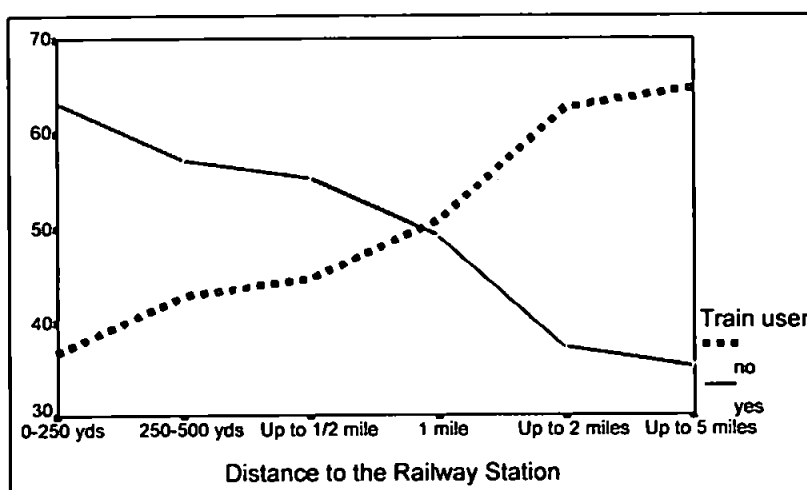


Figure 7.3 - Rail Users By Distance From The Railway Station

When the frequency of rail use is examined there appears to be no relationship between frequency and distance. It appears that the distance a respondent lives from the station may influence the decision as to whether or not to use the train but that this does not, in turn, influence the frequency of this use. In figure 7.4, below, the frequency of use is compared to distance to the railway station and here it can be seen that, although frequency of use generally declines with distance, there is no clearly detectable pattern to this decline.

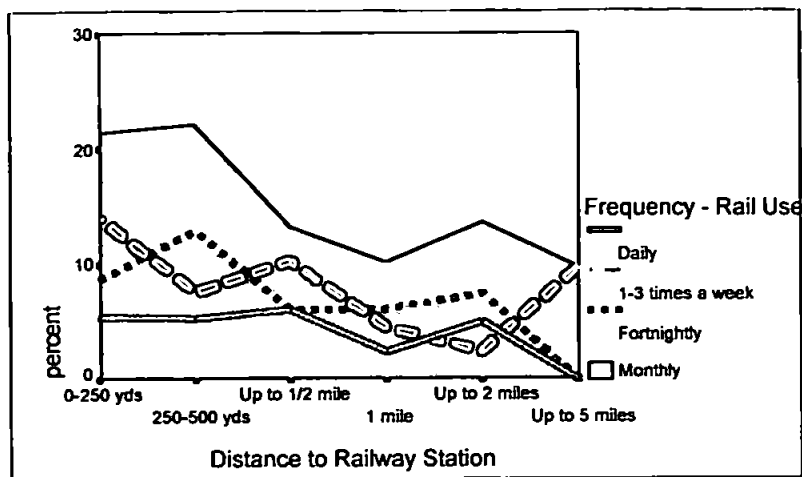


Figure 7.4 - Frequency Of Rail Use By Distance From The Station

What the analysis has so far shown is that distance from the station can influence rail use, though not necessarily frequency of use. The optimum distance from the station that a respondent can live and still find it convenient to use the train appears to be a mile. The next step is to assess the availability of alternative forms of transport, i.e. the bus and the car and determine whether this will influence rail use and frequency of use. It is possible that access to a car may even assist rail users by making the journey to the station easier.

Distance	Bus Stop % Respondents	Railway station % Respondents
0-250 yds	52.9%	8.4%
250-500 yds	30.3%	17.2%
Up to 1/2 mile	10.4%	27.4%
More than 1/2 mile	1.8%	46.3%
Don't know	4.6%	0.7%

Table 7.10 - Comparative Distances To The Bus Stop And The Railway Station

When distance to the bus stop is compared to distance to the railway station (table 7.10, above) it is clear that the majority of respondents live considerably closer to a bus stop than

to the railway station. This might suggest that ease of access to a bus will lead to respondents using a bus service rather than a rail service and subsequently, therefore, rail use only increasing as the distance to a bus stop becomes greater.

To test whether the availability of a bus is likely to have an influence on rail use both the frequency of use and rail use were charted by distance to a bus stop (figure 7.5, below). The results, while showing a similar pattern for frequency of use to that seen when distance to the railway station was charted, suggest that the presence of a bus stop nearby has only a limited impact on rail use. The expected pattern, which would have been to see an increase in rail use or frequency of rail use as distance to the bus stop increased, can only be seen for 1-3 times a week rail use which shows a clear increase as the distance to the bus stop increases to greater than a half a mile. Additionally, there is a slight overall increase in rail use when the distance to a bus stop is a half a mile, though this declines as the distance increases to more than half a mile. Apart from this rail use declines in line with distance to a bus stop in the same way that it declines with distance to a railway station. The only noticeable difference is in the proportion of rail users to non rail users which is much more evenly distributed indicating that the proximity of a bus stop may have a marginal affect on the percentage of people using rail. The decline in rail use as distance to the bus stop increases could suggest that the bus is used as a means of transport to the station but the preliminary field work that was carried out negates this suggestion as very few stations are served by a bus. The only assumption that can be made, therefore, is that respondents use a car when access to public transport becomes more difficult.

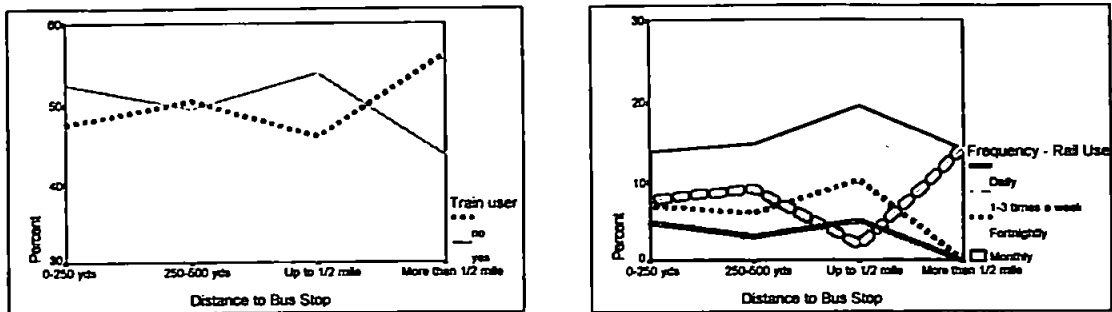


Figure 7.5 - Rail Use And Frequency Of Use By Distance To A Bus Stop

The analysis so far has revealed that although distance to a station has a considerable influence on rail use and a slight influence on frequency of rail use, the availability of a bus as an alternative means of transport has little, if any, impact. The other main alternative, the car, will now be examined in relation to distance to the railway station and the proportion of rail users among those who always have access to a car and the frequency of that use will be explored (see Figure 7.6).

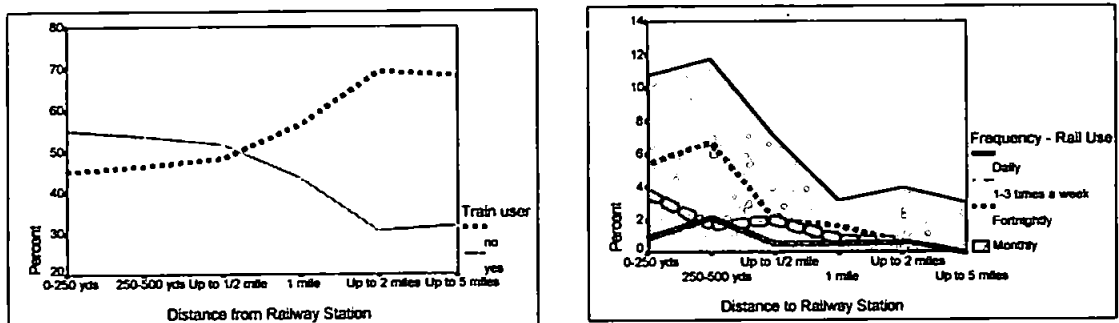


Figure 7.6 - Rail Use And Frequency Of Use For Car Owners By Distance To The Station

The above figure (figure 7.6) suggests that access to a car does indeed influence rail use. Rail use continues to decline as distance to the station increases but the decline is more rapid. In a sample of those who always have access to a car non-rail users exceed the number of rail users at a half a mile from the station rather than the mile which was noted

for the whole sample. In addition to this the proportion of rail users to non-rail users among those who always have access to a car is much smaller than was the case for the whole sample. The supposition that those who have access to a car will use the car when access to public transport becomes more difficult would appear to be confirmed. When distance to either a bus or a train increases to a half a mile the number of car owners using the train declines rapidly. Frequency of use shows an overall decline with distance but, again, this fluctuates and displays no particular pattern.

In this section the physical factors which could influence rail use have been examined and the key finding is that rail use declines as distance to the station increases. The availability of bus services has only a minor influence on rail use but the availability of a car has a more marked influence with car owners apparently tending to use public transport, particularly the train, only when it is convenient to do so, especially in terms of distance. In the next section other potential influences on rail use will be explored to determine whether attitudes towards, and perception of, rail services influence use.

7.2.2- Attitudes And Perceptions

In chapter five the results of questions concerning attitude towards rail services and branch line services were compiled. What those results failed to show, however, is whether these attitudes and beliefs are common to the whole sample or whether different sectors of the population hold different beliefs about rail transport generally and the branch line services in particular. An obvious start point is to examine the beliefs of rail users and non-rail users to see if any clear differences exist. Reproduced below, in table 7.11, are both the responses given by the whole sample (taken from chapter five) which show the extent to

which the whole sample agrees with the statements given and the responses given by rail users and non-rail users.

Statement	% of sample agreeing	% of rail users agreeing	% of Non-rail users agreeing
*The branch line is important to tourism	76.8%	83.7%	69.6%
*The train is comfortable	75.2%	82.1%	67.9%
*The train is reliable	64.4%	72.4%	56.2%
*People depend on the branch line to go to work	58.0%	67.3%	48.1%
*The train is too expensive to use	56.2%	48.5%	64.4%
*Train times are inconvenient/too infrequent	50.5%	48.6%	52.5%
*The branch line is important to me	47.5%	66.4%	27.7%
Services on the branch line run at inconvenient times	36.0%	36.6%	35.4%
*The station is too far away to use	17.9%	11.8%	24.4%

*When tested with chi square using absolute values, all of these statements showed significant differences in attitude between rail users and non-rail users at the 99.9% significance level.

Table 7.11 - Attitudes Towards Branch Line Services By Rail Use

The overall impression to be gained from examination of table 7.11 is that a high percentage of respondents value the local branch line regardless of whether or not they use it but that rail users tend to display a much higher degree of agreement with positive statements about rail transport and the branch line compared with non-rail users. Of particular interest is the response to a statement regarding distance to the station. Whereas only just over 10% of rail users feel the station is too far away this proportion rises to just under a quarter of non-rail users. This helps to confirm a previous observation that rail use is influenced by distance to the station but also indicates that physical factors which constrain rail use are also subject to influences based around the perception that a person

holds. Similarly a higher proportion of non-rail users believe that the train is too expensive to use when compared to rail users, the majority of whom, being more familiar with the benefits of rail travel, feel that the cost is more acceptable. Even questions about comfort, reliability and the convenience of train times yield a much higher degree of agreement from rail users than from non-rail users suggesting that non-rail users base their beliefs around a perception of the service rather than fact whereas those using rail services base their beliefs around the experience of actually using the service. A key issue, therefore, in any attempt to increase passenger numbers will be to change the perceptions of non-rail users and convince them that rail transport can be an affordable, reliable and comfortable way to travel.

One of the clearly identified physical constraints on rail use, distance to the station, also emerges as a perception more common to non-rail users. Another key influence on rail use was found to be access to a motor car and the analysis will now consider respondents responses based on access to a car to determine whether the attitudes towards rail travel and the branch line differ between those who always have access to a car, those who sometimes have access to a car, and those who never have access to a car.

In table 7.12, overleaf, it can be seen that there are some very clear differences in the attitudes and beliefs held by respondents on the basis of their access to a car. Those who always have access to a car, for example, do not seem to find distance to the station as much of a problem as those who never have access to a car. Access to a car also influences perception of cost. Much of the cost associated with a car is indirect, in that the driver does not pay a specified amount for a journey, and therefore more car drivers see the cost of a rail ticket as expensive compared to those who never have access to a car. Overall, most

car drivers seem to view the railways in a positive light, possibly because they know they have an alternative, whereas those who sometimes or never have access to a car are slightly more critical of rail services. Access to a car influences attitudes towards rail services and the local branch line, often by generating a more positive perception of rail services and the branch line by drivers than that held by those who lack a choice. It must be noted, however, that the reason that some of these respondents ensure they always have a car available may be because they held a negative perception of rail services initially. Some respondents, when invited to make additional comments on the back of the questionnaire, cited the decline of the railways since the cuts imposed by Dr Beeching as the prime reason for getting a car in the first place.

Statement	Car Access Always % agreeing	Car Access Sometimes % agreeing	Car Access Never % agreeing
#The branch line is important to tourism	77%	78.6%	74.3%
#The train is comfortable	75.7%	69.1%	77.8%
+The train is reliable	65%	65.9%	60.2%
*People depend on the branch line to go to work	57.5%	66.8%	52.2%
*The train is too expensive to use	58.7%	49.1%	48.7%
Train times are inconvenient/too infrequent	50.2%	50%	53.1%
+The branch line is important to me	43.8%	54.6%	62.4%
+Services on the branch line run at inconvenient times	34%	40%	44.3%
+The station is too far away to use	15.4%	22.2%	27.9%

When tested with chi square using absolute values, all of these statements showed significant differences in attitude between different categories of car use at the following significance levels: *95%, # 97.5%, + 99.9%.

Table 7.12 - Attitudes Towards Branch Line Services By Car Access

In this section constraints on rail travel, both physical and perceptual, have been explored. There are two major physical constraints on the use of the branch line, the first is the actual distance to the station and the second is the level of access to a car (those who always have access to a car being more inclined to use the car as it becomes less convenient to use the

train). In terms of perceptual constraints it is chiefly the negative perceptions of rail travel held by non-rail users that need to be overcome by the rail operator together with the slightly more negative attitudes held by those respondents who never have access to a car and the attitude towards cost of rail travel held by those who always have access to a car. For those without a car the lack of choice, in terms of transport, that they experience appears to lead to a more negative viewpoint about rail travel though, overall, the majority still view the branch line as being of great importance to them. For those with a car the branch line is of less importance but viewed more positively. The majority of car drivers do, however, feel that rail travel is too expensive. In the next section attitudes towards rail privatisation will be examined to see if these too vary from group to group.

7.3 - The Potential Impacts Of Rail Privatisation

In this section respondent's perceptions of the potential impacts of rail privatisation will be explored by examining both the attitudes held by respondents and the predicted level of problems that change to the provision of rail services would cause. Table 7.13, below, displays the percentage of respondents in the whole sample together with the percentage of rail users and non-rail users who agree with a series of statements about rail privatisation.

Statement	% Respondents agreeing	% Non-Rail users agreeing	% Rail users agreeing
+Privatisation could mean closure	81.4%	78.5%	84.2%
+Privatisation could mean cuts	77.2%	74%	80.4%
Privatisation could mean improvements	13.6%	14%	13.1%
Improvements would mean more use	71.2%	69.3%	73%
*I would pay more for improvements	14.5%	13.7%	15.2%

*When tested with chi square using absolute values, all of these statements showed significant differences in attitude between rail users and non-rail users at the following significance levels: *95%, # 97.5%, + 99.9%.

Table 7.13 - Attitudes Towards Rail Privatisation

Among the respondents a considerable majority believe that privatisation could lead to cutbacks in service with an even greater percentage of respondents believing that closures of branch lines are a possibility. Rail users appear to have a more negative perception of the situation than non-rail users, with a higher percentage agreeing that privatisation could lead to cutbacks or closures and a lower percentage agreeing that it could lead to improvements. In the previous section, where attitudes towards the branch lines and rail services were examined, non-rail users displayed a more negative perception and it appeared that non-rail users were prepared to 'believe the worst' about the railways. Nevertheless, slightly more non-rail users than rail users are prepared to believe that privatisation could lead to improvements and more than two-thirds felt that this could lead to more people using the train. This suggests that there is a potential to expand the current customer base. A combination of improved services and more positive marketing that emphasises comfort, reliability and convenience could attract some of these non-rail users on to the railways, particularly those without a car who comprise 7.6% of non-rail users with a further 10.6% only having access to a car sometimes. Current analysis shows that 28.3% of those who never have a car and 40.9% of those who sometimes have a car never use the train, something that a railway company keen to expand should bear in mind when assessing the potential market place.

The analysis of attitudes towards, and beliefs about, rail privatisation suggests that most respondents feel that privatisation will bring cutbacks and closures to branch lines. Previous analysis has also highlighted the fact that changes such as these will have a greater impact on certain sectors of the population, namely women, youngsters under twenty-one years of age, those over seventy one years of age, students and the elderly and disabled. To a certain extent students and young people are likely to be the hardest hit by

any cutbacks or closures as they tend to be frequent travellers by rail. The results compiled in chapter five indicated that, in the sample as a whole, some 8.6% of respondents expressed the opinion that change to branch line services would cause them to experience severe problems in making journeys with a further 15.1% stating that it would cause them some difficulty, a proportion that rose to 16.8% anticipating severe difficulty and 29.5% anticipating some difficulty when the opinions of rail users were considered in isolation. These percentages rise quite dramatically when the responses of those groups already highlighted as being particularly dependent on rail are considered (see table 7.14, below).

Disadvantaged Group	% Severe problems	% Some Difficulty
Women	19%	33%
Students	16.2%	33.5%
Retired/disabled	18.8%	33%
17-21 yrs	24.2%	30.6%
Over 71 yrs	26.9%	32.8%

Table 7.14 - Predicted Level Of Problems

The above table (7.14) clearly shows that the proportion of respondents anticipating problems should rail services be cutback or withdrawn rises sharply when specific groups are examined. Each of the groups listed above have been highlighted as particularly dependent on rail services by previous analysis which indicated that far more people in these groups use the train than the expected frequency would predict. Over 50% of respondents in these groups, which represent the highest proportion of rail users, feel they will be disadvantaged should the provision of rail services deteriorate. The implications are clear, should privatisation lead to the changes that the majority of respondents believe will happen a considerable number of people who depend on rail services will be severely

disadvantaged. Any arguments, therefore, that rail services contribute little to the social and economic well being of the communities that they serve must be reassessed as there are certain sectors of the population for whom these services are vital.

Having determined that the majority of respondents view rail privatisation as a considerable threat to the continuity of branch line services, and clearly identified certain sectors of the population who would be severely threatened by any changes brought about by rail privatisation, the analysis will now consider whether or not the impact of such potential changes has any spatial dimension. The final question that remains to be answered is whether there are specific branch lines where the impact of any potential changes would be greater.

7.4 - Spatial Variations

This is the final category of analysis and in this section rail use, frequency of use, percentage of journeys made using the train, travel problems, expected problems, and beliefs about privatisation will be analysed with reference to the branch line that the respondent lives along to see if there is a spatial dimension to the data. In this way it should be possible to determine whether or not specific areas exhibit differences in travel behaviour, the problems experienced in making journeys and use of the train. It is possible that the impact of any changes in service brought about by privatisation will vary along the different branch lines.

The first step in this analysis is to determine whether rail use varies between branch lines. To test whether there are any differences in rail use along the different branch lines a chi square test was carried out on the data. The results indicate that there is a 99.9% probability

that there is a real difference in the level of rail use along each of the branch lines in the sample. The actual and expected levels of rail use vary considerably and there are more rail users on the Tamar Valley and the Truro-Falmouth lines than the expected count predicts and fewer rail users along the Looe Valley and Tarka Lines. Along the St Ives-St Erth line the level of rail use matches the expected count very closely (see table 7.15).

LINE Branch Line by TRAIN_US Train user:

		TRAIN_US		Row Total
		no	yes	
		1	2	
LINE	Count Exp Val Row Pct Col Pct			
1		106	253	359
Tamar Valley Lin		174.8	184.2	20.6%
		29.5%	70.5%	
		12.5%	28.3%	
2		207	141	348
Looe Valley Line		169.4	178.6	20.0%
		59.5%	40.5%	
		24.4%	15.8%	
3		218	139	357
Tarka Line		173.8	183.2	20.5%
		61.1%	38.9%	
		25.7%	15.6%	
4		168	178	346
St Ives-St Erth		168.4	177.6	19.9%
		48.6%	51.4%	
		19.8%	19.9%	
5		148	182	330
Truro-Falmouth L		160.6	169.4	19.0%
		44.8%	55.2%	
		17.5%	20.4%	
Column Total		847	893	1740
		48.7%	51.3%	100.0%

Chi-Square	Value	DF	Significance
Pearson	92.83207	4	.00000
Likelihood Ratio	94.80117	4	.00000

Minimum Expected Frequency - 160.638

Table 7.15 - Chi Square Of Rail Use By Branch Line

Also included in table 7.15 are the percentage of rail users along each line and from this it can be seen that the line most used by the survey respondents is the Tamar Valley line which has a clientele of some 70.5% of the population surveyed. A further two lines, the

Truro-Falmouth and St Ives St Erth lines, are still used by more than 50% of the population surveyed but this contrasts sharply with the remaining lines as only 40.5% of the population surveyed use the Looe Valley Line and only 38.9% use the Tarka Line. This does not, however, indicate frequency of use which is a far better measure of how much use a branch line really receives. In table 7.16, below, a chi square test has been carried out to determine whether there are differences in the frequency of use along each branch line.

LINE Branch Line by RAIL_FRE Frequency of train use							
LINE	Count Exp Val Row Pct Col Pct	RAIL_FRE					Row Total
		Daily	1-3 time s a week	Fortnigh tly	Monthly	Less tha n monthl	
		1	2	3	4	5	

1		12	23	26	49	143	253
Tamar Valley Lin		11.3	19.5	19.3	38.0	164.9	28.3%
		4.7%	9.1%	10.3%	19.4%	56.5%	
		30.0%	33.3%	38.2%	36.6%	24.6%	

2		6	11	10	23	91	141
Looe Valley Line		6.3	10.9	10.7	21.2	91.9	15.8%
		4.3%	7.8%	7.1%	16.3%	64.5%	
		15.0%	15.9%	14.7%	17.2%	15.6%	

3		6	11	18	27	77	139
Tarka Line		6.2	10.7	10.6	20.9	90.6	15.6%
		4.3%	7.9%	12.9%	19.4%	55.4%	
		15.0%	15.9%	26.5%	20.1%	13.2%	

4		9	12	7	13	137	178
St Ives-St Erth		8.0	13.8	13.6	26.7	116.0	19.9%
		5.1%	6.7%	3.9%	7.3%	77.0%	
		22.5%	17.4%	10.3%	9.7%	23.5%	

5		7	12	7	22	134	182
Truro-Falmouth L		8.2	14.1	13.9	27.3	118.6	20.4%
		3.8%	6.6%	3.8%	12.1%	73.6%	
		17.5%	17.4%	10.3%	16.4%	23.0%	

	Column	40	69	68	134	582	893
	Total	4.5%	7.7%	7.6%	15.0%	65.2%	100.0%
Chi-Square		Value		DF		Significance	
Pearson		39.65905		16		.00087	
Likelihood Ratio		41.21910		16		.00052	
Minimum Expected Frequency -		6.226					

Table 7.16 - Chi Square Of Frequency Of Use By Branch Line

The results of the chi square test in table 7.16 indicate that there is a 99.9% probability that there are real differences in frequency of use along each branch line. When the results for each line are examined a pattern emerges whereby rail use along the Looe Valley line is very close to the average, the Tamar Valley and Tarka lines have more than the expected number of rail users on a fortnightly and monthly basis, and the St Ives-St Erth and Truro-Falmouth lines have more than the expected number of rail users on a less than monthly basis. All of the lines display a consistency between the observed and expected counts for daily and weekly use. It is apparent that the figures for rail use, if taken in isolation, tend to distort the actual amount of use a line receives. On the Truro-Falmouth line, for example, which seemed to have more rail users than the expected count would predict, frequency of use is far less than expected apart from less than monthly use which exceeds the predicted count.

When the percentage of each journey type carried out by rail is examined the results indicate that the Tamar Valley line is the most regularly used for a wide variety of journeys (see table 7.17). Whereas the figures for the whole sample showed the level of rail use to be less than 10%, with the most common rail journey being travel to school or college (7.4% of all journeys of this type were carried out by rail), on the Tamar line the most common journey is travel to the shops, with some 16.1% of all journeys to the shops being carried out by train. Travel to work by rail, which accounted for 5.2% of all journeys to work within the whole sample, is also higher on the Tamar Line and here the train is used for 11% of all journeys to work¹.

¹ It was not feasible to carry out a significance test on this data due to the small cell populations for certain journeys, and it is, therefore, impossible to state that there are significant differences in the level of rail use for specific journeys, and the results should therefore be treated with a degree of caution..

It is also possible to pick out specific journeys on other branch lines that attract a higher percentage of travellers than the figures for the whole sample would suggest. On the Truro-Falmouth line, for example, a higher proportion of journeys for leisure, personal business, and visits to the doctor or dentist are carried out by train and on the Tarka line the percentage of rail journeys to school or the shops is slightly higher. All of this helps to reinforce the idea that each line has a value and is used by various groups within the population to fulfil a variety of tasks. Although the Tamar line appears to be the most used, probably because it a) acts as a direct feed to Plymouth city centre and b) is a much quicker journey due to the difficulty of the journey by road, this is not to say that the other lines can therefore be dismissed as being of little value. Each line acts as a vital link with the wider world for the community and, whether seventy per cent of the population or forty per cent of the population use the service, that link needs to be sustained.

Journey	All	Tamar	Looe	Tarka	St Ives	Truro
Travel to school or college	7.4%	8.4%	8%	7.9%	8.3%	3.5%
Travel to shops	7.3%	16.1%	5.3%	7.5%	1.5%	6.2%
Travel to visit friends/family	7%	12.6%	5.2%	5.4%	6.4%	4.7%
Travel to work	5.2%	11%	3.9%	2.9%	5%	4%
Travel to hospital	3.9%	7.9%	4.5%	2%	2%	2.8%
Travel to use leisure facilities	3.8%	4.7%	3.3%	1.3%	3.5%	6.4%
Travel for personal business	3.2%	7.8%	0%	2.6%	1.4%	4.4%
Travel to visit a Dentist	1.5%	2.9%	0%	1.5%	1.2%	1.9%
Travel to visit a Doctor	0.6%	0.8%	0%	0.3%	0.9%	1.2%

*see note on previous page

Table 7.17 - Percentage Of Journeys Carried Out By Train - By Branch Line

So far the analysis in this section has suggested that there is a spatial dimension to the data, with each branch line receiving different levels of use and different frequency of use. Furthermore, the type of journey that a line is most commonly used for also varies. By far the biggest number of regular rail users, who might be deemed at risk of severe disadvantage should provision of rail services change, appear to be those who live around the Tamar Valley line. When the responses to a series of statements about rail privatisation are analysed by branch line, chi square testing indicates that there are significant differences in attitude among respondents living along the different branch lines. Respondents living along the Tamar Valley line appear to have the most negative perception of what rail privatisation will mean (see table 7.18, below). Along the Truro-Falmouth line, by contrast, a higher proportion of respondents believe that privatisation may bring improvements and also agree that they would be willing to pay more to fund the improvements. Nevertheless, the proportion agreeing with more optimistic statements such as privatisation could lead to improvements are very much a minority and the overall view held by a substantial majority of respondents is that service provision on the branch lines is under threat of cutbacks or closure.

Statement	Tamar	Looe	Tarka	St Ives	Truro
*Privatisation could mean closure	85.3%	79.3%	80.2%	80%	82.4%
*Privatisation could mean cuts	84.1%	76.1%	75.9%	72.3%	77.5%
*Privatisation could mean improvements	14.7%	10.6%	14.3%	13%	15.1%
*Improvements would mean more use	69.4%	64.3%	78.7%	72.6%	70.9%
*I would pay more for improvements	14.7%	9.2%	14.3%	13%	21%

*When tested with chi square using absolute values, all of these statements showed significant differences in attitude between respondents living along the various branch lines at the 99.9% significance level.

Table 7.18 - Attitudes To Rail Privatisation By Branch Line

A key question that remains to be answered, therefore, is whether the impacts of privatisation will be felt more strongly along specific branch lines or whether rail users living along all the branch lines will be equally disadvantaged. First it is important to see how many rail users are already experiencing travel problems under the current regime before assessing the degree to which respondents believe they will be disadvantaged should the provision of services change. A chi square test carried out on the data indicates that there are significant differences (at the 99.9% level of significance) in the level of travel problems experienced by rail users along the different branch lines. The percentage of respondents experiencing problems summarised in table 7.19, below, suggests that rail users living along the Looe Valley line are currently the most disadvantaged with 31.9% experiencing travel problems. Around 20% of rail users along the Tamar line, the Tarka line and the St Ives-St Erth line also experience problems. However, the proportion of rail users experiencing problems on the Truro-Falmouth line is much lower. An explanation for this may be found in the frequency of trains along these lines as, apart from on the Truro-Falmouth line, trains do not stop at every station on every trip (see chapter 4, table 4.2), or in the lack of a year round Sunday service or late evening service along some of these lines. Rail frequency, Sunday services and late evening services have all been highlighted as possible solutions to travel problems experienced (see table 7.9).

Branch Line	% Experiencing travel problems
Tamar Valley Line	20.2%
Looe Valley Line	31.9%
Tarka Line	20.1%
St Ives-St Erth Line	19.7%
Truro-Falmouth Line	13.2%

*significant differences exist in the number of respondents experiencing difficulty along each branch line.

Table 7.19 - Respondents Experiencing Travel Problems By Branch Line

When the level of predicted problems were examined by branch line, a chi square test again revealed significant differences in the levels of predicted problems along each of the branch lines. It would appear that the level of travel problems currently experienced are not necessarily classed as severe. The only line where the predicted level of severe problems exceeds the level of travel problems currently experienced is the St Ives-St Erth line (see table 7.20). Along the remaining lines it is only the predicted level of some difficulty that exceeds the current level of problems experienced. Nonetheless, the overall predictions on expected problems that will be experienced should rail services be cut back or closed are high, with the greatest increase along the St Ives-St Erth line where some 55% of rail users expect to experience either severe problems or some difficulty. The conclusion is, therefore, that a substantial proportion of rail users along each of the lines will be disadvantaged should rail provision change, with the greatest increase in travel difficulties occurring along the St Ives-St Erth Line.

Branch Line	% Severe problems	% Some Difficulty
Tamar Valley Line	15.9%	28.7%
Looe Valley Line	24.8%	24.8%
Tarka Line	13.7%	33.8%
St Ives-St Erth Line	21.3%	33.7%
Truro-Falmouth Line	9.9%	26.9%

*significant differences exist in the number of respondents predicting problems along each branch line.

Table 7.20 - Predicted Problems By Branch Line

In this chapter the factors surrounding rail use have been subjected to a detailed examination to try and determine who uses the train, what the advantages and disadvantages of rail travel are, what factors control rail use, to what extent perception of services will influence rail use, perception of rail privatisation and whether there are any spatial influences on rail use. It was possible to confirm previous observations that

suggested that key rail users are women, students (who are frequent users of rail services), the retired or disabled, young people under twenty one years of age (who are, again, particularly frequent rail users), and the elderly over seventy one years of age. The analysis did serve to highlight the complexity surrounding the provision of rail services as each of these groups have a specific set of needs that are carried out at different times and different frequencies. Providing a rail service which could accommodate all of these requirements would be difficult and will form part of the discussion in the next chapter. Most people cited the convenience of rail transport and a preference for rail travel as a key reason for using the train, though the ability to carry out long distance travel in comfort was also a strong motivation. Respondents who always have access to a car also use the train for similar reasons and make up 67.3% of rail users, though they travel by rail less frequently. Concern for the environment was also highlighted as one of the reasons that people use rail transport and, in the future, could become a major factor in determining levels of rail use, something that will be discussed in the next chapter. Again, among the different groups of rail users who were highlighted there is considerable variation in the reasons for using the train and certainly, in the case of young people under twenty one, there seems to be no alternative form of transport available. Analysis in chapter six revealed that rail users are much more likely to suffer travel problems than non-rail users. In this chapter the nature of these problems was explored and certain key findings emerged such as the lack of frequency of trains, lack of Sunday services and lack of late evening trains. Improvements that may attract more rail users will be the subject of further discussion in the next chapter. The role of perception and the need to enhance the image of rail transport in the eyes of non-rail users has also been highlighted as one of the issues which needs to be addressed and, finally, the need to ensure that the privatisation of the railways does not lead to the closure of branch lines must be examined. Some of the issues raised in this chapter have

suggested that there may be ways of encouraging more passengers onto the branch lines, something which, should it prove possible, would serve to greatly improve the chances of rural rail transport in Devon and Cornwall. In the next chapter the various issues surrounding branch line railways will be discussed and related to the analysis carried out in previous chapters.

CHAPTER 8 - The Future Of Rural Branch Lines

This chapter will discuss in more detail the results of the analysis presented in the previous three chapters in relation to the central hypothesis of this thesis; namely, that rural accessibility promotes the continued social and economic well-being of rural communities and their inhabitants and that rail privatisation poses a threat to the continued operation of the rural branch lines and, as a consequence, the sustainability of rural communities.

At the start of this thesis it was postulated that the impacts of rail privatisation and any subsequent service cutbacks or closures would not be universally felt among rural communities and that the proposed survey would, in all likelihood, identify certain sectors of the population among whom the impacts would be greatest. One of the key findings of this research is that there are indeed clearly identifiable sectors among the sample population who display a considerable dependency on the availability of rural rail services and for whom branch line services provide a vital link with the wider world. However, the work carried out in chapter five to check the validity of the data indicated that the sample was not a perfect representation of the wider population. This chapter will therefore start by examining the validity of the results and assessing the extent to which they accurately represent the travel patterns, levels of rail use and opinions of the wider population rather than merely reflecting the views held by the survey respondents.

The discussion will then evaluate the progress of rail privatisation so far, considering the affect that this may have on consumer confidence and the potential impacts on rural communities and their residents of rail privatisation, particularly in the context of possible rail service cutbacks or even closures. Although based primarily around a hypothesis that

rail privatisation poses a threat to the future of the branch lines the discussion will present three possible scenarios; rail closures, cutbacks in service, and improvements to branch line services.

Gender, age and employment status were all found to be factors that influenced the likelihood that a person would be dependent on rail services. Women, young people under 21, elderly people over 70, students and the retired and disabled, are the people most at risk of deprivation should the provision of branch line services change. The severity of the impact depends on the degree of change. Closure of branch lines would disrupt severely the ability of these people to carry out their daily lives whereas the impact of service cutbacks depends on the type of cuts implemented. Either scenario will lead to potential hardship amongst the most vulnerable sectors of the population and, as well as impacting on the community, could also lead to an increased number of cars on the road. This is an additional impact that, given the current concern over environmental issues and the role of the car in generating increased pollution and congestion, will become a major issue in the future.

There is, of course, the possibility that privatisation will lead to improvements in branch line services rather than their demise. In addition to identifying the people most dependent on branch line services it has also been possible to determine the major influences and constraints currently inhibiting rail use. This information will be used to suggest areas where improvements could be implemented. The discussion will, therefore, examine how some of these constraints can be removed by addressing more closely the needs of the passenger, thereby enhancing the passenger environment and, potentially, increasing rail use. This is an important consideration as the amount of use a branch line receives is likely

to influence the eventual outcome of rail privatisation by dictating whether or not a line is financially viable. A line that is underused and therefore uneconomic is inevitably more at risk of closure than a line that is well used by the local population. A particularly successful strategy that has already been adopted in Devon and Cornwall is the creation of a rail partnership that encourages both locals and visitors to make use of branch line services. The final part of this chapter will, therefore, examine the role of the rail partnership and the initiatives adopted to increase rail use.

8.1 - Verifying The Results And Analysis

The work carried out in chapter five to check for any potential bias in the data set indicated that the sample was not a perfect representation of the wider population. Women were over represented in the sample as were respondents under sixteen years of age and over retirement age. Car ownership was also imperfectly represented in the sample as households without a car were consistently under-represented and households with two cars were over-represented. The majority of the analysis has, however, been unaffected by this bias because most of the work carried out on the basis of gender, age or access to a car took the form of chi square testing which compares the observed count with the expected count based on the overall distribution of the data set.

The only analysis where the results may have been affected by the imbalances in the data set was the spatial analysis of the distribution of rail use by branch line which made direct comparisons between the different lines. This is because the over or under representation of certain sectors in the population was not consistent at branch line level. Women, for example, who were over represented in the whole sample, proved to be a minority on the St Ives-St Erth line where men were over represented. With regard to the age distribution of

the sample, although respondents under sixteen years of age and over retirement age were generally over represented this pattern was not common throughout the branch lines. Under sixteen's were over represented along the Tamar, Looe and Tarka lines, and along the St Ives-St Erth and Truro-Falmouth lines it was respondents over retirement age who were over represented.

Whilst the analysis indicated that there was a spatial dimension to rail use, frequency of rail use and the levels of dependency, these results must be viewed with a certain amount of caution due to the potential for bias. It is possible, for example, that respondents living along the St Ives-St Erth line, who seemed to display the greatest dependency in terms of predicted levels of hardship should the provision of rail services change, reflected the imbalance in the sample of the number of elderly residents rather than a genuinely higher level of dependency. Against this argument, however, is the fact that the Truro-Falmouth line sample also had a higher than expected number of elderly and yet appeared to have the lowest proportion of anticipated problems should rail service provision change. Similarly, the high levels of use along the Tamar line may simply reflect a higher proportion of young people, whom the analysis highlighted as a group who were both more dependent on the train and used the train more frequently. In this case the supposition is reinforced by the fact that travel to the shops was highlighted as the most frequent journey on the line and was also found to be a rail journey carried out by a much higher than expected number of 12-16 yr olds and 17-21 yr olds (see table 6.3, chapter six). These findings do not invalidate the results and analysis that have been carried out so far. The key findings of the research serve to confirm the central hypothesis which is that if rail privatisation poses, or is perceived to pose, a threat to the continued operation of the rural branch lines, this will threaten both the continued social and economic well-being of rural communities and their

inhabitants. Any attempt to determine whether there is a spatial dimension to the data is, however, at risk of an element of bias towards the groups that were over represented in the data set which suggests that the strongest factor in determining levels of deprivation should branch lines close is the dependency of the individual rather than the area (though an area with a higher proportion of elderly people, for example, may be deemed more vulnerable). In a thesis which aims to determine the social and economic impacts of rail privatisation on the communities served by branch lines the analysis has, therefore, provided an accurate overview of rail use, frequency of rail use, dependency levels, attitudes and perceptions and the potential impacts of privatisation among the residents in the areas under consideration.

In the next section the implications of rail privatisation and the potential impact on the communities served by branch lines will be discussed together with the broader implications for the long term future of environmental policies designed to reduce the use of the car. Three scenarios will be evaluated; closure of the branch lines, cutbacks in branch line services and improvements to branch line services.

8.2 - The Potential Impacts Of Rail Privatisation

One of the initial impacts of rail privatisation has been the loss of confidence in the future of the railways. The survey that was carried out highlighted this loss of confidence among rail users and non-rail users alike. More than 75% of respondents, a considerable majority, believe that privatisation will lead to service cutbacks or even closures, a belief that only time and the continued operation of branch line services could erase. The discussion will, therefore, evaluate the progress of rail privatisation to date and determine whether the results so far reinforce the negative perceptions of the majority of the survey respondents. The potential impacts of rail privatisation will then be assessed by looking at three possible

scenarios, namely closures, cutbacks or improvements. In the case of closures or cutbacks this will entail evaluating the levels of deprivation that will be felt amongst the more vulnerable members of a rural community and the impact that this might have within the community as a whole. The broader implications of increased congestion and pollution brought about by the need for alternative transport, namely the car, will also be considered in this section. The potential for improvements will similarly be assessed using the survey results to provide background information on the types of travel difficulty currently experienced and the solutions to these problems suggested by the survey respondents.

8.2.1 - Loss Of Confidence In Branch Line Services

The survey results highlight the fact that, despite reassurances to the contrary, a substantial majority of respondents believe that the privatisation of rail services will lead, ultimately, to cutbacks and closures along their branch line. Very few respondents took a more optimistic view that privatisation would lead to improvements. This is likely to have an impact on the levels of use that a branch line receives if passengers start to make alternative travel arrangements and begin to 'drift' away from the railways, something that was noted in the uncertainty following bus privatisation (Knowles & Hall 1992). Reversing this trend will not be an easy task for the railway company, passenger levels are already low and it is important to retain the existing client base. A key factor in rebuilding passenger confidence will be the changes made to services in the first year of private sector operation. If the proposed improvements cited by Prism Rail (who have taken over the franchise of South Wales and West Railways) are swiftly carried out, and include improvements to branch line stations and rolling stock, this could provide the proof that the service is to be retained and upgraded thus boosting passenger confidence (OPRAF 1996b). Preventing a reoccurrence of the events of 1995/96, when a shortage of rolling stock on the

Par-Newquay line led to buses being substituted for trains, would, for example, suggest that the company is committed to retaining the service. If, on the other hand, the service appears to stagnate with no signs of improvement there is a real risk that passengers will feel that their gloomy prognosis for the future of the branch lines is being confirmed. A key task for the new franchise holder, should they wish to retain rural rail services, is therefore to rebuild passenger confidence in the future of branch line services.

To combat fears of service cutbacks or closures the passenger service requirement for each franchise lays down the minimum timetable that is acceptable (OPRAF 1996a). Recent developments on one of the early franchises to be awarded, South West Trains, suggests that this protective mechanism is not necessarily successful. In February 1997, South West Trains announced that they were putting an emergency timetable in operation that cancelled more than 190 trains a week (Harding 1997). This move followed four weeks of ad-hoc cancellations and the emergency timetable remained operational for six weeks (Harper 1997). There are, of course, financial penalties attached to such actions, with fines of up to £600 for a peak time cancellation, but none of this helps those members of the travelling public who are dependent on the cancelled services and suddenly find themselves without transport. Thus, one worrying factor has already emerged which can have considerable implications for the provision of reliable services on rural branch lines. In addition, the loss of scheduled services, however temporarily, will serve to alienate the existing passenger base by forcing them to adopt alternative modes of transport for the duration of the crisis. Even if services are eventually reinstated there is a risk that not all the previous rail users will return to the branch lines, for some the temporary alternative will become a permanent change. An additional risk is that a further loss of confidence in rail services will serve to alienate the more casual rail user. This crisis in the operation of one of the first franchises

to be awarded has attracted considerable media attention and has led to an increased fear that privatisation threatens the continued operation of rail services. OPRAF, however, state that they would take out an enforcement order against South West Trains and, furthermore, would take over the running of the franchise should the situation remain unresolved thus ensuring the continued operation of services (OPRAF 1997a). Nevertheless, passenger confidence appears to remain low and any loss of passengers as a result of this lack of confidence can only jeopardise the future of the branch lines by making uneconomic services even less economically viable.

8.2.2 - Closure Of Branch Line Services

In addition to the shorter term impacts concerning the current loss of passenger confidence there is still the unanswered question about what the future really holds for rural branch lines. In this section the possibility that rail privatisation will lead to closure of the branch lines will be explored and the impact that such a scenario would have will be assessed. At the start of this thesis it was stressed that there is currently no real evidence that rail privatisation is going to lead to cutbacks or closures of rail services on the rural branch lines in the immediate future. However, scrutiny of other recent privatisations suggests that there is a tendency to curtail uneconomic activities in newly privatised companies. While the current generation of franchises have safeguards to ensure that the service continues at approximately the same level as the pre-privatisation timetable, the future provision of services when the second generation of franchises are awarded remains uncertain. If the railways are opened up to the full effects of competition, uneconomic services are likely to suffer as competition grows on the more economically viable lines associated with a franchise. For the branch lines, which lie at the periphery of the rail network, such a scenario could possibly lead to decline and, ultimately, closure as resources are focused

away from the rural networks and concentrated on the more economically viable parts of the network instead.

The aim of this thesis was to explore the central hypothesis that rural accessibility permits the development and sustainability of the social and economic lives of a community and the results of the survey that was carried out along five branch lines in Devon and Cornwall indicate that substantial numbers of people will be affected should branch line services close. Of a sample of 1,740 people some 893 use the train (51.3%) and 827 of these (47.5%) identify the branch line as being important to them. Among certain sectors of the population rail use was much greater and it was possible to clearly identify those groups most dependent on branch line services, namely women, young people under 21, elderly people over 70, students and the retired and disabled. These results indicate that little has changed since Hillman and Whalley carried out a survey along ten closed lines in 1978 (see Hillman & Whalley 1980). The overall patterns of rail use are similar and the groups of people that Hillman & Whalley (1980) found to be particularly dependent on rail, especially women and the elderly, continue to display similar levels of dependency. This suggests that the impact of rail closures on the branch lines in this survey may be very similar to that observed by Hillman & Whalley in 1978 and their results will be used to evaluate the most likely outcome of closures along the branch lines included in this study.

In their report on the closure of ten railway lines sited in rural areas throughout England, Wales and Scotland, Hillman & Whalley (1980) were forced to conclude that the lives and travel patterns of many people had been adversely affected with very few people not inconvenienced by the closure. Furthermore, they concluded that the low levels of use of each train did not reflect either a low level of need or a low level of preference, even

among members of car owning households (Hillman & Whalley 1980). In particular, Hillman & Whalley (1980) found that it was women and the elderly who were hardest hit and, while nearly 75% of necessary journeys such as work or school and college continued with the same frequency, it was travel for social or leisure purposes that was most affected, with over half of these journeys being discontinued. Another survey, carried out on the Settle-Carlisle line in 1985, also found that a substantial number of journeys, in this case 41.97% of all journeys carried out by rail, would be discontinued should the line close (Settle and Carlisle Joint Action Committee 1985). A similar pattern of disadvantage is likely to be found in the current survey areas should services discontinue, with the groups most at risk of being severely affected being the elderly, women and young people (particularly those aged 17-21 yrs). Though it would appear, from Hillman & Whalley's (1980) findings, that young people and students will be more likely to adjust to the change because of the necessity of their journeys whereas women and the elderly are more likely to curtail their activities.

The current survey, carried out on five branch lines in Devon and Cornwall, indicates that the level of expected problems is highest among the most disadvantaged groups with 52% of women, 49.7% of students, 51.8% of retired and disabled, 54.8% of 17-21 yr olds and 59.7% of persons over the age of 71 yrs predicting that they would suffer severe problems or some difficulty should branch line services suffer closure. This is a significant proportion and it suggests that the levels of disadvantage will be high should service levels alter. These groups depend on the train to carry out a wide variety of tasks: particularly travel to work, travel to school or college, travel to the shops, travel for leisure pursuits and travel to visit friends and family. Without the availability of branch line services it would appear that the ability to carry out most of these activities could be curtailed and, with the

exception of travel to work and college, many of these journeys will no longer take place. Thus the impact on some sectors of the population could be devastating and restrict their ability to carry out the trips that are necessary for a full economic and social life. A further concern is that the impact of rail closures may even extend beyond those groups that are most dependent on rail services and be felt throughout the community as a whole. An additional finding of the Hillman and Whalley (1980) survey was that many respondents mentioned people moving away from the areas affected because of transport problems brought about by the branch line closures. There was also a suggestion that the closures had contributed towards the changing age and social structure of the rural community with young people and older people without cars leaving and being replaced by people in white collar households who could deal with local transport problems because they had access to a car (Hillman and Whalley 1980). Thus it would appear that the overall well-being of rural communities may depend as much on the availability of branch line services as does the well-being of the individual members of each community.

It can, of course, be argued that with the somewhat limited use the railways currently receive it might be better to replace the existing branch line services with a comprehensive bus service and allow the branch lines to close. A solution which would ensure that the more vulnerable members of society can still make necessary journeys. There are, however, two major objections that can be used against this argument. First, the majority of rail users already live closer to a bus stop than to a railway station and yet still choose to use the train despite the fact that both bus and train generally serve the same destination. This is primarily because of the convenience and speed of rail transport compared to bus services. There is no evidence to suggest that replacement bus services would be used by the majority of ex-rail users. Hillman & Whalley (1980) found that the level of transfer from

train to bus was low and that rail users were more likely to either curtail their activities (which happened in the case of women and the elderly in particular) or find an alternative means of transport (car ownership levels increased more around the closed lines than in comparable areas). In addition, car owners, who had previously been happy to use the train as an alternative means of transport, were observed to increase their use of the car rather than transfer to bus services (Hillman & Whalley 1980).

Second, a further major objection against replacing rail services with a bus concerns the resulting increased car use, an impact noted by Hillman and Whalley (1980). There are genuine concerns over increasing numbers of motor vehicles on the roads and the associated levels of congestion, pollution, and land taken up for road schemes (Hansard 1997, Environment Agency 1996). Current government policy is that the only solution is to try and reduce levels of car use and encourage the use of alternative means of public transport (Hansard 1997). The train is an ideal means of transporting large numbers of people into the heart of a city and any moves to close railway lines need to be considered carefully as these lines could be of enormous importance in the future when there is a possibility that car use, especially into already congested cities, is severely penalised. The Road Traffic Reduction Bill (1997), which was debated in Parliament, would, if passed, oblige Local Authorities to prepare plans to reduce traffic (Hansard 1997). Replacing rail services with a bus, perhaps leading to increased car use and certainly leading to more vehicles on the road, whether bus or car, could, therefore, turn out to be a short-sighted move that needs to be reversed rapidly in the future. Three of the branch lines in the study feed directly into the centres of the cities of Truro, Plymouth and Exeter while the other two provide a link to the towns of Liskeard and Penzance. The cities of Truro, Exeter and Plymouth already have park and ride bus schemes to reduce congestion and yet the

opportunity afforded by a branch line that runs into the heart of the city has so far been largely overlooked. All of these branch lines serve a large rural catchment that, today, with the changing population structure of rural areas, comprises many commuters who travel daily to their place of work in the city.

There is evidence among the survey respondents that concern for the environment, together with the frustration of travelling on congested roads, is already influencing rail use. Indeed, 17.5% of the survey respondents cited environmental concerns as a reason for using the train. There is a growing awareness that the pollutants produced by road traffic can no longer be ignored and, in addition, there are concerns for the future of fossil fuels, a resource which, it is predicted, will eventually be exhausted (Lean et al. 1990). Energy efficiency is, therefore, an additional consideration. Both bus and train are cited as being equally energy efficient but, in terms of pollutants (measured in g/passenger km), the bus is marginally preferable to the train (Carpenter 1994). However, previous studies indicate that in rural areas people do not necessarily transfer to the bus if a branch line closes and instead use the car (Hillman & Whalley 1980). The bus is an excellent form of transport in the towns and cities but, because of the length of journey and the nature of the roads that run between rural settlements, is a less popular form of transport among rural communities (Carpenter 1994). The use of branch line services as commuter lines into the centre of cities would be far less environmentally damaging than the number of cars currently making the journey and would also serve to retain branch line services for the whole community. It is important, therefore, to ensure the continued operation of the branch lines in the immediate future while the long term strategies for reducing road traffic, which should include diverting commuters on to rural branch lines, are being devised.

8.2.3 - Cutbacks In Branch Line Services

The discussion so far has considered the likely outcome of branch line closures. Clearly large numbers of people would be affected by such an outcome and for certain sectors of the population line closures could interfere severely with the ability to carry out their daily lives. An alternative scenario, that of service cutbacks rather than closures, could, however, prove to be equally damaging, depending on the nature of the cuts implemented.

Cutbacks in service often take the form of decreased train frequency, either by cutting the number of trains running or by cutting the frequency with which a train stops at the smaller, less used stations along a route. A report produced in 1976 by the Transport Studies Group based at the, then, Polytechnic of Central London, noted that the reduction in service frequency to intermediate stations on the Exeter-Barnstaple line (now known as the Tarka line) implemented in 1963 resulted in a drop in the number of passengers of more than 75% by 1975 (Williams and Heels 1976). Obviously the increased inconvenience of journey times associated with rail travel after these cuts had either led to alternatives being found or, possibly, to the journey no longer being carried out.

Women are likely to be hardest hit by a change of this nature. The survey found that women tend to use the train 1-3 times a week, generally to go shopping. One of the problems that respondents along certain lines mentioned, when asked for any additional comments, was the inability to catch a train to the local town or city and return in time to pick the children up from school. This may account for the relatively low levels of use among housewives who often have a responsibility to pick up the children after school. The current timetable tends to allow either too little or too much time in town thereby making a shopping trip an inconvenient chore and a nearly impossible journey if it is important to

return by the time school finishes. This problem is not apparent on all the branch lines and in West Cornwall the St Ives-St Erth line and Truro-Falmouth line provide a fairly frequent trip to the nearest city (Penzance or Truro) which can easily be undertaken during school hours. On the Liskeard-Looe line, however, there are considerable travel difficulties already, particularly from intermediate stations such as St Keyne, because the service does not stop at every station on every journey. There is only one train which permits access to Liskeard (the nearest town) from every station with a return journey possible within school hours, and this only allows 1hr and 12 mins in Liskeard including the time needed to get from the station to the town centre (approximately 15 minutes walk each way), not a particularly satisfactory length of time. There are similar problems on the Tamar and Tarka lines, especially the Tarka Line where, again, the train does not stop at every station on every trip.

If service frequency were to be reduced still further it is probable that many of those journeys, currently undertaken by rail, would be terminated due to the inconvenient timings. Indeed, the results from Williams and Heel's (1976) study indicate that a drop in the number of passengers of more than 75% would be possible, suggesting that many of these journeys would be discontinued altogether leading to considerable deprivation among dependent groups.

A reduction in service frequency would also impact on the other groups identified as being particularly dependent on branch line services. The retired, especially elderly people over the age of seventy, for example, tend to use the train primarily for visiting friends and family. A journey which often involves a transfer from branch line to main line services, suggesting that elderly people need branch line services that are scheduled to fit in with

connecting Inter-City services thus avoiding a long and frustrating wait for the next train. The provision of connecting services is already unsatisfactory, with long waits for a connecting train, and any reduction in service frequency is likely to exacerbate this situation. On the Looe Valley line, for example, the wait for a train to London that links with a branch line service ranges from 26 mins to 1hr and 28 mins, though for services to Bristol and the North the wait for a connection train is generally around 20 minutes. A similar waiting time for connections exists on the other branch lines in Devon and Cornwall and this could become more protracted if the branch line services experience a cut in frequency. The survey results indicate that, while elderly people are more likely to use the bus for travel within the immediate area, they are particularly dependent on the train for visits to friends and family. Prolonged waiting times could make these journeys particularly difficult and lead to an inability to carry out journeys of this nature, thus depriving the retired, especially elderly people over the age of seventy, of the opportunity to visit friends and family.

Another group for whom social and leisure journeys feature strongly are young people under the age of twenty one and students. While a reduction in service frequency may not have too great an impact (many of their daily journeys such as travel to school or college may be deemed a necessity and are therefore prioritised, while travel to shops is carried out with fewer time constraints), a reduction in service due to cuts in evening and weekend trains would present more of a problem. Travel for leisure purposes or to visit friends has been highlighted as one of the more problematic journeys (see chapter seven). Many leisure activities take place in the evenings and at weekends and current rail services do not cater very well for this type of journey. The lack of late evening trains and year round Sunday services has been highlighted as one of the main causes of travel difficulties (see chapter

seven). As the current timetables stand the last train to run on a branch line in the evenings is the 9pm service which runs from Plymouth to Gunnislake on the Tamar Line. Along the St Ives-St Erth and Truro-Falmouth lines the last trains of the day run at 8.30pm, on the Tarka line the last train from Exeter is at 8.00pm and on the Looe Valley line the last train leaves Liskeard at 6.07pm. Already the situation is far from ideal and if the times of the last trains were to be brought forward even more then the ability of people to enjoy a varied social life would be severely constrained, particularly for young people and students who are frequent rail users. Similarly the lack of a Sunday rail service can seriously handicap someone wishing to visit friends or participate in leisure pursuits. Within the current timetable provisions, with the exception of the Tarka Line which has a year round Sunday service, Sunday services only run for a limited period in the summer along each of these branch lines and there is no Sunday service for the rest of the year. Were the service to be cut even further, with Sunday trains dropped from the timetable, there would be no opportunity to participate in leisure or social activities during the summer thus depriving the dependent rail user still further.

It would appear that the impact of service reductions could be as damaging to the long term future stability of the community as the prospect of closures would be. The dependent groups, identified in the survey results, are particularly vulnerable to the impact of service reductions because most of their travel is not completed during 'peak' commuter times (early morning and early evening) when the service is most likely to continue relatively unchanged. The results of Williams & Heel's (1976) study indicate that there is a very real prospect of discontinued journeys which suggests that some members of the rural community will no longer participate in the activities which previously formed part of their lives. It is also worth considering the impact that a loss of perhaps 75% of the passengers

would have. For many years rural branch lines have been vulnerable to proposals for closures based on financial constraints brought about by low passenger loadings and high levels of subsidy. The loss of a significant number of passengers, brought about by a reduction in service, could well lead to new proposals to close branch lines where the passenger levels no longer justify the investment.

This thesis set out to investigate the hypothesis that rural accessibility permitted the development and sustainability of the social and economic lives of a community and the results of the survey indicate that branch line railways do indeed play an important role in permitting members of the community to carry out the tasks necessary to their daily lives. It was further hypothesised that the interrelationship between rural accessibility and the development and sustainability of the social and economic lives of a community is currently threatened by rail privatisation. The discussion so far has evaluated two possible scenarios for the future of privatised rural branch lines, closures or cutbacks in service. In each case it appears that there are clearly identifiable members of a rural community who, because of their dependency on rural branch lines as a means of transport, are likely to suffer deprivation as their link with goods and services unavailable within the vicinity of the rural community is severed. It is also likely that the impact of cutbacks or closures will have broader implications for the community as a whole. Hillman and Whalley (1980) found that many of their respondents suggested that branch line closures were a key factor in the changing age and social structure of a community as young people and the elderly without cars left and were replaced by car owning, 'white' collar households.

It is clear that the branch lines do indeed play a vital role within the community and the loss of branch line services would have a considerable impact on the social and economic

well being of both individuals and the community as a whole. Although many commentators believe that rail privatisation will indeed lead to service reductions or even branch line closures (see for example Salveson 1993, Platform 1993), franchise agreements contain commitments to not only retain but to improve existing passenger services. The discussion will now consider a third scenario, that of improvements to branch line services, and the findings of this research will be discussed in relation to areas of potential improvement which could highlight possible strategies for increasing future rail use and ensuring the continued viability of rail services in rural areas.

8.2.4 - The Scope For Improvement

One of the key issues that this research has highlighted is the complexity of rail use and the associated problems of trying to provide a service which will cater to the needs of the people who depend on the train as a means of transport. In addition, it is also necessary to consider the needs of those who use the train not because they have to but because they choose to. As Carpenter (1994) points out:

"More significant to total demand for rail services is the proportion of people who find enjoyment and convenience in travelling by train whether for business or anything else..... passenger environment is therefore a significant factor to those travellers who have any choice." Carpenter, 1994, pp.58.

Thus comfort and convenience of service must be considered alongside frequency and reliability when the provision of services is under consideration. One further factor, the cost of rail travel, also needs further consideration as many respondents expressed a belief that rail travel was too expensive to allow regular rail use.

Adequate service provision, in combination with enhanced passenger environment and more affordable fares, could well attract more passengers therefore ensuring that branch line services are more likely to continue to run. By far the biggest group of potential rail users are motorists who currently use their cars to travel into already congested cities. There are already signs that this will be discouraged on environmental grounds in the near future and addressing the needs of the rural motorist will, therefore, be another challenge for the railway company that wishes to attract more passengers.

8.2.4.1 - Service Frequency And Timing

Several specific groups of respondents were highlighted as being particularly dependent on using the train. These were: women, youngsters under twenty-one years of age, persons over the age of seventy, students and the retired and disabled. In each of these groups the level of rail use was higher than the expected count would have predicted. Overall, the most dependent group appears to be young people under the age of twenty-one years as they use the train most frequently. There is, however, a tremendous variation in type of journey undertaken and the overall frequency with which the different groups highlighted tend to use the train. One of the key issues surrounding service provision is, therefore, adequately timed trains whose frequency and reliability allow members of these dependent groups to carry out the variety of journeys and associated tasks which form part of their daily, weekly or monthly schedules.

The survey clearly identified problems with service frequency, lack of late evening trains and lack of year round Sunday trains. All these problems act as constraints on rail use and deter would-be rail users from catching a train. The discussion concerning service cutbacks (section 8.2.3) also identified the impacts that would be felt should these problems increase

due to cuts in the timetable. However, should privatisation lead to improvements in rail services these are areas where a train operator could explore the possibilities of an enhanced service for passengers which could well lead to increased use.

Any timetable wishing to attract women, particularly housewives, for example, would be best advised to run trains which are both timed around the school timetable, thus allowing the journey to be carried out while the children are at school, and timed to enable a return journey to be made after a reasonable length of time has elapsed. The current timetable (see discussion in section 8.2.3) does not cater fully for this type of journey and yet the survey results indicated that there is a need for services of this nature.

Improvements to rail frequency, with attention to the convenience of train timetables, would also benefit members of the other groups highlighted as dependent on rail services. Overall, 49.2% of rail users felt that more frequent trains would solve a lot of their travel problems and 42.6% felt that more conveniently timed trains would alleviate their problems. Any branch line operator wishing to implement improvements would be well advised to examine the frequency and convenience of the current timetable as this has been highlighted as one of the key areas that currently leads to problems.

Associated with issues of service frequency and convenience is the provision of branch line trains that co-ordinate with main line services. None of the Cornish branch line timetables allow a traveller to get to London before 12.25pm, an oversight which possibly deters a lot of business travellers and, in addition, the majority of services fail to co-ordinate with main line services. Current waiting times for a connecting train range from 26 mins to 1hr and 28 mins, an inconvenience which, should service frequency deteriorate, will only become

more protracted. The elderly and retired, who tend to use branch line services primarily to visit friends and family, are particularly vulnerable to problems of this nature as the majority of their journeys involve connecting with main line services. The overall picture is, in the main, one of an inappropriate timetable which does not facilitate easy access to the main line Intercity network which people wish to connect to when travelling long distance. There is tremendous scope for improvement here and an 'overhaul' of the existing branch line timetables, carried out in the context of specific journeys such as shopping trips timed around school hours, business trips to London and connections with main line trains, could make the railways more convenient to use.

The survey found that the most frequent users of rail services are students and young people and their needs not only encompass school and college travel but also trips to the shops, for personal business, to visit friends and for leisure activities. School or college travel is generally well catered for, and trips to the shops and for personal business can be carried out as part of the school or college day, but visiting friends and participating in leisure activities can already be a problematic journey (see section 8.2.3). An additional means of improving branch line services, which would be of particular benefit to this category of rail users, would be to schedule trains around the true needs of the passengers by incorporating late evening trains and year round Sunday trains. Some 53.6% of rail users felt that late evening trains would solve their current travel difficulties and 48.6% of users felt that Sunday trains would be of help. The current branch line timetables do not cater particularly well for the leisure activities enjoyed by most people such as visits to the theatre or cinema, meals out, visits to public houses, social events and sports activities, for example. Even when it is possible to attend a leisure activity it is likely that the evening will be curtailed by the need to catch the 'last train home'. One way to improve services,

and potentially attract more rail users, would be to run late evening trains, departing at around 10.30pm or 11.00pm, on each of the branch lines to transport people home after a night out in the nearest town or city. Equally the reintroduction of year round Sunday services would also give people the opportunity to participate in leisure activities, visit friends or even go shopping. The opportunity for the railways that Sunday shopping in the bigger towns and cities such as Plymouth and Exeter could prove to be has not, so far, been acknowledged by the timetable planners.

Obviously the train is used by a wide variety of people for a wide variety of journeys and the ability to undertake these journeys needs to be protected for all members of the travelling public, but the groups highlighted above are particularly dependent on the availability of flexible, well timed trains. The proposed improvements (see summary in table 8.1, below) will not only benefit those groups highlighted in the discussion so far, they should also prove attractive to other rail users thereby increasing rail use and, possibly, to non-rail users, encouraging them to use rail transport because it is the more convenient form of travel. The analysis carried out in chapter seven indicated that there is a substantial group of non-rail users who never or sometimes have access to a car, in fact 28.3% of those who never have access to a car and 40.9% of those who sometimes have access to a car do not currently use the train. Although the reasons for this unwillingness to use the train are often financial (48.7% of those who never have access to a car and 49.1% of those who sometimes have access to a car felt that the train was too expensive to use) a higher proportion felt that train times were inconvenient or too infrequent. Thus improved service frequency and timing could prove attractive to those who currently don't use the train.

Proposed Change to Current Schedule	Main Group Benefitting	Other Groups Benefitting
Trains to fit school timetables	Women	Non-Rail Users
More frequent trains	Women, Elderly, Young People.	All Rail Users Non-Rail Users
Late evening services	Women, Elderly, Young People.	All Rail Users Non-Rail Users
Year round Sunday services	Women, Elderly, Young People.	All Rail Users Non-Rail Users
Timed to fit Inter-City timetable	Elderly	All Rail Users Non-Rail Users

Table 8.1 - Summary Of Proposed Timetable Changes And Benefits

The provision of a more comprehensive timetable is not an easy task. A major overhaul of train frequency on these lines would, for example, be nearly impossible because the single track acts as a major constraint on the frequency with which trains can travel. It may, however, be possible to revise the timetable to take into account the amount of time between return trains (especially where the train does not currently stop at every station on every trip), make allowances for the school timetable and allow a better link into the main line Intercity services. The most costly improvements to implement would be the provision of late evening and Sunday services, initially these would run at a loss but there is a possibility that a convenient, well marketed service would prove popular and attract a substantial number of rail users.

Improvements to the timetable, though not impossible, would entail a considerable amount of planning coupled with a willingness to invest more heavily in both services and marketing in the belief that the investment will eventually become profitable. So far Prism Rail PLC., the company which has taken over the franchise for South Wales and West

Railways Ltd., has committed itself to improve on the Passenger Charter by raising the punctuality target from 90% to 92% of trains and the reliability target from 99% to 99.5% of trains (OPRAF 1996b) but there are no indications of significant changes to the timetable being implemented.

8.2.4.2 - Passenger Environment

Passenger environment can also play an important role in attracting passengers to the railway but concerns about reliability and comfort on the branch lines are likely to deter many would-be rail users. Indeed, only 56.2% of non-rail users perceived branch line trains to be a reliable form of transport and, although just over two-thirds felt that the train was comfortable, a significant number of respondents disagreed with this statement. Measures to enhance comfort and reliability, thus creating an improved passenger environment, could make the prospect of a rail journey more attractive to those who don't currently use the train.

The analysis in chapter seven highlighted the fact that non-rail users tend to have a much more negative perception of the train than do rail users. It was found that non-rail users are more inclined to believe that rail travel is expensive, and that train times are inconvenient and infrequent, whilst, at the same time, being less inclined to believe that the train is a comfortable and reliable way to travel. Making changes to the timetable which increase the convenience of rail travel will not necessarily affect this negative perception. Such a move would also need to be accompanied by a major marketing strategy, aimed particularly at non-rail users, which advertised the changes and stressed the increased convenience of rail travel under the new regime. In addition, improvements to the reliability and comfort of

branch line trains will also need to be implemented and, again, marketed heavily to non-rail users.

Current levels of reliability and comfort on branch line services can indeed be poor. If there is a shortage of either rolling stock, drivers or guards the branch lines are the first to suffer cancelled trains, a situation that occurred frequently on the Par-Newquay line in 1995/6. Hence the reliability problem which non-rail users are often keen to cite as a valid reason for not using the train (something referred to when respondents were asked for additional comments). It seems unlikely that shortages of rolling stock or trained staff will be solved in the near future as it will take time for the new franchise holder (Prism Rail Plc) to order new stock and train new staff , but the survey results indicate that it may be possible to solve some of the problems associated with cancelled trains. Many respondents felt that the absence of manned stations contributed to the uncertainty that branch line passengers feel when a train fails to arrive because there was nowhere to make enquiries about whether the train was delayed or cancelled. One solution that was often proposed was the establishment of a fixed telephone, similar to that found on unmanned line crossings, which could be used to contact the control centre and find out if the train was due to arrive or had been cancelled. This is not a particularly difficult solution to implement and, though not solving the problem of being unable to make the proposed journey, a scheme such as this would at least instil more confidence in the rail company and remove some of the uncertainty felt by the passenger.

The shortage of rolling stock has also led, on occasion, to some very old rolling stock being used on the branch lines thus providing a service which is both noisy and uncomfortable, not the ideal passenger environment. Unfortunately, after the rail privatisation process

began, the train building industry came to a virtual standstill with severely depleted order books (Jenkins 1993). Furthermore, old rolling stock was withdrawn without adequate replacement something which, according to Harman et al. (1995), could reduce services even more. Although this situation has since improved, and some companies have placed new orders for trains (OPRAF 1997b, 1997c), there are no indications that South Wales and West's branch line rolling stock is to be replaced. If the branch lines could be provided with newer, more comfortable, rolling stock it is very likely that the improvement to the passenger environment would attract more travellers. A more likely scenario, however, is for existing rolling stock to be refurbished, something that Prism Rail Plc. has announced it will do (OPRAF 1996b), with a gradual cascade of improved rolling stock onto the branch lines as main line regional trains are gradually replaced.

The above points summarise some of the 'passenger environment' problems currently associated with the railways and ways in which it could be improved. Since the survey was carried out the franchising process has been completed in the west country and Prism Rail PLC. have taken over franchise for the South Wales and West railway Ltd. Prism has committed itself to certain improvements which may improve the situation. As well as a commitment to improve reliability and punctuality, together with refurbishment of existing stocks, Prism has also announced that it will install either a public address system, a passenger information display or a freephone help point to enable passengers to obtain current train service information (OPRAF 1996b). This will greatly improve the passenger environment by removing the uncertainty over whether or not a train will arrive but the timescale for these improvements has not been announced and it seems likely that the branch line stations, where such a service is most urgently needed, may be the last to receive these improvements because of their limited use. It is also worth noting that high

profile marketing will also be necessary if the proposed improvements are to attract more passengers rather than merely enhancing the passenger environment for existing rail travellers.

8.2.4.3 - Cost Of Rail Travel

The cost of rail travel is another identifiable constraint on would-be passengers. Just under two-thirds of non-rail users felt that the train was too expensive to use. Changes to the fares structure such as the introduction of cheap day returns or, as mentioned earlier, Sunday shopper family tickets may increase either the actual number of people using the train or the amount that existing passengers use the train. It has been argued that initiatives of this kind can boost passenger numbers by attracting those who feel that current ticket prices are too expensive (Williams and Heels 1976). It was also pointed out by William and Heels (1976) that the real cost of reducing fares on branch line trips should be minimal because a) traffic should substantially increase (especially optional trips to cities, in this case Exeter) thus increasing revenue overall, b) the revenue from these short trips is small compared to the overall revenue from the line because c) these lines consistently feed a considerable amount of business on to the Intercity network thereby enhancing British Rail's overall revenue. The break up of the railways into individual businesses somewhat negates the benefits to be derived from journeys continued on the Intercity network but certainly some of these onward journeys will be carried out on South Wales and West's own mainline regional services. Again, marketing of these cheaper fares would need to be considerable if such a strategy was to succeed. The opportunities for fare cutting exist as regulation generally restricts the amount by which a fare can increase. Under the current regulatory agreement rises in a number of key fares will be restricted to the RPI (retail price index) for the first three years from January 1996 and to 1% lower than the RPI for the following four

years but this is the maximum by which a fare could rise rather than a targeted fare price (OPRAF 1996b). The biggest constraint on cheaper fares could prove to be the franchise agreement which sets a subsidy which declines over the course of the franchise agreement. In the case of the South Wales and West Railway Ltd. this subsidy will decline from £70.9 million in 1997/98 to £38.1 million in 2003/4 when the franchise comes up for renewal (OPRAF 1996b). A substantial decrease in subsidy means that the railway will have to become more profitable and, although this should come from increased passenger numbers, it seems unlikely that the railway company will be willing to risk a decline in existing passenger revenue brought about by fare reductions.

In addition to introducing cheaper fares which may attract non-rail users to take the train or increase the amount that the existing body of rail users travel by train it is also important to educate car drivers as to the real cost of their preferred mode of transport. The majority of motorists, who are another group that feel that rail travel is too expensive, fail to take into account the true costs associated with motoring and most drivers consider only the cost of petrol without considering the additional cost of car purchase, depreciation, repairs and servicing, car tax, MoT certificates, insurance and car parking. Rail travel, by comparison, is actually a relatively inexpensive form of transport.

8.2.4.4 - Attracting The Motorist

Cost alone will not, however, attract car drivers to the railways. One of the key benefits of car travel is that it is a convenient way of going 'door to door'. As routes into city centres become increasingly congested this 'convenience' is beginning to disappear. Indeed, certain aspects of government policy seem likely to discourage further the use of a car to travel into congested areas. This is not to suggest that motorists should discard their cars totally

and use public transport instead because the car is an important form of transport in rural areas, but for certain journeys, for example commuting to work in the city from the surrounding countryside, the car is becoming a less convenient form of transport and may even become a 'banned' form of transport in the future. Indeed, as Carpenter (1994) points out:

"Country dwellers seldom have any alternative to road transport in order to reach a town or railway station..... However, in the increasing area of well-populated country adjacent to the major conurbations, opportunities for rail access to nearby towns has in some cases led to revived or more frequent services...." Carpenter, 1994, pp.58/59.

Although Carpenter (1994) cites the Midlands and South Wales as examples of this rail revival there is no reason to assume that a similar case could not be made for cities such as Plymouth and Exeter or even Truro. All these cities can become very congested and they are all served by rural rail lines. If car drivers could be encouraged to use rail services more frequently there would be considerable benefits in terms of both the environment within the city and the number of extra passengers travelling by rail. There is already evidence that those people who commonly use the car switch to the train for journeys that involve driving into big, congested cities where it can be difficult to park and frustrating to sit in queues of traffic (see chapter seven). London was a frequently cited example and it must be acknowledged that the length of journey also acts as a deterrent to drivers, particularly if they wish to travel there and back in a day. Nevertheless, it appears that car owners are beginning to acknowledge the problems associated with their preferred mode of transport and may, therefore, be more receptive to schemes that encourage rail use rather than car use should the benefits be pointed out to them. Again, this should be a combination of some of

the improvements already discussed such as well timed, reliable, comfortable trains and cheaper day returns on the branch lines coupled with improvements such as well lit, safe, free parking enabling the motorist to leave the car at the station in the morning and return at night. Prism Rail Plc. has announced that it will install CCTV at nine stations, three of which are to be developed as Park and Ride facilities, but there is no mention of including branch lines in this scheme (OPRAF 1996b).

The discussion above has looked at both the current situation on the branch lines and ways in which service frequency and reliability together with the passenger environment could be improved. All of the proposed measures could serve to enhance rail travel for the existing passengers and, in addition, attract more passengers on to the branch lines. There are signs that Prism Rail Plc., who have taken over the franchise for the South Wales and West Railway Ltd., are committed to certain improvements, some of which will eventually improve the situation on the branch lines. These improvements will, however, need to be marketed strongly, thus ensuring that a wider audience becomes aware that the railways have changed. Unless this is done any improvements, while still benefiting the existing clientele, will fail to attract additional passengers and it is only by attracting an increased client base that the branch lines can ensure their future.

In total, three different scenarios for the future of branch line railways in a privatised rail system have been evaluated in the context of the survey results. When the first two scenarios, closures or service reductions, were examined it became apparent that the future social and economic well-being of the rural community will depend, to a certain extent, on the continuation of branch line services. Any change to service provision, such as branch line closures or reduction in service, could have a severe impact on those members of the

rural community who depend on branch lines to gain access to a wide range of goods and services unavailable within the immediate environs of the community. This impact could, in turn, be felt throughout the community as a whole if, as has previously been noted¹, those people unable to complete necessary journeys, particularly young people and the elderly, move away, thus altering the whole social and economic structure of the community.

Many commentators feel that branch line closures will be the most likely outcome of rail privatisation, not necessarily because of a deliberate policy of closures but more likely as the result of a steady deterioration in service brought about by train operating companies neglecting branch lines in favour of the more competitive parts of their franchises (Salveson 1993). The resulting loss of passengers would result in a financially unviable service which a rail company would have little choice but to close. There is, however, a third possible scenario, that of improvements to branch line services, and the potential for improvements was discussed in the context of the survey results. Service improvements would undoubtedly help to retain the existing passenger base but, unless marketed properly, would fail to attract the additional passengers who could ensure the future viability of branch line railways. Branch line railways need, therefore, some form of local representation which will focus specifically on the needs of the local area and market the services accordingly. This form of local representation is best achieved in the form of a partnership between the train operating company and other interested bodies. In the next section a major strategy to increase the viability of local rail services that has already been

¹ work carried out by Hillman & Whalley (1980) indicated that the social and economic structure of rural communities could change after closure of a branch line as many of those affected moved away.

adopted on the branch lines, the Devon and Cornwall Rail Partnership (initially the Devon and Cornwall Rail Project), will be discussed.

8.3 - The Role Of The Rail Partnership

A rail partnership represents local interests and works closely with a wide variety of organisations to ensure that use of the branch lines is maximised. Since July 1991, the branch lines in Devon and Cornwall have been subject to a regime of relatively minor improvements to the passenger environment coupled with a coherent marketing strategy aimed at attracting both locals and tourists. Run by the Devon and Cornwall Rail Partnership, these initiatives suggest that it is possible to attract new rail users whilst increasing use among existing rail users. The partnership is currently funded and co-ordinated by Cornwall County Council, Dartmoor National Park, Devon County Council, Plymouth City Council, The Rural Development Commission, South Wales and West Railway Ltd, and The University of Plymouth and receives additional input from district, town and parish councils, transport companies, railway groups and the tourist industry. The principal aim of the partnership is: *"To encourage greater use of the two counties' rural railways for leisure and recreation - not only by visitors, but also by local residents"* (Devon and Cornwall Rail Partnership 1993). After running now for six years the partnership has had some success with its many initiatives to increase the use the rural branch lines receive.

A major part of the work carried out by the Rail Partnership has been promotional, especially the production of promotional materials, thereby increasing awareness of the facilities available. This has been coupled with measures such as station enhancements and improved signing with the intention of making the stations more attractive to passengers.

Stations have been repainted and provided with new waiting shelters and information boards which direct passengers to local facilities and attractions. Car parking facilities have been improved and links to and from the railway have been identified and co-ordinated. Recreational packages have also been devised which include Sunday services in the summer, Rover tickets which link in to the bus network, guided walks and events linked to the trains, cycle hire and refreshment facilities. All of these improvements have been extensively advertised, both through the production of promotional leaflets which include maps, timetables and information about the area as well as by ensuring that local tourism outlets and places of interest also carry information about rail services in the area.

The results of these initiatives have been widely perceived as being successful in attracting both visitors to the area and local residents on to the branch lines. In the first year of operation, revenue on the Tamar Line increased by 4.8% on the previous year with 3-4% of this directly attributable to the work of the partnership (Devon and Cornwall Rail Project 1992). At the same time passenger numbers increased by 7.5% (Devon and Cornwall Rail Project 1992). Overall, the first three years of the partnership saw passenger numbers on the Tamar Valley Line increase by around 7% per annum (Devon and Cornwall Rail Partnership 1993). The other lines that were promoted by the project in the initial three year phase, the Looe Valley and the Tarka Lines, also recorded significant improvements in the amount of use each line received (Devon and Cornwall Rail Partnership 1993).

In phase two of the project, additional lines, the St Ives-St Erth, Truro-Falmouth and Newquay-Par branch lines, have been included in the brief with all lines being heavily promoted through events, promotional materials and station improvements (Devon and Cornwall Rail Partnership 1996). Objectives in the second phase of the partnership were

also expanded to include ensuring the needs of the network and rural communities are met in the privatisation process, promoting the rail system as an effective link between rural inhabitants and urban employment, promoting further rail use for all purposes in order to limit environmental impacts in rural areas resulting from predicted increases in car travel, to enable rail operators to identify and meet the needs of rural communities that are unrelated to employment and providing for the least mobile members of society, as well as leisure use (Devon and Cornwall Rail Partnership 1996).

It may be argued that the initial aims of the partnership, to promote leisure and recreational use of the railways, did little to represent the interests of those dependent on the branch lines to carry out the tasks necessary to their daily lives. However, the expansion of the original aims into a whole series of objectives concerned with ensuring that the needs of the rural community are met, appears to recognise the important role that branch line railways play in sustaining the social and economic well-being of the rural community. Today the rail partnership fills an important gap left by a train operating company which has a responsibility for an entire regional network, of which the rural branch lines form only a small part. The rail partnership helps to ensure that services on the branch lines are adequately marketed and promoted whilst, at the same time, trying to meet the transport needs of the rural population.

Unfortunately, it is no longer possible to gauge the success of the partnership in its second phase of operation through branch line performance summaries. Constraints imposed by the Financial Services Act while the franchising process was ongoing prevented the publication of such information but initiatives on the Tamar Line, for example, led to an estimated 12% increase in passenger usage and revenue in the summer of 1995 (Devon and

Cornwall Rail Partnership 1996). In the second phase of operation, therefore, the Devon and Cornwall Rail Partnership appears to have built on its success of the initial phase. Clearly, the marketing strategies adopted by the partnership have proved relatively successful in increasing the number of passengers who use branch line services. The success of the partnership relies on both initiatives designed to raise public awareness of branch line services, together with the co-ordination of the aims and objectives of the many disparate bodies who wish to promote branch line rail services. The new, extended brief, designed to expand rail use still further should help to ensure the continuation of branch line services in the south west by increasing their financial viability. As Salveson (1993) notes, when discussing the Devon and Cornwall Rail Partnership:

'The partnership demonstrates that where a joint approach is taken, with carefully targeted publicity and promotion, more people can be encouraged to use rural railways. Salveson 1993, p.101.

Partnerships such as these perform a vital role in the promotion of rail services and the Devon and Cornwall Rail Partnership is not the only example of local initiatives designed to ensure the continuation and active promotion of branch line rail services. For many years now local councils have operated in collaboration with the rail company (formerly British Rail's Regional Railways sector) to provide local services, reopen sections of line and open new stations (Salveson 1993). It has been suggested that partnerships between rail operators, councils, countryside and tourism agencies and the local community will be essential if the branch lines are to survive and Salveson (1993) argues that:

'no single organisation has the 'answer' to the problems of under-utilised, expensive to operate, rural railways. Their future - and they could have a very bright future - lies in a partnership between a wide range of agencies' Salveson, 1993, pp.172.

It is envisaged that the form that partnerships could take would vary according to the needs of the community and the geographical location but that they could involve some form of micro-franchising whereby a local, community based company 'teams' up with the train operator and operates a particular line within the overall franchise (Salveson 1993).

There is little evidence to date that the type of micro-franchising envisaged by Salveson (1993) will take place but there are, nonetheless, strong arguments in favour of local, community based initiatives which ensure that the branch lines and the communities that they serve are represented. Without partnerships such as the one operating in Devon and Cornwall there is a distinct possibility that the branch lines will suffer a deteriorating service that stems from neglect. Although somewhat limited in its powers, the existence of a partnership dedicated to promoting and marketing new initiatives designed to keep the branch lines operational may be sufficient to retain the existing clientele, whilst at the same time attracting new passengers, thereby ensuring the future viability of the line.

This chapter has examined the results of the analysis carried out in previous chapters and related these results to the central hypothesis of this thesis which is that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this interrelationship may be threatened by rail privatisation. Three scenarios were examined, namely closure, service cutbacks and service improvements. The results of this discussion suggest that a scenario of either closures or cutbacks is likely to severely disadvantage certain sectors of the population leading to wider repercussions in the rural community as a whole. Furthermore, branch line closures or cutbacks in service are also likely to endanger moves to combat the environmental damage caused by too many motor vehicles on the roads. If, however, rail privatisation led to improvements in branch

line services such measures could well attract additional passengers to the branch lines thereby ensuring their future. At the present time, there is little evidence that Prism Rail, the company who have taken over the Regional Railways South Wales and West franchise, will target branch lines with their proposed improvements. Examination of the role of the rail partnership does, however, suggest that even minor improvements, such as station enhancements and information, coupled with a strong marketing strategy, can help to revitalise a branch line. In the next chapter the conclusions that can be drawn from this discussion with regard to the future of branch line railways and their passengers will be set out and, in addition, the need for further research will be evaluated.

CHAPTER 9 - Conclusions

The aim of this thesis was to examine two separate, but interrelated, issues, namely rail privatisation and rural dependency on the availability of rail transport. The thesis was based around the central hypothesis that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this interrelationship between rural accessibility and the development and sustainability of a community may be threatened by rail privatisation.

It was proposed that rail privatisation could prove to be particularly damaging to the economically most vulnerable parts of the rail network and could lead to either cutbacks in rural branch line services or, in a worst case scenario, to closure of rural branch lines. Should this happen, it was hypothesised that those members of rural communities who are dependent on the availability of branch line services would experience considerable deprivation as their ability to carry out the tasks that form part of their daily existence would be impaired. It was considered likely that, while the impact of any service cutbacks or closures would be felt most by the more vulnerable members of the community, the impacts would also be felt throughout the community as a whole.

To research these issues thoroughly the thesis started with an investigation into privatisation that explored both the conceptual and practical issues surrounding this policy. A variety of different privatisations were evaluated and the main focus was the privatisation of the large, public sector, monopolies and the way the different objectives of privatisation policy evolved and changed over time. The degree to which the privatisation of public sector monopolies proved successful in terms of the stated objectives was also

evaluated, with particular attention paid to the way in which these companies have continued to fulfil their social objectives. The investigation into the theory and practice of privatisation provided a framework within which the context of rail privatisation could be set and the mechanisms by which the railways have been privatised were examined and related to the lessons learnt from previous privatisations. It is apparent that rail privatisation was deemed a sensitive issue and that a considerable amount of preparation work was carried out before the decision to privatise the railway was announced (Gibb et. al. 1996). Unlike many of the earlier privatisations, the railways were totally broken up into potentially competitive businesses, a measure that reflects the problems encountered when monopolies are privatised intact. Furthermore, the only naturally monopolistic part of the railways, track and signalling, was separated off to form a new company, Railtrack, which would provide access for all the train operators. Nevertheless, even after the proposals to privatise the railways were announced the policy continued to evolve, taking into account potential pitfalls such as the immediate introduction of competition before the new franchises had time to establish themselves. The investigation into rail privatisation also paid particular attention to the aims and objectives set out in the original rail privatisation proposals to determine whether these were likely to prove successful. There has been much speculation as to the future of branch line services in a privatised, commercially driven railway (see for example Salveson 1993, Platform 1993) and therefore the second part of the thesis dealt with the design, implementation and analysis of a survey which was intended to investigate the role of the branch lines within the rural community and determine how important they are to both individual members of a community and, in addition, to the community as a whole.

The investigation into privatisation illustrated how the policy has evolved over time and the ways in which the original means adopted to privatise various industries have had to be modified to allow key objectives, such as the introduction of competition, to be initiated. The evidence reviewed in chapter two indicates that competition is now beginning to dominate those industries that previously operated as public sector monopolies and that, furthermore, markets where competition and choice do not apply, for example the water industry, do not always benefit the consumer. Indeed, the investigation into privatisation highlights that the industries receiving the least complaints and subject to the lowest price rises are those operating within a competitive market place whereas the level of both complaints and prices continue to rise in industries such as water, where competition remains minimal. There is still, however, a bias towards large scale users and it is these groups that have benefited most from competition between utility companies while the small scale consumer remains, to a certain extent, a captive audience, unable to benefit from the competitive pricing that has been introduced to those customers who can 'shop around'. This is now being reviewed and the service to the small scale consumer is being revised to allow a choice of suppliers which will eventually allow every customer to benefit from the improved service and lower prices brought about by competition.

Competition, whilst associated with many benefits, can, however, introduce its own problems and the lessons learnt from previous privatisations have undoubtedly shaped the way in which the railways have been privatised. When rail privatisation was first announced the proposals suggested that one of the key objectives was *'to see better use made of the railways, greater responsiveness to the customer, and a higher quality of service and better value for money for the public who travel by rail'* (Dept. of Transport 1992, p.1). To achieve this the railways were broken up into a series of potentially

competing railway companies and, in addition, were to be exposed to competition from open access operators. The problems inherent in this decision soon became apparent, however, and subsequent regulation has delayed the introduction of competition during the initial years of operation. The reasons for this are twofold, firstly that permitting open access operators could have deterred would be franchisees, thereby threatening the whole privatisation process, and secondly because additional competition on the more profitable routes could threaten the financial viability of a franchise because the incumbent franchisee would still have to carry the cost of the less profitable routes that make up a franchise (ORR 1994). It is also worth considering the result of introducing unregulated competition into bus operations when they were privatised. Although competition has led to service improvements in urban areas the more marginal rural areas have suffered a decline in service because resources have been concentrated on the more competitive bus routes (Knowles & Hall 1992). In addition bus services continue to lose passengers mainly, it is argued, because of a loss of confidence in the availability of services (Knowles & Hall 1992).

All of this has led to a somewhat paradoxical situation whereby without competition the service to the customer is less likely to improve and costs will be high and yet with the introduction of competition the more peripheral parts of the rail network are likely to be neglected as resources become concentrated on the more competitive routes where a profit may be made. It serves to highlight the need to protect the more vulnerable parts of the railway which serve rural areas and yet the rail privatisation bill contained no specific mention of the need to ensure that the rural customer could access rail services whereas both the water and electricity privatisation acts contained a measure of protection for those customers living in rural areas. Instead, protection for rural areas was afforded by the PSR

which specified the minimum acceptable service on every line. However, there are suggestions that the protection afforded to rural areas should be modified and in 1995 OFWAT proposed that it would be reasonable to apply higher charges to those living in remote rural areas (Thomson 1995). Should higher charges for rural services be implemented, encompassing any services supplied to rural areas, it could prove damaging to the future of branch line railways. Among current branch line users there is already dissatisfaction with the cost of travel and an unwillingness to pay more for services. Higher charges could, therefore, lead to a substantial loss of the existing passenger base. The threat to the future of the railways, particularly branch line services, exists, therefore, though it is hard to predict which form it could take. It may be that increased competition will lead to the increasing marginalisation and decline of the least profitable areas of the rail network. Failing to introduce competition could be equally damaging, leading to a poor quality service and higher prices which would alienate passengers. Similarly, if higher charges which recognise the remoteness of the service were implemented this would, again, alienate passengers.

A further threat to the future of the railways lies in the apparent determination of Government to maximise the financial benefits to be accrued by 'shedding' the burden of support for the railways¹. This has been a recurrent theme in recent decades and many of the early rail privatisation proposals included closing under-used and unprofitable lines. The final proposals made no mention of closures, however, instead proposing to franchise passenger services complete with a passenger service requirement (PSR) which detailed the minimum allowable level of service. Nevertheless, although retaining overall control by franchising passenger services rather than selling them off and specifying the expected

¹ Though it must be noted that the level of support doubled initially and it will be at least 7 years before any saving is made.

level of service, the Government (in the form of the Franchise Director) has applied a reducing scale of subsidy throughout the life of a franchise which will force railway companies to become more efficient and cost effective. This could, in turn, threaten the more economically vulnerable sectors of the rail network as resources are allocated to the busier, more profitable, routes and it becomes necessary to shed uneconomic operations. Of more concern, however, will be the second generation franchises, many of which are expected to be awarded without subsidy payments. Rural branch lines are not a cost-effective operation due to the high costs associated with them, partly as a result of the low passenger loadings, and it is unlikely that a company operating in the private sector will accept this burden and retain branch lines without a subsidy. Thus the threat to the continued operation of branch lines could exist for the foreseeable future.

One final threat to the continued operation of the branch lines lies in the ease with which franchise agreements are readily flouted. Recent events on services run by South West trains suggest that the threat to the future of the branch lines does not necessarily seem to have been alleviated by the passenger service requirement (PSR) which is written into every franchise. Services to passengers were cancelled with little or no notice and, although the Franchise Director was swift to step in and insist on the reinstatement of cancelled services, the resulting uncertainty caused a considerable loss of confidence among rail passengers. Scenarios such as this indicate that a very real threat to the continued operation of reliable branch line services still exists and, to a certain extent, the loss of confidence that this can cause will serve to alienate potential rail passengers.

The threat to the continued operation of the branch lines exists in many forms, it may stem from the introduction of competition or the failure to introduce competition, financial

pressures such as higher charges or the loss of subsidy, or even the rapid withdrawal of services when franchise agreements are flouted. Whatever happens certain sectors of the population seem to be very much at risk of considerable disadvantage should service provision change and it seems likely that many of these 'at risk' groups will be unable to continue to lead the same level of social and economic life that they currently enjoy. The survey, that was designed to investigate how the branch lines are used by the members of the rural communities served by rail, clearly identified women, young people under the age of twenty-one years, elderly people over the age of seventy, students and the retired and disabled as the sectors of the population most dependent on branch line services. Rail use among these groups was much higher than expected and, when questioned, a high proportion expressed concerns that they would suffer severe problems should the provision of branch line services change. In addition, there is also a threat to the long term survival of the existing rural community. Previous rail closures indicate that certain groups (especially the elderly and youngsters) are likely to move away from the village after rail services are curtailed, to be replaced by a 'commuter class' who already have access to a car and are therefore not likely to notice the absence of rail services (Hillman & Whalley 1980).

To investigate fully the role that branch lines play in sustaining a rural community the survey also examined how people travel, what types of journeys are carried out, what problems are experienced, what would help to solve these problems and people's perception of branch lines, rail travel and rail privatisation. The results indicate that there is a considerable disparity between the value ascribed to the branch line and the amount of use it actually receives. Although more than 50% of the sample used the train, overall, less than 10% of journeys are made by rail. Nevertheless, over 50% of respondents stated that the branch line was important to them and that, furthermore, people depend on the branch

line to go to work (only 5.2% of journeys to work actually use the branch line). There is, therefore, a willingness to defend the branch line and ascribe a high value to it, regardless of whether or not respondents use the service.

When factors that affected branch line use were evaluated, distance to the railway station was found to have a considerable impact, with rail use declining rapidly once the distance was greater than a mile. Car ownership also influences rail use, which was found to decline more rapidly with distance when car ownership was taken into account. Other factors likely to affect rail use include the overall distance of the journey to be undertaken and the destination. It was found that dependency on branch line services among the retired, particularly elderly people over the age of seventy, varied according to the type of journey planned. The bus was the most common form of transport among this sector of the population for local journeys such as shopping trips to the nearest town but when a trip to visit friends and family (often living a considerable distance away) was planned the availability of rail services became important as the train became the principal form of transport. For students and young people under the age of twenty-one this situation was reversed and long distance travel was carried out on the bus whereas local trips such as shopping were undertaken on the train.

Existing travel problems were highest among those groups currently dependent on rail services and it would appear that the branch lines, whilst fulfilling many of the travel needs common to these groups, do not provide a completely adequate service. Any future scenarios involving closures or cutbacks will further disadvantage those groups who are already experiencing problems and may even curtail many of the journeys currently undertaken, particularly by women and the elderly. Using the responses given to questions

that asked about solutions to current travel difficulties it was possible to evaluate a scenario whereby rail privatisation actually led to improvements in service. A more frequent, conveniently timed service, designed to link up with main line trains, coupled with late evening and Sunday trains would address the existing difficulties and could indeed relieve many of the travel problems currently experienced. If implemented, improvements to branch line rail services could also attract additional passengers, which would help to ensure the continued operation of these lines.

When attitudes to rail privatisation were examined, however, the majority of respondents felt that it would lead to cutbacks in service or, even more likely in the opinion of the respondents, to branch line closures. Very few respondents felt that rail privatisation would mean improvements in service, though, among non-rail users in particular, there was a willingness to pay more for an improved rail service and a belief that improvements would lead to more use. When responses to general questions about attitudes and perceptions regarding branch line services and rail travel were analysed, however, they revealed a need to change the perception of non-rail users who tended to express a far more negative perception of rail services than that expressed by rail users. Despite the difficulties experienced by rail users the train remains a popular mode of transport and, generally rail users are tolerant about the problems and tend to cite the overall convenience of rail travel as a key reason for using the train.

For many rail users the train appears to be the only form of public transport which is acceptable and there is considerable evidence to suggest that replacing rail services with a bus is not particularly successful (Hillman & Whalley 1980). Where buses have been used to replace existing rail services there is generally a substantial increase in the number of

cars used rather than a transfer of rail passengers to the bus. This will obviously have long term effects on the amount of traffic congestion in both rural and urban settings. Current moves to reduce road traffic in towns and cities are already being discussed and it would, therefore, be unwise to close rail services at a time when they are likely to become increasingly important as an environmentally friendly way of transporting people from rural to urban settings. The survey certainly highlighted a growing environmental awareness among rail passengers and some 17.5% of those using the branch line cited environmental concerns as a principal reason for using the train.

It is important, therefore, to ensure that the branch lines remain open while future environmental policies are being decided. The best way to achieve this would be for the franchisee to consider implementing improvements which could attract more passengers to branch lines whilst, at the same time, enhancing the service provision for existing passengers thereby ensuring their continued loyalty. Alongside measures to attract more passengers lies the necessity of marketing any improvements to services thus ensuring that a wider audience will become aware of the increased convenience, comfort etc. of local rail services. One scheme which has already proved to be moderately successful in this respect is the Devon and Cornwall Rail Partnership which organises and co-ordinates a whole series of promotional events and leaflets designed to attract more passengers. There are also joint ventures between local councils and train companies emerging, generally aimed at reinstating services to areas which have suffered closures in the past. In a rural setting this type of partnership has an important role to play and there is evidence to suggest that partnerships between local councils and train operating companies are going to become increasingly common as the transport needs of rural communities are assessed.

This thesis has highlighted both the complexity of transport needs within a rural community and also the level of dependency on the availability of branch line services, and concluded that the branch lines do indeed play an important role in the continuing development and sustainability of a community. If the worst case scenario should occur, and branch line services are closed, those dependent on the train will experience considerable hardship and, for some, travel beyond the immediate environs of the rural community will be curtailed. There seems to be little doubt that this could impact on the wider community as people move away, to be replaced by a car-owning commuter class who are less dependent on available services. This can have a considerable effect on the socio-economic structure of a community and will, in turn, damage still further the provision of services (Hillman & Whalley, 1980).

The research carried out in this thesis has been based on the hypothesis that the development and sustainability of a community depends on rural accessibility and that rail privatisation may prove to be particularly damaging to the rural branch lines that provide this accessibility. The thesis has served to highlight the complexity of the privatisation process and the way in which a policy has had to be shaped to take account of the difficulties that can arise. Privatisation has arisen from the neo-liberal philosophy adopted by the Conservative party when it came to power in 1979. In its purest form this policy is based around a 'let the market decide' philosophy which states that industry should operate free of government intervention thus creating a free market economy where competition flourishes and a good service and fair prices are engendered by that competition. Demand for a service regulates the market place and uneconomic services have no place in this scenario. In practise, however, this philosophy fails to take into account the need to ensure that all sectors of the population can access the basic needs of modern life such as water,

gas, electricity, telecommunications and public transport. For rural areas, in particular, the cost of providing services is high and yet the population of rural areas is low and, often, these are some of the least well off members of society. Thus, there is a situation whereby low demand, coupled with the additional cost of supplying remote areas, should lead to higher prices but, if implemented, this policy would lead to deprivation among some of the more disadvantaged members of society. In addition, many of the large utility privatisations initially secured monopoly situations in the private sector, a circumstance which is only gradually changing, and immediately presented a contradiction between the philosophical ideal and the reality of operating a public service in the private sector. Strict regulation has been needed, both to ensure that customers were cared for and to mitigate the monopoly situation. It has also been necessary to regulate competition, however, thereby ensuring that the public service element of these industries is maintained. Without these controls unregulated competition can lead to a situation whereby the more marginal areas of business are neglected and resources are directed towards the more competitive elements. This scenario has been seen in the case of bus privatisation, where regulation was deemed unnecessary, and has resulted in a loss of services in rural areas with a corresponding concentration of resources on the more profitable urban routes. By contrast, the process by which the railways have been privatised adopted a more pragmatic approach, deeming it necessary to compromise the philosophical ideal by affording rail operators protection from competition. The evidence reviewed in this thesis does, however, suggest that reductions in branch line services, or even closures, remain a possibility despite assurances made at the time of rail privatisation.

There is considerable scope for additional work to be carried out to monitor any changes that occur in both the provision of rail services and the travel patterns, levels of rail use and

attitudes towards branch line services prevalent in rural communities. If the branch lines were to close it would be of value to document changes in lifestyle among individual members of the community and, in addition, to evaluate broader changes that might occur in the whole community and its surroundings. The environmental impacts, in terms of additional vehicles on the roads and the associated congestion and pollution that this would cause, would be a further area worthy of investigation. It is possible, however, that rail privatisation will lead to improvements and this too would present an excellent opportunity to monitor the effect that improvements might have in terms of rail usage and evaluate strategies for revitalising the rural branch lines.

It must be noted that the survey work and analysis carried out in this thesis were subject to certain constraints such as time and the limitations of one person working alone, thus there is considerable scope for further research. Alternative approaches that could have been adopted include a greater emphasis on cross-sectional analysis and more definitive research such as qualitative investigations into particular groups. The data set generated by the survey that was completed will be used for additional analysis, and specific questions about the effects on travel patterns of local facilities, size of settlement and distance/ease of journey to local branch line stations will be addressed using the original criteria used to select study sites. It is also anticipated that the research carried out so far will lead to more detailed investigations, including qualitative work based around in-depth interviews. The interviews will be based around respondent's characteristics such as gender, age and employment status but will allow cross-referencing so that women in specific age groups can be investigated, for example, or respondents can be selected by age, gender and employment sector. This will permit more detailed analysis of certain characteristics

among respondents, allowing a more complete profile of rail users and their attitudes to be developed.

The work completed in this thesis was primarily brought about by the decision to privatise the railways. However, an evaluation of previous rural transport surveys has highlighted a considerable gap in the literature, spanning more than a decade in which the only investigations completed have been small, localised surveys. There is, therefore, a need for further, comparative, survey work to be carried out in other regions, using a similar questionnaire, to determine whether the patterns of travel, attitudes to local transport systems and transport use apparent in Devon and Cornwall are common throughout the country.

The aims of this thesis were twofold; first to conduct a thorough investigation into privatisation policy, paying particular attention to the privatisation of the railways, and second to investigate the role of the rural rail branch line in the lives of the communities that it serves. The thesis was structured around one central hypothesis; that rural accessibility permits the development and sustainability of the social and economic lives of a community and that this interrelationship is currently threatened by rail privatisation and the associated risks of line closures or service cutbacks. Examination of privatisation policy suggests that privatisation can lead to changed priorities and that the public service element of these industries may be overtaken by the drive towards increased profitability. When the changed priorities brought about by privatisation are evaluated in the context of the railways, the branch lines, which have traditionally been at risk of closure because of their low passenger loadings and high levels of subsidy, continue to face an uncertain future. The results of the survey that was carried out indicate that substantial numbers of people

depend on the branch lines to enable them to carry out a wide variety of journeys and it may be concluded that branch line railways do indeed play a vital role in the development and sustainability of the rural community. Furthermore, it may be concluded that any change in the provision of branch line services would have a considerable impact on both individuals and the community as a whole and could indeed lead to the whole socio-economic structure of the community being altered.

Appendix 1

Questionnaire

SECTION A - TO BE ANSWERED BY HOUSEHOLDER

!) Please indicate how many people in household:

Men () Women () Children ()

2) What are their ages ? (tick all that apply)

0-5yrs () 6-10yrs () 11-15yrs () 16-21yrs () 22-30yrs ()

31-40yrs () 41-50yrs () 50-60 yrs () 61-70yrs () 70yrs+ ()

3) How many cars does this household own ?

None One Two Three or more

4) How many household members are full driving license holders?

None One Two Three or more

5) Where do you live? Village..... Postcode.....

6) How many years have you lived at this address?

0-5yrs 6-10yrs 11-15yrs More than 15yrs

7) If less than 5yrs, where did you move from ?

8) What attracted you to this village? (Please tick all those that apply)

Environment

Public transport links (bus/train)

Health care facilities

School

Shops

Post Office

9) Have any of the above considerations declined or closed since you moved here ?

Yes

No

10) If Yes, Which ones ? (Please tick all those that apply)

Environment

Public transport links (bus/train)

Health care facilities

School

Shops

Post Office

11) What form of transport do members of this household use to:

Travel to work

Travel to educational establishment

Go Shopping

Carry out personal business (eg bank, insurance etc)

Visit a doctor

Visit a dentist

Visit a hospital

Visit friends and relatives

Travel to leisure facilities

A = Walk

B = Car

C = Lift in car

D = Bicycle

E = Motorcycle

F = Bus

G = Train

12) Approximately how far away is the nearest bus stop? less than a mile 1 mile

1-2.5 miles

2.5-5 miles

more than 5 miles

13) Does anyone in this household use the bus service: Yes No

14) How frequent is the bus service?

How far to nearest railway station: <1 mile

1-2.5 miles

2.5-5 miles

>5miles

Does anyone in this household use the train: Yes No

(If Yes go to section B, If no go to section C)

Section B - RAIL TRAVEL:

To be filled out by the most frequent rail traveller in the household:

Do you own a car: Yes No

Do you have access to a car: Daytime Evening Both

How frequently do you use the train:

- Four or more times per week
- 1-3 times per week
- Once a week/fortnight
- Once every 3-4 weeks
- Less than once a month
- Less than once a year

For what purpose do you use the train:

- Commuting to work
- Shopping
- Leisure
- Business (eg bank, insurance, post office etc)
- Healthcare (eg Doctor, dentist, hospital etc)
- Visiting friends
- Education (eg school or college)

Are You: Retired Employed Job seeking Student Retired
Housewife/husband

Sex: Male Female

Age: 16-21yrs 22-30yrs 31-40yrs 41-50yrs 50-60 yrs
61-70yrs >70yrs

Do you use the train because:

It's convenient

It's cheap

Only means of transport available

Preferred means of transport

It's reliable

Would you describe yourself as:

Very dependent on train

Fairly dependent on train

Neither dependent nor independent

Fairly independent of train

Very independent of train

Does anyone else in the household use the train: Yes No

If Yes, How frequently:

Four or more times per week

1-3 times per week

Once a week/fortnight

Once every 3-4 weeks

Less than once a month

Less than once a year

For what purpose do they use the train:

Commuting to work

Shopping

Leisure

Business (eg bank, insurance, post office etc)

Healthcare (eg Doctor, dentist, hospital etc)

Visiting friends

Education (eg school or college)

Do they have access to a car: Yes No

Are They: Retired Employed Job seeking Student Retired
 Housewife/husband

Sex: Male Female

Age: 16-21yrs 22-30yrs 31-40yrs 41-50yrs 50-60 yrs
 61-70yrs >70yrs

(Go to section C)

Section C - ATTITUDES TO PUBLIC TRANSPORT

How important do you consider public transport to be:

Very important
Fairly important
No Opinion
Fairly Unimportant
Very Unimportant

Is anyone in this household dependent on public transport: Yes No

If Yes, how dependent are they:

very dependent
fairly dependent
slightly dependent
occasional users

The next series of questions will ask about your attitudes to and perceptions of rail transport and rail privatisation.

The following statements describe the railway: tick appropriate column (/local branch line instead of railway?)

A = Agree strongly B = Broadly agree C = neither agree or disagree D = Broadly disagree
E = Strongly disagree.

A B C D E

- The railway is important for travel to me personally.
- The railway is important to other people in my household.
- The railway is important to the economy of my village.
- Many local people depend on the railway to get to work.
- The railway is important to tourism in the area.
- The railway is a reliable way to travel.
- The railway is a comfortable way to travel.
- The railway is a cheaper way to travel than using the car.
- The railway station is too far away to use.
- Train times are too infrequent.
- Train times are inconvenient.
- Access to stations is too difficult.
- The train is too expensive to use.

The following statements look at the potential impacts of rail privatisation on the local branch lines:

A = Agree strongly B = Broadly agree C = neither agree or disagree D = Broadly disagree
E = Strongly disagree.

A B C D E

- I feel that the privatisation of the railway may lead to the closure of the local branch line.
- I feel that the privatisation of the railway may lead

to a cutback in service frequency/standards.
Closure of the railway would severely affect my mobility or that of my household.
Closure of the railway would mean that we would have to move because of transport difficulties.
Closure of the railway would affect many people who depend on it.
Closure of the railway would affect the economy of the village.
I feel that the privatisation of the railway may lead to an improvement in service frequency/standards.
If the service frequency/standards improved more people would use the railway.
An improved railway would help this village to thrive.
If railway improved I would use the train in preference to the car.
I would be willing to pay more for service improvements.

Do you have access to a car Yes No

Are You: Retired Employed Job seeking Student Retired
Housewife/husband

Sex: Male Female

Age: 16-21yrs 22-30yrs 31-40yrs 41-50yrs 50-60 yrs
61-70yrs >70yrs

Appendix 2

SECTION A - General Household Questions.

Please answer this section on behalf of whole household:

- | | | |
|--|---------------|----------------|
| 1. Where do you live ? | Village | Postcode |
| 2. How long have you lived at this address? | [|] |
| 3. How many people live in this household ? | [|] |
| 4. How many cars/vans does this household have use of ? | [|] |
| 5. How many motorcycles does this household have use of ? | [|] |
| 6. How many members of this household hold a driving license ? | [|] |
| 7. Approximately, how far away is the nearest bus stop ? | [|] |
| 8. How frequent is the bus service (e.g.. hourly, daily etc.) ? | [|] |
| 9. What is the main destination of the bus ? | [|] |
| 10. Approximately, how far away is the nearest railway station ? | [|] |
| 11. Which station is nearest to your home ? | [|] |

SECTION B - Transport and Mobility. The next series of questions ask about how members of your household travel.

Please give each household member a code letter, i.e. person A, person B etc., by filling in the boxes below with a general description (e.g.. self, partner, son, daughter etc.) and use this code throughout the rest of the questionnaire.

NB. If there are more than five persons in household, select the five eldest members.

Person A	Person B	Person C	Person D	Person E

12. How do members of the household usually travel to the following activities?

Indicate the MAIN type of transport used for each journey undertaken:

1 = Walk, 2 = Car, 3 = Lift, 4 = Bicycle, 5 = Motorcycle, 6 = Bus, 7 = Train, 8 = Taxi

Journey Type	Person A	Person B	Person C	Person D	Person E
Travel to work					
Travel to school/college					
Shopping trips (beyond village)					
Personal business (e.g.. bank, insurance etc.)					
To visit a doctor					
To visit a dentist					
Travel to hospital (visiting or appointments)					
To visit friends/relatives (beyond village)					
To use leisure facilities					

13. Are there any journeys you would like to undertake but are unable to because of transport difficulties ?

Tick all that apply:

Journey Type	Person A	Person B	Person C	Person D	Person E
Travel to work					
Travel to school/college					
Shopping trips (Beyond village)					
Personal business (e.g.. bank, insurance etc.)					
To visit a doctor					
To visit a dentist					
Travel to hospital (visiting or appointments)					
To visit friends/relatives (beyond village)					
To use leisure facilities					
Other (please specify)					

16. Which rail services do you use ?

Tick One:

Type of service	Person A	Person B	Person C	Person D	Person E
Branch line only					
Main line only					
Branch and main line					

17. If the rail service were to close or suffer cutbacks, how badly would it affect you ?

Tick one:

Effect	Person A	Person B	Person C	Person D	Person E
Severe transport problems					
Some difficulty					
Minor inconvenience					
No transport problems					

18. Why do you use the train ?

Tick all that apply:

Reason	Person A	Person B	Person C	Person D	Person E
Only available transport					
It's convenient					
It's reliable					
It's quicker than the bus					
Cheapest form of transport					
Preferred form of transport					
Concern for environment					
Other (please specify)					

Is there anything else you would like to add? if so, please use the back of page 7 for additional comments.

SECTION D - Attitudes to Rural Railways.

This section asks you for your reaction to a series of statements concerning rural railways and the local branch line. Please continue to use the codes for each person and answer this section even if you do not use the railway.

19. The following is a series of statements about using the train. Please indicate the extent to which you agree or disagree with them.

1 = Agree strongly 2 = Agree 3 = neither agree or disagree
4 = Disagree 5 = Disagree strongly.

The train is a reliable way to travel:

Person A [] Person B [] Person C [] Person D [] Person E []

The train is a comfortable way to travel:

Person A [] Person B [] Person C [] Person D [] Person E []

The train is too expensive to use:

Person A [] Person B [] Person C [] Person D [] Person E []

Train times are inconvenient/too infrequent:

Person A [] Person B [] Person C [] Person D [] Person E []

The railway station is too far away to use:

Person A [] Person B [] Person C [] Person D [] Person E []

20. The next series of statements concerns your local branch line. Please indicate the extent to which you agree or disagree with them.

1 = Agree strongly 2 = Agree 3 = neither agree or disagree
4 = Disagree 5 = Disagree strongly.

The local branch line is important to me personally:

Person A [] Person B [] Person C [] Person D [] Person E []

Many local people depend on the branch line to get to work:

Person A [] Person B [] Person C [] Person D [] Person E []

Services on the branch line run at inconvenient times:

Person A [] Person B [] Person C [] Person D [] Person E []

The local branch line is important to tourism in the area:

Person A [] Person B [] Person C [] Person D [] Person E []

21. The final series of statements concerns rail privatisation. Please indicate the extent to which you agree or disagree with them.

1 = Agree strongly

2 = Agree

3 = neither agree or disagree

4 = Disagree

5 = Disagree strongly.

Rail privatisation could lead to a cutback in service frequency/standards:

Person A [] Person B [] Person C [] Person D [] Person E []

Rail privatisation could lead to the closure of the local branch line:

Person A [] Person B [] Person C [] Person D [] Person E []

Rail privatisation could lead to an improvement in service frequency/standards:

Person A [] Person B [] Person C [] Person D [] Person E []

If the service standards/frequency improved more people would use the train :

Person A [] Person B [] Person C [] Person D [] Person E []

I would be willing to pay more for my ticket for service improvements:

Person A [] Person B [] Person C [] Person D [] Person E []

Please go on to section E.

Section E - I would now like to ask you a few personal questions about yourself.
Please remember, your answers are totally confidential.

22. Do you have access to a car ?

Tick One:

Frequency	Person A	Person B	Person C	Person D	Person E
Always					
Daytime only					
Evenings only					
Weekends only					
Evenings and weekends					
Never					

23. What is your employment status ?

Tick One:

Employment status	Person A	Person B	Person C	Person D	Person E
Employed					
Job seeking					
Student					
Housewife/husband					
Retired					

24. What sex are you ? M = male F = female

Person A [] Person B [] Person C [] Person D [] Person E []

25. How old are you ? (please state age in years)

Person A [] Person B [] Person C [] Person D [] Person E []

Thank you very much for completing this questionnaire. The information you have given will be extremely helpful. Please send it back in the pre-paid envelope attached.

Additional Comments

(Please indicate who you are, e.g. person A, person B etc.)

Rural Travel and Transport Questionnaire

Dear Householder,

I am a researcher with the University of Plymouth currently carrying out an investigation into rural transport. The aim of this questionnaire is to highlight the transport issues that exist in rural areas and examine how transport provision may be improved. A particular focus of this questionnaire is the rural railway network which is currently undergoing change as the railways are privatised. Part of this questionnaire will therefore ask you for your views and opinions on the future of your local branch line.

The study offers complete anonymity and it will be impossible for anyone to identify yourself or other members of your household. The results of the questionnaire will be used to complete a long-term study into transport and the role of the local rail network within rural communities. I would be very grateful if you would take the time to complete this questionnaire and return it to me, at the University, in the pre-paid envelope provided.

If you have any queries about this questionnaire please do not hesitate to contact me. I can be reached at: The Dept. of Geographical Science, University of Plymouth, Drake Circus, Plymouth, PL4 8AA. Tel. 01752 233053.

Many Thanks

Theresa Lowndes (University of Plymouth)

Appendix 4

Rural Travel and Transport Questionnaire - Results

Section A - General household questions

Personal_ID

Hhold_ID

Q.1 Where do you live?

Village

1=Bere Ferrers, 2=Gunnislake,
3=Looe, 4=Duloe,
5=St Keyne, 6=Crediton, 7=Lapford,
8=Yeoford, 9=Carbis Bay, 10=Lelant,
11=Perranwell, 12=Penryn

Postcode

Line

1=Tamar, 2=Looe, 3=Tarka, 4=St Ives, 5=Truro

Q.2 For how long?

Q.3 How many in household?

Q.4 How many Cars/Vans?

Q.5 How many motorcycles?

Q.6 How many drivers?

Q.7 How far to bus stop?

0=N/A, 1=0-250yds, 2=250-500yds, 3=1/2 mile,
4=>1/2 mile, 5=Don't Know

Q.8 How frequent is bus?

0=N/A, 1=Every 15mins, 2=Every 30 mins, 3=Hourly,
4=Less than hourly, 5=2x daily, 6=Daily, 7=Don't Know,
8=Twice weekly, 9=Weekly 10 = 4x week

Q.9 Bus destination?

0=N/A, 1=Nearest town, 2=Next village,
3=School, 4=Don't Know

Q.10 How far to rail station?

1=0-250yds, 2=250-500yds, 3=1/2 mile, 4=1mile,
5=Up to 2 miles, 6=up to 5 miles, 7=Don't know

Q.11 Nearest station?

1=Bere Ferrers, 2=Gunnislake, 3=Looe,
4=Causeland, 5=Sandplace, 6=St Keyne,
7=Crediton, 8=Lapford, 9=Yeoford, 10=Carbis Bay,
11=Lelant, 12=Lelant Saltings, 13=St Erth,
14=Perranwell, 15=Penryn 16=Liskeard 17=St Ives

Rural Travel and Transport Questionnaire - Results

Section B - Transport and Mobility

Q.12 How do household members travel to following?

Work	<input type="text"/>	School	<input type="text"/>
Shops	<input type="text"/>	Business	<input type="text"/>
Doctor	<input type="text"/>	Dentist	<input type="text"/>
Hospital	<input type="text"/>	Visits	<input type="text"/>
Leisure	<input type="text"/>		

0=N/A
1=walk
2=car
3=lift
4=bike,
5=motorbike
6=bus
7=train
8=taxi
9=Plane

Are any journeys impossible?

Q.13 What journeys are impossible because of transport problems?

Work	<input type="text" value="0"/>	School	<input type="text" value="0"/>	Shops	<input type="text" value="0"/>	0=N/A, 1=No, 2=Yes
Business	<input type="text" value="0"/>	Doctor	<input type="text" value="0"/>	Dentist	<input type="text" value="0"/>	
Hospital	<input type="text" value="0"/>	Visits	<input type="text" value="0"/>	Leisure	<input type="text" value="0"/>	
Other	<input type="text" value="0"/>	Details about other <input type="text"/>				

Q.14 What would solve these travel difficulties?

Access to a Car	<input type="text" value="0"/>	0=N/A, 1=No, 2=Yes		
More frequent buses	<input type="text" value="0"/>		More frequent trains	<input type="text" value="0"/>
Late evening buses	<input type="text" value="0"/>		Late evening trains	<input type="text" value="0"/>
Convenient bus times	<input type="text" value="0"/>		Convenient train times	<input type="text" value="0"/>
Sunday buses	<input type="text" value="0"/>		Sunday trains	<input type="text" value="0"/>

Rural Travel and Transport Questionnaire - Results

Section C - Rail Travel

Do you use the train?

☐

Q.15 How frequently do you use the train?

Frequency

0=N/A, 1=daily, 2=1-3x week, 3=Fortnightly,
4=Monthly, 5=<once a month

Q.16 Which rail services do you use?

Type of Service

0=N/A, 1=Branch, 2=Main, 3=Branch and main

Q.17 What Impact would Rail closure or cutback have?

Impact

0=N/A, 1=Severe problems, 2=Some difficulty,
3=Minor inconvenience, 4=No problem

Q.18 Why do you use the train?

0=N/A, 1=No, 2=Yes

Only Available transport

Convenience

Reliability

Quicker than bus

Cheap

Preferred

Concern for environment

Other

Detail

Rural Travel and Transport Questionnaire - Results

Section D - Attitudes to Rural Railways

Q.19 Statements about the train.

1=Agree strongly, 2=Agree,
3=Neither agree or disagree,
4=Disagree, 5=Disagree strongly

Train is reliable

Train is comfortable

Train too expensive

Train times inconvenient/infrequent

Station too far away

Q.20 Statements about the Branch Line

1=Agree strongly, 2=Agree,
3=Neither agree or disagree,
4=Disagree, 5=Disagree strongly

Branch line important to me

People depend on it to get to work

Services too inconvenient

Important to tourism

Q.21 Statements about Rail Privatisation

1=Agree strongly, 2=Agree,
3=Neither agree or disagree,
4=Disagree, 5=Disagree strongly

Privatisation could mean cuts

Privatisation could mean closure

Privatisation could mean improvements

Improvements would mean More Use

I would pay more for improvements

Rural Travel and Transport Questionnaire - Results

Section E - Personal Details

Q.22 Do you have access to a car?

Car Access

1=Always
2=Daytime
3=Evenings
4=Weekends
5=Evenings & Weekends
6=Never 7=Occasionally

Q.23 What is your employment status?

Job

1=Employed
2=Job Seeking
3=Student
4=Housewife/husband
5=Retired, 6=Disabled,
7=Self-employed

Q.24 What sex are you?

Sex

1=Male
2=Female

Q.25 How old are you?

Age

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Viewpoint

Rail privatization and local authority reorganization

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Planning for the provision of transport infrastructure and services has long been a particularly difficult task, fraught with financial and operational problems and subject to the play of competing ideologies. But transport planning is currently facing two further complications in the form of the local government review and the onset of rail privatization. The coincidence and interaction of these parallel policy shifts could pose potentially serious problems for the substantial minority of households and individuals without access to a car and who are dependent on public transport services. Local authorities furnish a key link between the providers of transport and the consumer, a relationship already reduced by the 1985 Transport Act and associated deregulation and privatization of bus services and now threatened by the restructuring of local government. The Local Government Commission was given a brief by the Government that explicitly included a preference for the replacement of the two-tier system by unitary authorities. Although the process faltered in 1994, many county councils are due to disappear and there will be a general fragmentation and reduction in the scale of local authorities.

Coincidentally, it is noteworthy that the rail privatization process is also based on a policy of fragmentation. British Rail is being broken up into a series of separate train operating and infrastructure companies (Plate 1), the implications of which could prove devastating for any future attempt to promote coherent transport planning at national, regional and local levels.

Rail privatization is widely seen as a serious threat to the survival of local rail services (Platform, 1993), but how far will local government reorganization also prove to be very damaging to the provision of public transport?

Pre-1992

In recent decades, the relationship established between local authorities and British Rail has been a strong one. This has been the case not only in the major conurbations, where Regional Railways have worked in conjunction with Passenger Transport Executives to provide urban commuter services, but also in many shire counties. Many English and Welsh County and Scottish Regional councils have played a fundamental role in stimulating and part-funding a wide range of improvements in the rail network. Their contributions have ranged from funding to secure 'marginal' services (for instance, Sunday trains on the Tamar Valley Line in the South West), to capital support for infrastructure projects such as stations and rolling stock (eg the Ribble Valley Line in Lancashire). Many counties have included rail transport in a strong transport coordination function.

There is a strong case supporting the argument that partnerships between local government and the railways, perhaps with the inclusion of the private and voluntary sectors, are the best way to ensure that rail lines continue to meet local and regional needs. Examples of such partnerships include the Devon and Cornwall Rail Partnership, the Cotswold Line and the Settle-Carlisle Line. Local author-

ities, particularly at county level, act as key providers and mobilizers of funding and other support for projects such as the marketing of local rail services. Without partnerships, such activities would often not be pursued (Salveson, 1993a). However, the proposed fragmentation of the counties into smaller unitary authorities threatens to weaken the pivotal influence of local government in transport planning and provision, particularly in rural areas.

Local government review

The review began swiftly and decisively and the first recommendation from the Commission was ready by December 1992. This proposed that the existing county and two districts on the Isle of Wight should be replaced by a single unitary authority, which appeared logical and acceptable to all the authorities concerned and to the public. Subsequent proposals have generated considerably more controversy and confusion, however. The County of Somerset, for example, where the original proposals were for three unitary authorities, will now retain its two-tier structure and, furthermore, will acquire the new unitary authorities of North West Somerset with Bath and North East Somerset (both formerly part of the now abolished Avon County) though these will not form part of the county council (Delafons, 1994c). In Gloucestershire recommendations for retention of the two-tier structure were initially rejected by the Environment Secretary although, after a second

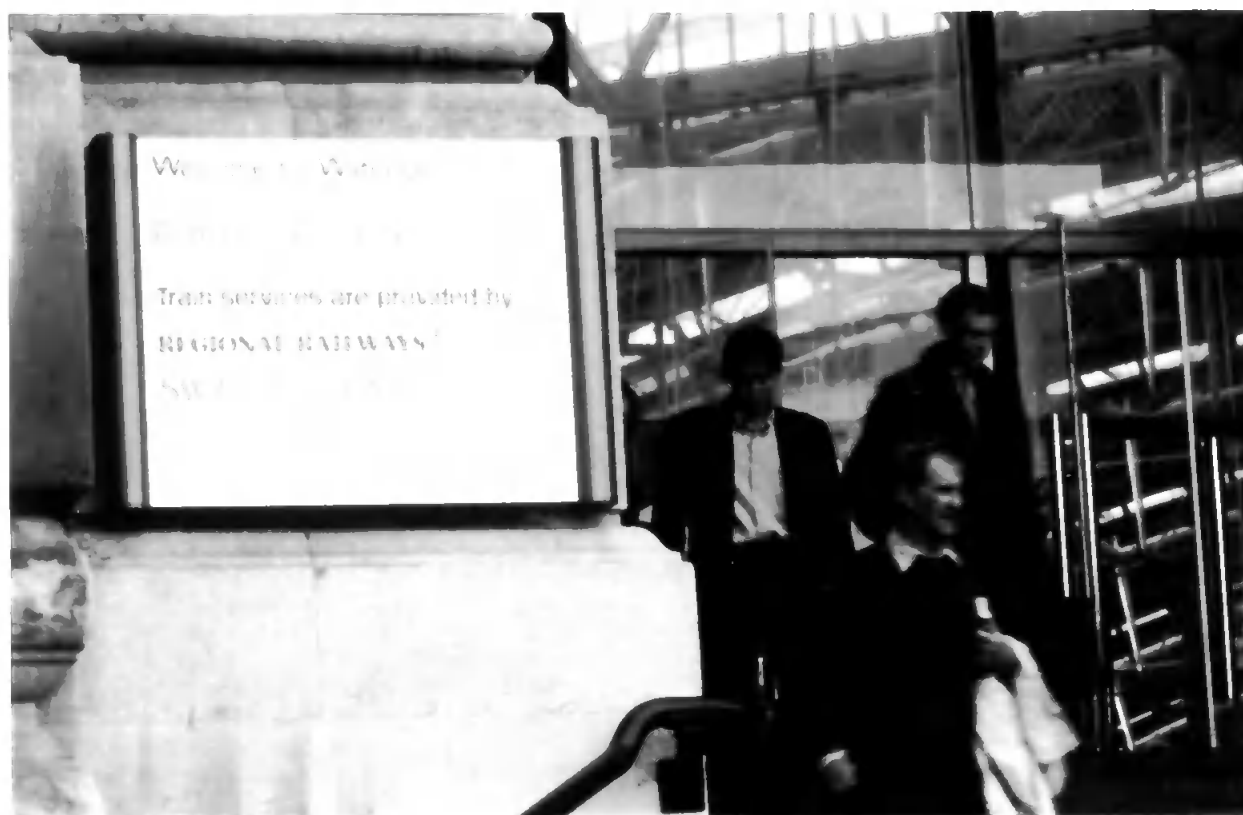


Plate 1 Railway fragmentation as illustrated by information board at Waterloo station

review. Gloucestershire is to retain the status quo. The High Court decision of January 1994 led to the revision of the Local Government Commission's guidelines, and a marked breach in the principle of unitary systems, with a number of counties recommended to keep their two-tier status.

By July 1994, the recommendations or preferred options for 36 English counties had been published, with only Cornwall, Hertfordshire and Shropshire still to be examined. Out of the 36 counties examined, 23 county councils were to be abolished and replaced by unitary authorities, with the remaining 13 to retain two-tier status in whole or in part (Delafons, 1994b). Further controversy generated by these proposals, however, led to further changes and the final recommendations, published in January 1995, left 19 counties with no change to their structure. Of the remaining 20 only eight were to be abolished totally and replaced by 29 unitary authorities while the remaining 12 counties retained their two-tier status in part with

the formation of 16 separate unitary authorities within their boundaries (Kimber, 1995) (see *Figure 1* for further details). In the rest of Britain the move to unitary authorities has been more complete. Eight Welsh counties are to be replaced with 22 unitary authorities and in Scotland nine regions will be replaced by 29 unitary authorities. Even though the reorganization in England has been less radical, the changes in prospect could pose major problems for transport planners throughout Britain.

Transport policy and coordination have been conducted on a county-wide basis. Fragmentation into separate unitary authorities will inevitably lead to more cross-boundary transport services. New transport initiatives will more often require commitment and effective cooperation between neighbouring authorities. However, there is a danger that more parochial concerns within smaller unitary councils will inhibit the development of such operations. The proposal that cross-boundary arrangements should be on

a voluntary rather than statutory basis may prove inadequate.

The privatization of the railways

Under the proposed plans for the privatization of railway passenger services, previously run by the three business sectors of Intercity, Network South East and Regional Railways, management will be broken down into 25 Train Operating Companies (TOCs) on which franchises will be based (*Table 1*). For Regional Railways this has meant an expansion from the existing five regions into seven independent train operating companies (Dept of Transport, 1994). The track and infrastructure meanwhile have been separated from the operating services and vested in Railtrack, an infrastructure company which is subdivided into ten zones. For local authorities the difficulty will lie in achieving a coherent and coordinated relationship with the many different strands that will make up the railway

New Unitary Authorities In England and Wales

- | | |
|---------------------------|-------------------------|
| 1 Plymouth | 53 Wrexham |
| 2 Torbay | 54 Dudley |
| 3 Western Dorset | 55 Wolverhampton |
| 4 Eastern Dorset | 56 Walsall |
| 5 Poole | 57 Sandwell |
| 6 Bournemouth | 58 Birmingham |
| 7 New Forest | 59 Solihull |
| 8 Southampton | 60 Coventry |
| 9 Isle of Wight | 61 Leicester |
| 10 Portsmouth | 62 Rutland |
| 11 Brighton | 63 Derby |
| 12 North West Somerset | 64 Nottingham |
| 13 Bath and N.E. Somerset | 65 Stoke-on-Trent |
| 14 South Gloucs | 66 Wirral |
| 15 Wansdyke | 67 Sefton |
| 16 Thamesdown | 68 Liverpool |
| 17 Newbury | 69 Knowsley |
| 18 Reading | 70 St Helens |
| 19 Wokingham | 71 Wigan |
| 20 Royal East Berks | 72 Salford |
| 21 Slough | 73 Bolton |
| 22 Wycombe | 74 Bury |
| 23 South Bucks | 75 Trafford |
| 24 Aylesbury | 76 Manchester |
| 25 Milton Keynes | 77 Stockport |
| 26 Central Beds | 78 Rochdale |
| 27 Luton | 79 Tameside |
| 28 Bedford Borough | 80 Oldham |
| 29 Greater London | 81 Kirklees |
| 30 Southend-on-Sea | 82 Calderdale |
| 31 Monmouthshire | 83 Bradford |
| 32 Newport | 84 Sheffield |
| 33 Cardiff | 85 Barnsley |
| 34 Caerphilly | 86 Wakefield |
| 35 Torfaen | 87 Leeds |
| 36 Heads of the Valleys | 88 Rotherham |
| 37 Merthyr Tydfil | 89 Doncaster |
| 38 Glamorgan Valleys | 90 North Lincs |
| 39 Vale of Glamorgan | 91 North East Lincs |
| 40 Bridgend | 92 East Riding of Yorks |
| 41 West Glamorgan | 93 Kingston upon Hull |
| 42 Swansea | 94 York |
| 43 Carmarthenshire | 95 Middlesbrough |
| 44 Pembrokeshire | 96 Redcar & Cleveland |
| 45 Cardiganshire | 97 Stockton-on-Tees |
| 46 Powys | 98 Darlington |
| 47 Hereford | 99 Hartlepool |
| 48 Caernarfon | 100 Gateshead |
| 49 Anglesey | 101 Sunderland |
| 50 Aberconwy & Colwyn | 102 South Tyneside |
| 51 Denbighshire | 103 Newcastle on Tyne |
| 52 Flintshire | 104 North Tyneside |

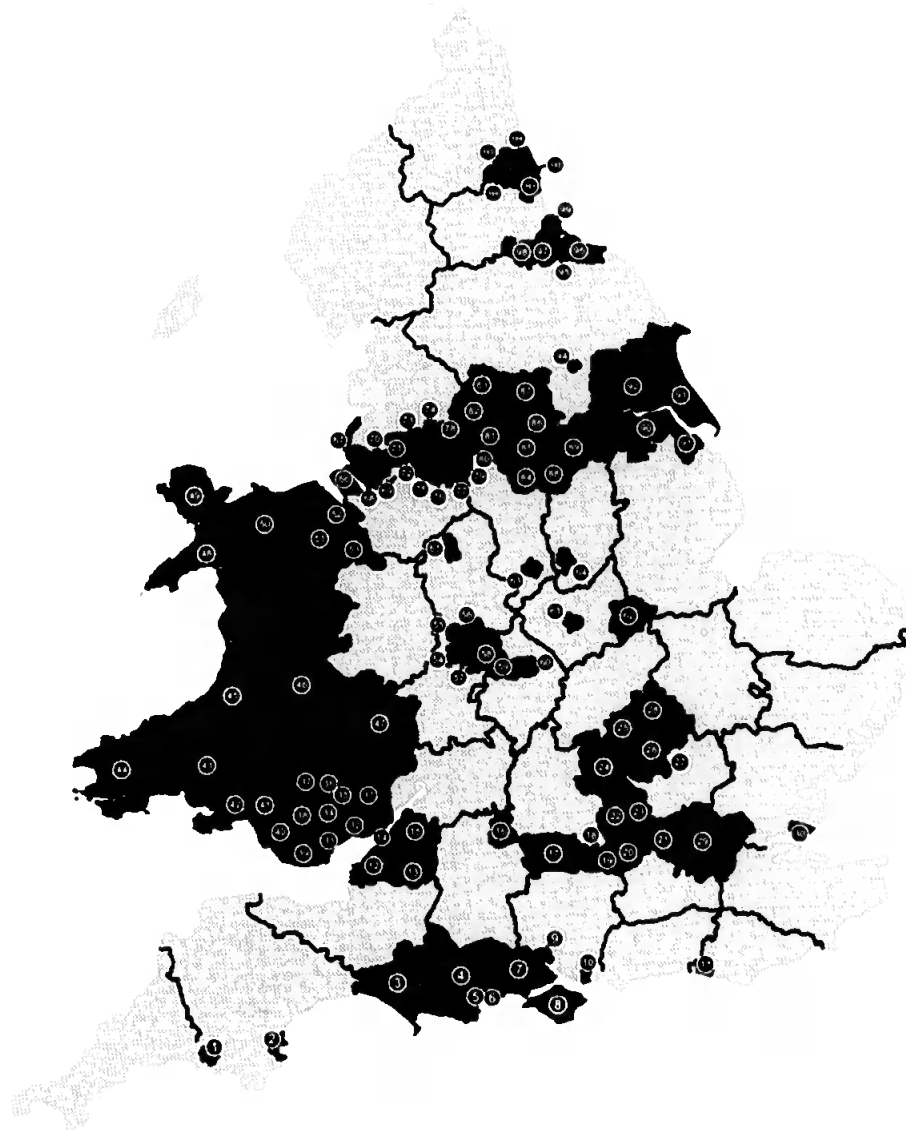


Table 1 Passenger train operating companies, 1995

Intercity	Former Network South East	Regional Railways
Anglia	Chiltern Lines	Cardiff Railway Co
Cross Country	Great Eastern Railway	Central Trains
East Coast	Island Line (Isle of Wight)	Mersey Rail Electrics
Gatwick Express	LTS Rail (London Tilbury Southend)	North East
Great Western	Network South Central	North West
Midland Main Line	North London Railways	Scotrail
West Coast	South Eastern	South Wales and West
	South West Trains	
	Thames Trains	
	Thameslink	
	West Anglia Great Northern Railway	

Source: Modern Railways (1995).

system. Whereas previously a local authority could deal with their local regional or sector management on a wide variety of matters ranging from subsidizing a particular service to re-opening or building new stations, they will now be obliged to negotiate with Railtrack, the TOC and the Office of Passenger Rail Franchising (OPRAF). If, for example, a local authority wishes to instigate a new service not only will they have to obtain the cooperation of the train operating company, it will also be necessary for the TOC to negotiate with Railtrack over charges and track paths (Dept of Transport, 1994). The financial constraint placed upon Railtrack by the Government (not only to recover its costs but to generate a rate of return of around 8%) has already resulted in a doubling or even tripling of track access charges (Donegan, 1994). This raises two concerns over the development of local transport. The first is that Railtrack will charge excessively high overhead costs on infrastructure projects such as new stations (a problem already faced by Devon County Council when the cost of building a proposed new station rose by at least 20% after April 1994). The second main concern is that Railtrack will concentrate its investment in the core network, thus becoming unwilling to support local authority initiatives on the more peripheral routes.

Despite these potential difficulties, privatization has the potential to provide opportunities, although this could be threatened by the results of the local government review. Privatization need not necessarily mean the collapse of local rail networks. In theory there

could be opportunities to reshape regional rail services via locally based companies, responsive to the particular requirements of their area and working in cooperation with local authorities (Salveson, 1993b). In practice this now seems unlikely, with the current publicly owned Regional Railways TOCs evidently set for transformation into private-sector entities. These typically cover geographically large areas, as with the South Wales and West TOC (Figure 2), whose train services range as far afield as Manchester, Brighton, Fishguard and Penzance (Dept of Transport, 1992). The objectives of such new private-sector companies will become ever more commercial, while they will also feel the pressure from reduced central government support. They may be less willing to adopt policies that are sensitive to the needs of specific areas, particularly where financially marginal or experimental services are concerned. Resources are more likely to be concentrated in their more lucrative markets.

This potential dissonance between the railway companies' policies and the needs of local communities would be better overcome by a strong, coherent transport planning body with the scope and power needed for effective strategic action. Annex B of the 1992 Policy Guidance to the Local Government Commission recognizes the need for transport to be considered over areas that reflect travel patterns, ie inter-authority cooperation may be essential in transport planning as in land-use planning. Exactly how readily such arrangements can be developed may be less certain, however.

Implications for transport planning

If the recommendations contained in the recent report from the Royal Commission on Environmental Pollution (Houghton, 1994) are acted upon, public transport, including the railways, should assume an increasingly important role. For instance, the value of 'congestion-busting' services running into cities from their catchment areas has long been recognized by local authorities and Regional Railways (Dept of Transport, 1992). A number of successful partnerships have been built around such strategies, including lines in the South Wales Valleys and the 'Robin Hood Line' from Nottingham to Newstead and Mansfield.

The possible fragmentation of local authority structures would seem to present a real threat to country-wide planning of transport strategies which might have enabled the potential outcome of rail privatization to be optimized. Concerns about such issues have been raised frequently, notably by Sir John Banham, Chairman of the Local Government Commission, when he gave evidence before the Select Committee on the Environment in October 1993 (Delafons, 1994a). In the more rural parts of the country he felt that it was important to have a structure that could not only address strategic issues such as land-use planning and transportation but could also perform locally orientated functions, a need perhaps best met by a two-tier structure. He went on to question whether a unitary structure would in fact give the 'worst of both worlds' (Delafons, 1993). This view has been reflected in the increasing

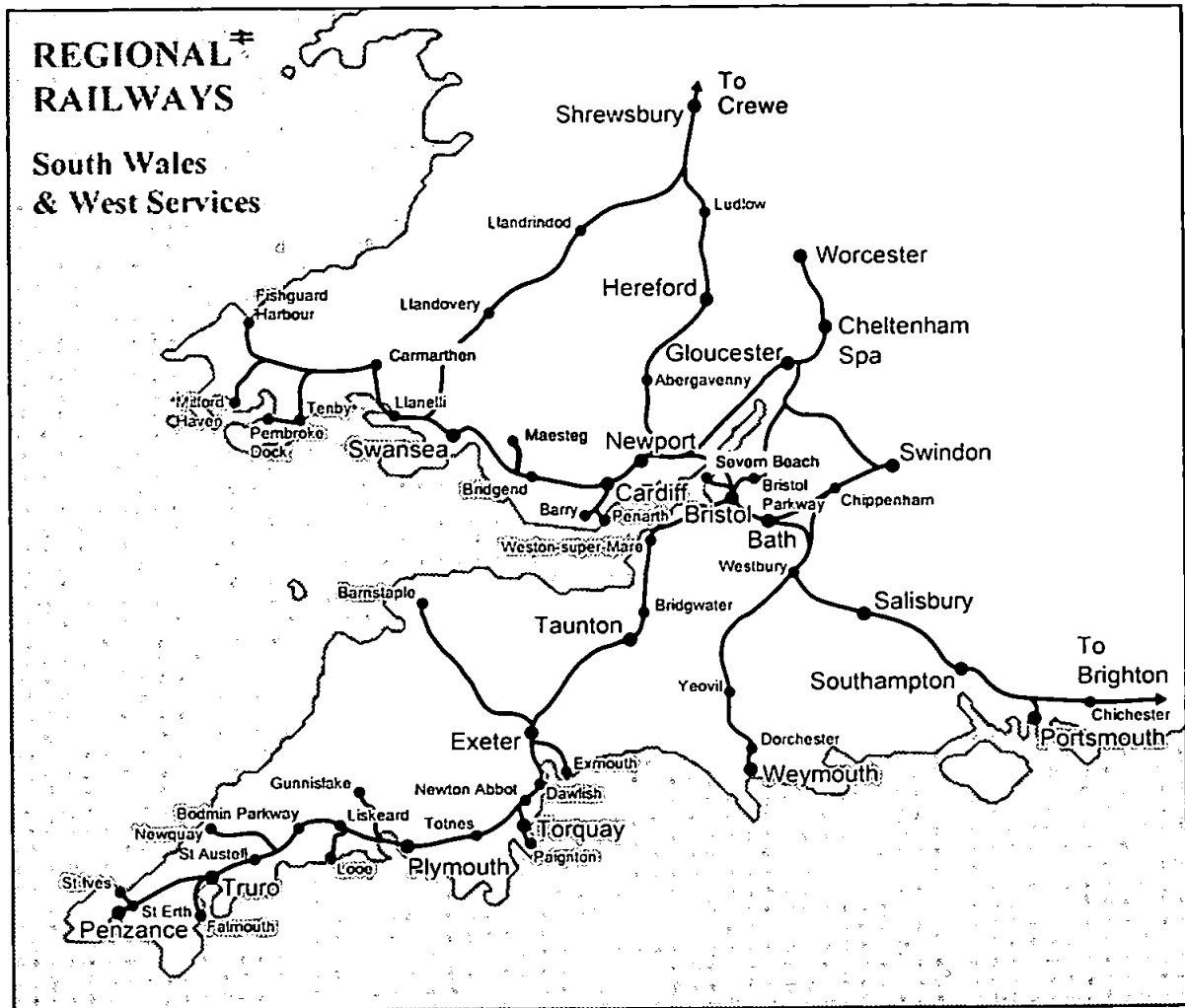


Figure 2 South Wales and West Train Operating Company

tendency for the Local Government Commission to retain two-tier structures.

In Wales, for which the Local Government (Wales) Act has already received Royal Assent, there are fears that the replacement of eight counties and 37 districts by 22 new unitary authorities will inhibit effective transport planning and further rail development. Over the past two decades, there has been a significant series of rail re-openings in South Wales, including the re-introduction of passenger services to Aberdare and Maesteg and, in 1994, local trains between Swansea and Bridgend (the 'Swan-line'). Mid-, South- and West Glamorgan counties have played a critical role in this 'rail revival'; their

replacement with eight new unitary authorities will inevitably lead to the need for more cross-boundary co-operation. There is concern that few of the schemes in prospect will go ahead in the current climate of uncertainty, particularly with the complexities of negotiating agreement with so many different bodies. Further, the Government is opposed to formal inter-authority bodies (of the PTE variety) and insists that joint co-operation should be on a voluntary basis.

If one compares the map of the new unitary and two-tier authorities (Figure 1) with the map of the South Wales and West TOC (Figure 3) it becomes apparent that South Wales is not the only area to be affected by this. The

break-up of Avon into four unitary authorities with a similar reorganization in Dorset, together with the formation of various unitary authorities within other counties, will inevitably have an impact. It only requires one unitary authority to shift its focus and concentrate on local issues rather than broader cross-boundary planning to disrupt the viability of a transport project. Both the planning and funding of such cross-boundary rail services are dependent on cooperation; the 'dropping out' of any one partner could severely jeopardize the future of such projects.

A number of models of collaboration for more effective coordination of rail policy and action are already in place, including the long-established PTEs in

the conurbations. Several examples can be found in the South West. As part of the process of defining Passenger Service Requirements (PSR) for passenger rail franchises, the Franchise Director is obliged to consult local authorities. This is to be focused not on individual councils but on groups of authorities.

The South West Lineside Consortium has been established to develop a combined response to OPRAF's PSR proposals in the region. Each county involved has a seat on the Consortium committee, and the districts in each county combine to put forward a single representative. At a larger scale, the counties in South Wales and the West of England, plus Bristol, Exeter and Plymouth, have combined to finance consultation on the strategies for the future development of the Great Western main lines (GW2000 study). Finally, the initiatives undertaken to market leisure travel on local branch lines under the umbrella of the Devon and Cornwall Rail Partnership have been carried out with the active involvement of both the two counties and the districts in the region.

While such examples suggest that local authorities can adapt to the

demands of cross-boundary transport planning, they fall short of the more comprehensive approach that may be needed. It is noteworthy that the Royal Commission on Environmental Pollution includes among its recommendations that there should be statutory 'Local Transport Authorities' akin to PTEs (Houghton, 1994). Just how responsive the Government will be to such a suggestion is debatable!

In conclusion, local authority reorganization is very likely to pose additional problems for the effective coordination of rail policy at a time when the rail system itself is undergoing profound change. At the same time, it can be suggested that all is not lost in this regard. Universal fragmentation now seems less likely, with two-tier structures no longer inevitably an extinct species. Further, there is both the resolve and the potential for effective collaboration between neighbours (assuming local political rivalries can be minimized). However, other challenges to the health of local rail services may be more intractable, not least the fundamental problems of finance and lack of investment, and the fragmentation of control and divergence of interests within the railway industry itself.

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The privatization of British Rail

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The privatization of public-sector industries has been a key policy of the UK Conservative government since the 1979 general election. As well as the public utilities such as gas, electricity and water, the transport industry has experienced massive restructuring in the form of privatization and deregulation intended to promote competition and engender a more flexible market-place. This paper examines the privatization of British Rail and evaluates the changing policy objectives and potential impacts of rail privatization.

Since 1979, the dominant philosophy of government in Britain has been that of the neoliberal—searching for ways to reduce public-sector involvement, promote market-led policies and encourage free-market economies driven by enhanced competition. At the heart of this policy has been the privatization of public-sector industries (Heald, 1984), particularly the large monopolies such as gas, water, electricity and telecommunications. The transport industry has also experienced massive restructuring in the form of privatization and deregulation, leading to increased competition and a more flexible market-place (Beesley, 1992). Sealink, British Airways, the National Freight Corporation, coaches and buses, together with the major ports and airports, have all experienced deregulation or privatization. The privatization of the rail industry, however, has always been recognized as particularly difficult. This is in part due to the 'unique' place the railways hold in the affections of the British public. More importantly, however, the railway industry is neither profitable nor easily broken up into parts able to promote competition. Notwithstanding these difficulties, the planned privatization of the railways has been a recognized goal of the Conservative government since 1989.

Here we argue that the process leading to the privatization of British Rail (BR) actually started in the early 1980s and has been a more protracted process than most political commentators credit. Furthermore, it is argued that BR has been better prepared than most industries for privatization as a result of the restructuring process that began well before the strategy and timetable for privatization became clear. Indeed, it can be argued that this restructuring has been so successful that many of the objectives of privatization have already been met. The aims of the paper are twofold: first, to examine the nature and evolution of privatization in the context of the transport industry generally and BR in particular; and secondly, to examine the changing objectives and potential impacts of privatization on the restructuring of BR in preparation for the private sector. The objectives and strategy for the privatization of BR will be examined in detail and assessed in relation to the reorganization that has already taken place.

Privatizing the transport industry

Since 1980, the transport industry has been regarded as an ideal candidate for privatization and deregulation. Whereas in the past, transport was generally perceived as an industry that required government control and supervision, the neoliberal philosophy prioritizes market forces. Kay and Thompson (1986) identify de-nationalization (the sale of publicly owned assets), deregulation (the introduction of competition into statutory monopolies) and contracting-out (the franchising to private firms of the production of state-financed goods and services) as the three main methods of achieving neoliberal policy objectives. The restructuring and privatization of the transport industry has in the past involved one or more of these methods and in the case of the railways all three have been adopted.

The Conservative general election manifesto of April 1979 (Conservative Central Office, 1979) made few references to transport but subsequent Transport Acts in 1980, 1981, 1982 and 1985 were to set the scene for a radical reorganization of the transport industry. The 1979 manifesto did, however, contain a pledge to sell shares in the National Freight Corporation to the public. In fact the privatization of the National Freight Corporation in 1982 took the form of a management buy-out, a straightforward de-nationalization involving the sale of publicly owned assets and the formation of a new private company. The 1979 manifesto also pledged to expose artificial monopolies, such as bus services, to competitive pressures through the liberalization of entry restrictions. However, the commitment to relax licensing regulations in order to encourage the development of new bus and other services, particularly in rural areas, made no mention of full-scale privatization. The 1980 Transport Act did indeed liberalize entry to the long-distance express coach market and was followed rapidly by the 1982 Act, which introduced private capital into the National Bus Company. The 1985 Transport Act signalled the final break-up of the nationalized bus industry into 70 companies sold off to private-sector interests, many to management buy-outs. Of BR there was no mention, yet as early as 1981 the Transport Act was making provision for the sell-off of BR subsidiaries such as Sealink, BR Hovercraft, British Transport Hotels and the non-operational property of the railways.

The aims and objectives of privatization

Any attempt to evaluate the impact of privatizing the railways rests on identifying the aims of privatization and deregulation. The Conservatives are well known for their strong commitment to neoliberalism (Gamble, 1994), but the first time the objectives of privatization were explicitly outlined was in 1983, in a speech by John Moore, the Financial Secretary to the Treasury (Moore, 1983). Business efficiency was cited as a key objective, to be achieved by the promotion of competition. Monopolies were no longer considered to be in the public interest. To these objectives can be added such benefits as reducing government intervention, increasing investment in privatized industries, reducing the public sector borrowing requirement, raising revenue for the Treasury, improving services to the consumer, spreading popular capitalism through the sale of shares to the general public and, importantly, reducing trade union power coupled with increasing workforce involvement through the medium of share ownership (Beesley and Littlechild, 1983; Heald, 1984; Kay and Thompson, 1986; Wiltshire, 1987; Letwin, 1988).

The priorities attached to these objectives constantly change, evolving according to the current needs of government. As Heald points out:

The various policies embraced by the term 'privatisation' have been shown to be extremely diverse. Consequently an evaluation of specific acts of privatisation will depend heavily upon

which particular sense of the word is involved and how such a step affects the achievement of the various policy objectives. (Heald, 1984: 45)

From an initial concern with the liberalization of markets leading to increased competition and efficiency that was displayed in the 1980 Transport Act, Kay and Thompson (1986) note that by 1986 the transfer of ownership had become a primary objective. Beesley (1992), however, argues that the 1985 Transport Act had three objectives: deregulation, the reduction of government subsidy and privatization. In the 1990s it would seem that the priorities appear to have changed again, with financial benefits to the government taking equal priority with competition and efficiency.

The case of the railways

The objectives of privatization have therefore changed over time, and from the literature (for example, Beesley and Littlechild, 1983; Moore, 1983; Kay and Thompson, 1986; Beesley, 1992) it is possible to identify how the policy evolved. More recently, the financial benefits appear to have been accorded a higher priority, with the government keen to shed responsibility for public-sector industries perceived to be a 'financial drain', while raising revenue through the sale of public-sector organizations to the private sector. One constant factor, regardless of changing aims and objectives, remains the underlying neoliberal philosophy—seeking to reduce government involvement and encourage a free market driven by competition. Perhaps more than any other privatization, the case of BR highlights the way that objectives and mechanisms vary and can change, while retaining the driving force of neoliberal philosophy. Government policy on the railway industry has been constantly evolving and changing in accordance with current thinking on privatization, and also in the light of experience once the process got under way.

The turning point for BR occurred in 1982, at a time of considerable financial difficulty. Despite the financial respite afforded by the privatization and asset sales in the non-rail side of the business, BR had an estimated deficit of £154 million (Bagwell, 1984) and a recorded net group loss of £37 million in the year 1981–2. According to the Adam Smith Institute (1983), BR losses amounted to more than £1000 million in 1982–3, with the revenue raised covering only half the cost of running the railways. As early as 1981, BR had asked the Secretary of State for 'a clear sense of direction and a workable financing framework' in its 'Rail Policy Statement' (British Railways Board, 1981), and the government responded in May 1982 by setting up a Committee of Enquiry into Rail Finances under the chairmanship of Sir David Serpell.

The Serpell Report (Serpell, 1983), published in January 1983, did not, however, provide BR with the workable finances it had requested. Instead of looking into the long-term role of the railways and suitable ways of financing BR, it focused very strongly on ways of improving the railways' short-term financial prospects. Closures were to feature strongly in the proposed solutions, together with reduced service frequencies, higher commuter fares (particularly within the South East region) and a reduction in the maintenance and replacement of old technology such as signalling. Arguments that the avoidance of road congestion or energy efficiency were valid reasons for supporting railways were dismissed. The main aim appeared to be reducing the level of government support for the railways. Despite BR's plea that under-investment was already leading to huge problems in track maintenance and increasing speed restrictions on stretches of track throughout the network, the Serpell Report proposed savings of £220 million to be spread over 10 years. The Report received an extremely hostile reception and the Transport Secretary was quick to reassure the

Commons that although the report gave a 'basis for decisions and for action ... the extreme options were not acceptable' (Hansard, 1983).

It seems highly probable that this is the point at which existing notions on railway privatization began to crystallize into more coherent policy. If the cost-cutting measures proposed were unacceptable, then the government would have to look at different ways of achieving its aims. The Transport Secretary later confirmed that he was considering plans for the privatization of railway lines in Wales, Scotland and South East England (Hope, 1983). At the same time, with the government's active support, the management and operational structures of BR experienced a radical transformation. Up to 1982 the railways had been run as five geographical units (*Figure 1*). This was replaced with five business sectors—Intercity, Network South East, Regional Railways, Parcels and Freight. These were seen as a likely basis on which the future privatization of BR could be based.

From 1983 onwards a number of privatization schemes were proposed. Many of the usual reasons put forward for privatization, such as injecting competition and efficiency into an industry, were not necessarily valid. For example, BR was not a true monopoly because it operated in direct competition with roads for both freight and passengers. Many, in fact, argued that the competition it faced was unfair, as roads have always been in government control and road users do not pay directly for their costs (Transport 2000, 1989). Furthermore, investment in road building is justified through the use of cost-benefit analysis and is not expected to yield a direct financial return on the capital invested. When the railways ask for permission to upgrade infrastructure, often spending internal funds, there is no equivalent cost-benefit analysis. Instead, the capital invested must yield a minimum 8 per cent financial rate of return (Salveson, 1989; Transport 2000, 1989). The argument for efficiency is equally difficult to judge in an industry dominated by a loss-making public-service obligation and suffering, in the eyes of BR, from under-investment. Nonetheless, there were undoubtedly changes that could be made to run the industry more efficiently.

Proposals for rail privatization

A variety of approaches to privatization were put forward as policy evolved. They contained each of the key methods of privatizing an industry identified by Kay and Thompson (1986). One of the earliest proposals came in the Adam Smith Institute's (1983) Omega Report on transport policy in 1983. The key theme underpinning this report was that public transport should operate within a free market run by the private sector. Privatization of both the bus and train industries was proposed and it was suggested that to achieve a free market for transport it would be necessary to charge road users. Their proposals for the privatization of the bus industry were in fact very similar to the scheme finally adopted. The more radical concept of equal competition through the medium of charging road users was, however, largely ignored. For the railways, the Institute proposed decentralization and privatization; BR was to rid itself of all remaining peripheral activities, track renewal and major maintenance were to be contracted out, British Rail Engineering Ltd was to be separated from BR and sold off to the private sector, disused rail lines were to be sold off to private developers, and unprofitable and underused lines were to be closed. In addition, the Institute proposed that BR's management structure be broken up into cost centres, building up a financial and traffic record for each line and unit which could then be sold leasehold. Competition was to be maximized by some form of regulation aimed at preventing one company from buying up the leases on adjacent competing lines. Although elements of the policy finally adopted for the privatization of BR can be seen here, key aspects, such as full competition between private and public

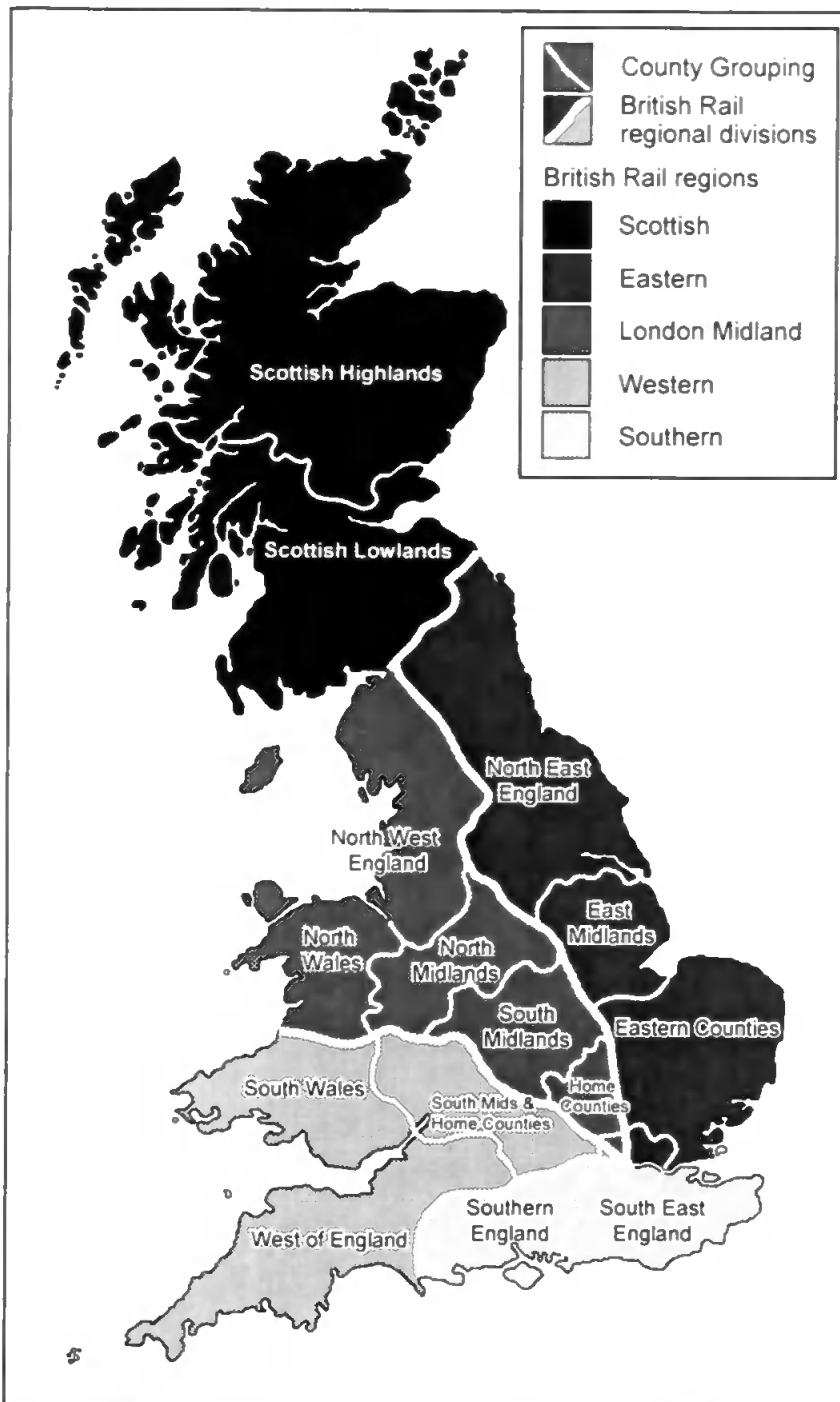


Figure 1. The five geographical regions of British Rail

transport through the proper allocation of costs and the vertical integration of railway franchises, failed to materialize.

Another discussion of rail privatization in 1983 came from Beesley and Littlechild (1983). British Rail was viewed as a monopoly suffering a decline in demand. In effect, it was a monopoly operating within a competitive market-place. It was seen as not readily divisible and as a consequence reasonably sized, geographically separate sectors were proposed, perhaps based on the old regions (see *Figure 1*). To secure the provision of services the successor companies should be floated in such a way that in return for command over assets they would be bound to provide a 'minimum' programme of rail output, heavily client orientated and financed by profits from all activities. In effect, the proposal called for a cross-subsidization of unprofitable services which was later rejected by the government in the case of the bus industry (Barrett, 1984). Direct competition on the railways was not really seen as an option because no one would be willing to 'take on' railway companies operating on long-established routes.

By the latter half of the 1980s rail privatization was firmly established on the political agenda. It was no longer a case of whether the government would decide to privatize, but of when and how the railways could be privatized. As a result, further privatization models were proposed.

The Adam Smith Institute again became involved in the debate in the late 1980s, when Kenneth Irvine published *The Right Lines* (1987) and *Track to the Future* (1988), which proposed the privatization of BR through the formation of a separate infrastructure company and the setting up of train operating companies, initially based on the business sectors but which would eventually include other companies operating in competition. Regional Railways would, however, be split into individual cost centres to be operated by private-sector companies as individual franchises. In many ways these proposals can be viewed as the model on which the final privatization was based.

Other proposals, such as those put forward by Gritten (1988) for a regional division of the BR network into vertically integrated independent companies, each covering major route corridors similar to those that had existed in the past, were seen as unworkable. The proposal involved the introduction of competitive companies operating trains on the track owned by the main regional companies, with allowance made for direct competition between companies on parallel routes, such as the various main lines into London. However, because of the proposed vertical integration of track and trains, both Transport 2000 (1989) and Irvine (1988) foresaw difficulties, both in negotiating through traffic and connecting services across the territory of several different railway companies, as well as in the potential loss of network-wide fares packages such as railcards. There was also concern expressed over the prioritizing of access to train paths, with the possibility of competitor services being forced to give way to trains owned by the host company that owned the track (Transport 2000, 1989).

The final suggestion, favoured by Transport 2000 (1989) and BR itself, was to privatize BR as a whole, a solution which would emulate the previous transfers of state monopoly to private-sector monopoly already seen in the privatization of the utilities. A solution such as this would at least keep the rail network intact, although the main argument against it was that it made no provision for competition. In the view of Transport 2000 (1989), no further competition was needed within the railways as they already faced intense competition from other modes of freight and passenger transport. If the privatization of the railways as a single unit was to prove impossible—for example, if BR was considered to be too large—then Transport 2000 argued in favour of a continued sectorization as the next least damaging option, with the five business sectors being established as separate companies overseen by a holding company to regulate and mediate between the companies.

Initial stages of privatization

The preparation for privatization started in the early 1980s with the sale of non-railway businesses to the private sector and the restructuring of BR into business sectors. Once the non-railway businesses, such as British Transport Hotels and Sealink Ferries, had been transferred to the private sector, other peripheral businesses, such as station catering, were privatized. BR's rolling stock construction and repair subsidiary, BREL, was sold to a consortium of management and private-sector firms, including the Swedish firm ABB, and forced to compete for business as BR put contracts for new rolling stock out to competitive tender (Truelove, 1992). Within the freight industry, private-sector involvement increased. By 1989, there were approximately 180 privately owned freight terminals, 31 per cent of the wagon fleet was privately owned and freight customers started to operate their own locomotives, representing a form of partial deregulation (Salveson, 1989). It could of course be argued that these developments were simply a means of increasing business efficiency. It seems more likely, however, that the restructuring process and increased private-sector involvement, together with the selling off of non-essential railway businesses, were in preparation for privatization. As Jenkins (1993: 6) observed in relation to BR personnel: 'many senior posts are already filled by people from private sector backgrounds, recruited as part of the drive towards business orientation since 1982'.

There is a strong case to be made for interpreting the process of rail privatization as being a long planned and protracted process. Indeed by 1989, when privatization was clearly acknowledged as the course to which the government was committed, BR appeared to be experiencing an upturn in economic viability and efficiency brought about by the reforms and reorganization that had taken place since 1983. Overall the railways were in profit for the third successive year and Intercity, in its first year of operation without a PSO grant, made a profit of £57 million (Reid, 1989). The remaining business sectors, apart from Parcels which made a loss, looked equally healthy: Railfreight increased its operating surplus by 50 per cent; Network South East almost halved its grant requirement; and Regional Railways achieved record growth. Both the PSO grant and the EFL (external finance limit), which governed BR borrowing, had been reduced since 1983, costing the taxpayer 51 per cent less in real terms and representing a saving of £570 million (Reid, 1989). In addition, the PSO grant was restricted to Network South East and Provincial Railways (the predecessor of Regional Railways). Intercity, Freight and Parcels ceased to be eligible in 1987–8 and were required to make a return on assets of 2.7 per cent by 1989–90. In addition to these marked financial improvements, the upturn in the railways was also marked by an increasing number of both passenger kilometres and passenger journeys (*Figures 2 and 3*). It must be noted, however, that the upturn in the railways paralleled a period of economic buoyancy in the late 1980s.

British Rail was a leaner and more efficient organization; staff productivity (measured in train miles per member of staff) had risen 8 per cent in the year 1988–9 (Reid, 1989) and since 1979, 70 000 jobs had been shed, 54 945 within the rail industry itself and the remainder from the sale of subsidiaries (Salveson, 1989). A major problem during this period, however, was the low level of investment throughout the railway system, which has continued as a result of the uncertainty associated with the privatization process.

As a prospect for full-scale privatization, BR seemed to be a suitable candidate and, according to Paul Channon (1988), then Secretary of State for Transport, it was no longer a lame-duck nationalized industry. The reorganization of BR and the drive towards business efficiency created a commercial business ready to operate in the private sector subject to commercial disciplines. Somewhat paradoxically, therefore, it could be argued that privatization was no longer necessary. The problems that privatization were intended

monopolies. They want the maximum of competition, diversity and choice. (*The Economist*, 1993: 20)

To achieve this 'competition, diversity and choice', the lessons of previous privatizations had been studied and incorporated into the final plans for privatizing an industry that had already undergone ten years of preparation. Between the time that the white paper was published in 1992 (Department of Transport, 1992) and the date privatization officially began (1 April 1994), the plans were refined and clarified and various changes were made as the bill passed through the parliamentary process. The finalized plans are probably best summed up by the Department of Transport's publication *Britain's Railways: A New Era* (Department of Transport, 1994), published in March 1994 on the eve of privatization. This details the final structures of the soon-to-be-privatized rail industry. The intention was to compartmentalize BR into more than 60 independent businesses, each cooperating on a contractual, commercial basis.

To oversee this process two new posts have been established, that of the Franchising Director and Rail Regulator. The Franchising Director heads the Office of Passenger Rail Franchising (OPRAF) and is responsible for overseeing the franchising of passenger services and acting as the channel for financial support from central government for unprofitable but socially necessary services. The Rail Regulator, on the other hand, is in charge of promoting and regulating competition, approving access agreements between Railtrack and the train operating companies, overseeing licence applications and promoting and protecting the interests of both passengers and train operating companies (Hughes, 1994).

The track, signalling, infrastructure, buildings and operational land come under the ownership and management of Railtrack, a company whose brief is to grant train operators access rights to the track and charge them accordingly. Railtrack is also responsible for central timetabling, train planning and signalling, and is the body ultimately accountable for the safety of the operational network. In addition to these quite onerous obligations, Railtrack has to both maintain and invest in infrastructure. The passenger stations, nearly 2500 in number, will be leased to licensed station operators to manage but Railtrack will remain responsible for the structural condition of the stations. Railtrack itself will operate as ten zones: Scotland, North East, North West, Midlands, Great Western, South West, South, East Anglia, West Coast Main Line and East Coast Main Line (Figure 4).

Passenger services are to be sold off as 25 separate franchises (Table 1), each of which negotiates its own access agreements with Railtrack (Department of Transport, 1994). European Passenger Services, because it is a new company without a track record, will be privatized separately and at a later date. In addition to Gatwick Express, which began operating as a shadow franchise in October 1993, a further six train operating units became shadow franchises in April 1994 and the remaining 18 commenced operation in April 1995. The intention is that each unit will become incorporated as a train operating company and will have the opportunity of building up its own financial, operational and traffic record, prior to being franchised to the private sector. In addition, the legislation originally allowed for the formation of other, competitive, passenger services as new train operating companies are established and negotiate access to the Railtrack network. Open-access agreements of this type have since been deferred until 2002, allowing potential franchisees time to establish the existing train operating companies.

However, the most striking feature of the level of interest in franchise agreements, let alone the impact of such agreements on line/station closures and service scenarios, is the degree to which it is unknown. Both the timetable and interest in franchise agreements remains uncertain and vague. Overall, 37 companies applied for pre-qualification status

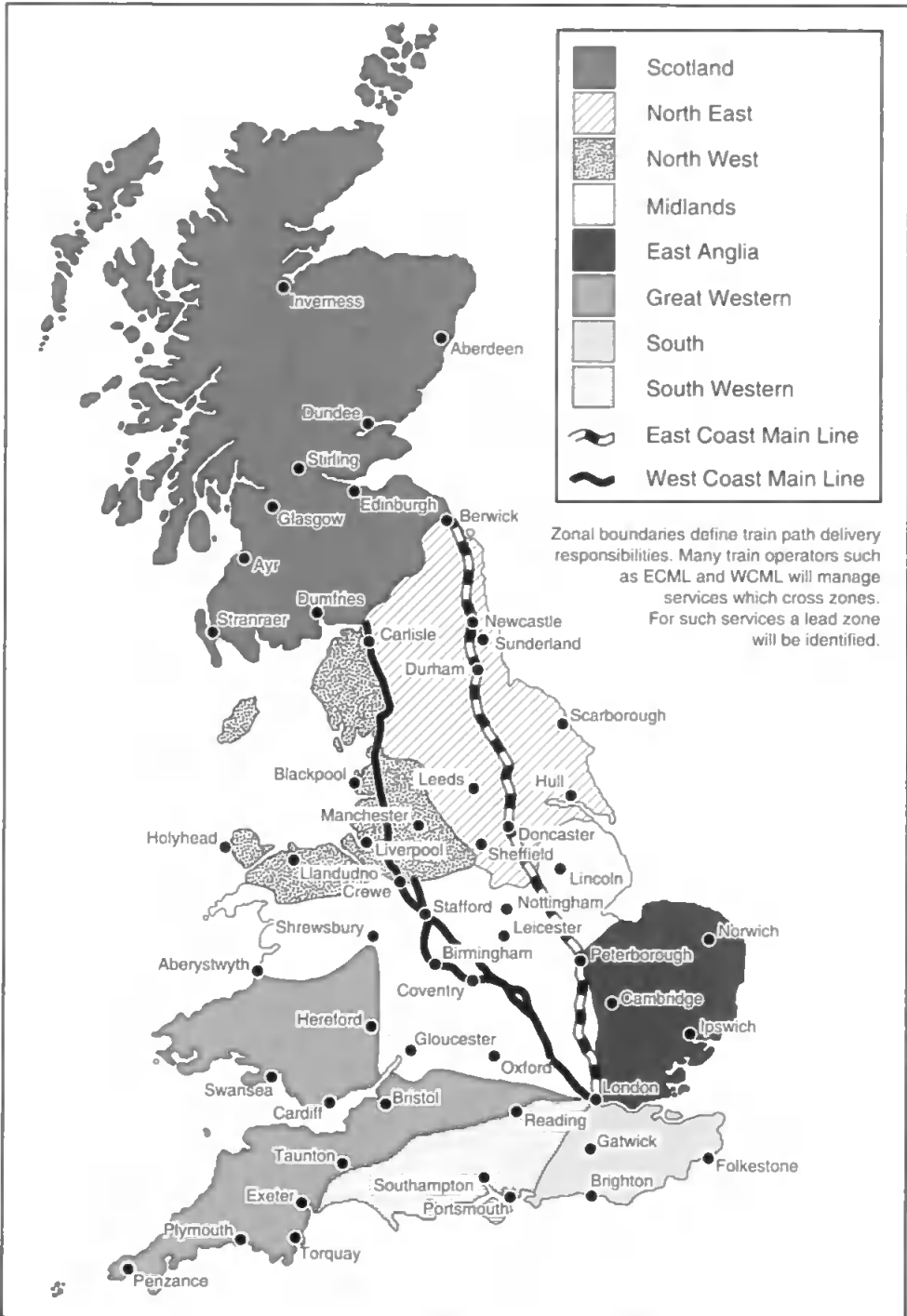


Figure 4. Railtrack zones

Table 1 Rail franchises announced in February and May 1993, listed under existing British Rail sectors

Date	Intercity	Network South East	Regional Railways
Feb. 1993	East Coast Main Line Gatwick Express Great Western Main Line	Isle of Wight Line ^a London-Tilbury-Southend South Western Division	Scot Rail
May 1993	Anglia Cross Country Midland Main Line West Coast Main Line	Chiltern Great Eastern Kent Services Thames Thameslink South London and Sussex Coast Northampton and North London West Anglia and Great Northern	Cardiff Valleys Line Central North East South Wales and West North West Mersey Rail Electric Services

^a Isle of Wight Line to be franchised on a vertically integrated basis, responsible for track, infrastructure and train operations, because of its unique status as a small discrete railway

Source: Department of Transport (1994)

prior to tendering for passenger franchises. The first invitations for tender for the 'fast track three', namely the Great Western, South West Trains and LTS Rail, had been delayed on several occasions. In July 1995, even the Franchising Director, Roger Salmon, was uncertain as to how many bids he would get for these franchises. However, it is safe to predict that franchise agreements will attract enough bidders for them to operate.

The freight business sector is to be broken up and offered directly for sale to the private sector. Trainload freight has been split into three geographically based freight rail haulage companies (Loadhaul, Mainline and Transrail) which have been set up to take over the domestic transport of bulk commodities such as coal and steel (Harvey, 1994) (*Figure 5*). In addition, Freightliner, an intermodal distribution company, has been set up to cater for the intermodal traffic, carrying containers between major ports and inland terminals and then shipping them by road from the rail terminal to the customer. The final freight business to be set up was International Freight, a company offering services between British terminals and key locations across Europe. As with the passenger side of the railways, open access by new freight operators will be encouraged in order to increase competition and customer choice. In addition, the freight customers themselves will be able to negotiate access with Railtrack and then either contract separately with train operators or use their own rolling stock to move goods. The parcels and letters side of British Rail will also be moved into the private sector in the form of two businesses: the express parcels business (Red Star) and Post Office Mail (Rail Express Systems).

The remaining companies being established under the plans for privatization include 20 infrastructure service organizations providing track renewal, infrastructure maintenance and civil engineering design support under contract to Railtrack, and a range of other businesses providing support services to the rail industry. In addition, there are three new rolling stock leasing companies (ROSCOs), all of which will, in time, be sold to the private sector. The ROSCOs have each inherited a balanced portfolio of rolling stock from BR and will be responsible for leasing this stock to passenger train operators. They will also be responsible for renewing stock as and when it becomes necessary or commercially desirable.

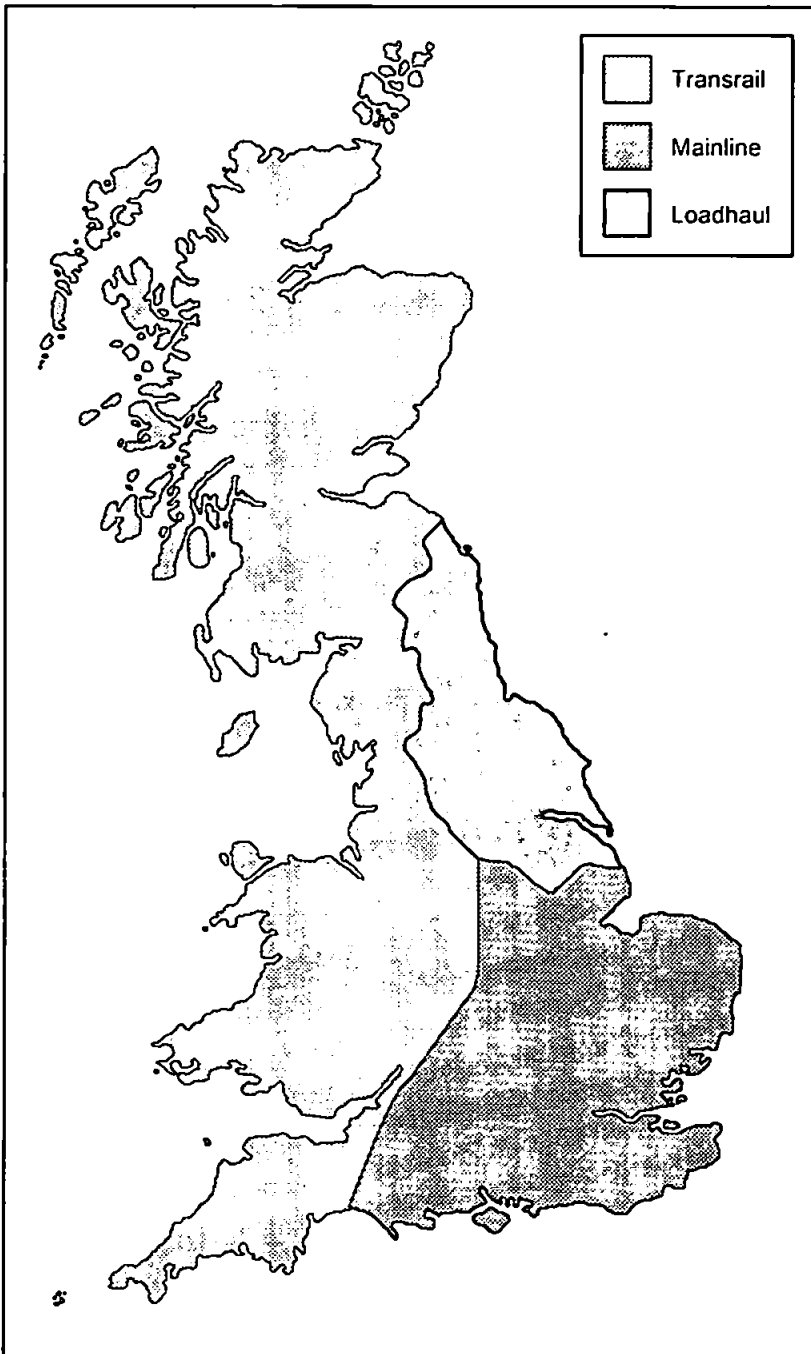


Figure 5. The geographical division of freight companies

Prospects for the future

Complete privatization of the railways is still a long way off; businesses and franchises have to be offered to the market and the private sector has yet to reveal its willingness to take up the opportunities on offer. Rail privatization has been a long-drawn-out process and its future progress looks likely to be equally protracted. The key question that remains, however, is how successful is rail privatization going to be? As with any privatization there appears to be a multiplicity of aims and objectives. The reorganization that the rail industry has undergone in preparation for privatization suggests that financial considerations are a strong driving force. The government, however, suggests that the overriding aim is 'to see better use made of the railways, greater responsiveness to the customer, and a higher quality of service and better value for money for the public who travel by rail' (Department of Transport, 1992: 1).

The question remains as to how well these aims and objectives really match the reality of the planned privatization. The financial benefits are not, so far, apparent. British Rail accounts for 1993–4 indicate that the costs of preparing for privatization have been high; approximately £92 million has so far been spent, of which the government has provided a grant of £44 million (Batchelor, 1994). Railtrack alone cost £48 million to establish (Batchelor, 1994). Furthermore, the provision of government subsidy is destined to continue into the future, though the 1993–4 BR Annual Report highlights the fact that government subsidy was cut by nearly 20 per cent to £930 million (Batchelor, 1994). Many would-be franchisees claim, however, that it is only on the subsidized lines that profitability is likely to be achieved and it would therefore be preferable to acquire franchises on the least desirable routes rather than the best ones (Sherwood, 1993). It would appear to be the case that whether the railway is in public or private-sector hands, it will continue on the basis of some form of public subsidy. In terms of financial benefits then, rail privatization is not necessarily going to be a success, though it must be acknowledged that, as the final sale of the newly established companies goes ahead, government revenue will undoubtedly be boosted in the short term.

The most recent developments in the privatization of the railways serve to reinforce the view that revenue-raising is of a higher priority than in previous privatizations. When the white paper *New Opportunities for the Railways* (Department of Transport, 1992a) was published it indicated that the management of Railtrack would remain a principal role for BR and that, furthermore, the sale of Railtrack to the private sector would not be considered until the franchising process was complete. The Railtrack sell-off has since been pushed higher up the agenda and in November 1994, the government announced that it intended to float the company as a single entity in the life of the current parliament. Furthermore, the privatization plans for the rest of the rail network have also been accelerated, with the Transport Secretary announcing that he intends to have at least half the passenger network in private hands by April 1996.

Even the much-vaunted commercial freedom, with train operating companies no longer subject to government intervention on financial matters, does not seem to have materialized. Glaister and Travers, discussing the dangers of the new structure of the railways, point out that the 'benefits of the policy might be compromised by continued, or even increased, exposure to the vagaries of central Government interference and inter-departmental conflict which railway managers have found disruptive and have come to resent in the past' (Glaister and Travers, 1993: 10).

The 1994 dispute between Railtrack and the RMT signalling staff suggests that this is indeed the case. An acceptable Railtrack offer in the early stages of the dispute was, according to the RMT, suddenly withdrawn on the advice of the government, who claimed that it exceeded the guidelines on inflation (Taylor, 1994a?), something later admitted by

John MacGregor, then Secretary of State for Transport (Milne and Smithers, 1994; Taylor, 1994b?).

Since privatization was first unveiled as a very real prospect, a great many concerns have been expressed, mainly over the future quality, quantity and costs of services. The key issues raised have been concerned with the fragmentation of the railways and the potential loss of the benefits associated with a national rail network: through and connecting trains, through ticketing, nationally coordinated timetabling, railcards and other discounted fares (Salveson, 1989; Transport 2000, 1989; Doe, 1992; Jenkins, 1993). Recent developments such as the Rail Regulator's proposal that through tickets should only be available at 294 core stations do little to allay these fears, though the government was quick to step in and veto the proposal (Smithers, 1995). There have also been serious concerns expressed over the possibility of an unbalanced network emerging, with investment in highly profitable routes and decline elsewhere, and the prospect of widespread closures of heavily subsidized rural lines (Salveson, 1989, 1993; Jenkins, 1993; Platform, 1993).

As the proposals for railway privatization are finalized there are signs that services in some areas of the country are vulnerable. The original proposal that the first privatized passenger rail services should be based on the existing BR timetable was superseded by the passenger service requirement (PSR), which specifies the minimum level of service that a franchisee must provide. However, the PSRs do not protect every service currently in the timetable, although they are estimated to cover approximately 80 per cent of such services. Those services not covered are therefore under threat of closure. The Intercity links between London and the West Country and London and Wales appear to be particularly vulnerable: the PSR for Intercity Great Western specifies 20 per cent fewer services than exist in the BR timetable and makes no mention of the service between Carmarthen and Paddington and services to Fishguard. It is argued, of course, that specifying a minimum service requirement will allow a franchisee the freedom to develop new services tailored to customers' requirements, but it can equally be argued that the new PSRs will allow a franchisee to drop services from the timetable without further consultation.

Despite all these potential problems, there are increasing signs that the regulatory regime is prepared to control costs. Railtrack access charges have been cut by some 8 per cent, to be followed by a 2 per cent per annum drop in real terms over the next five years. This move will significantly reduce the costs borne by the train operating companies. Equally, the cost to the customer is to be controlled, with no fare increases on season and standard tickets above the rate of inflation for the next three years and increases to be kept to 1 per cent below inflation for the following four years. Nonetheless, the vast majority of tickets purchased by rail passengers will be unregulated. If this trend towards regulation continues, then it is likely that a pattern similar to the one that can be observed in the other privatized companies will emerge, namely, a steady downward pressure on prices and profits. In the meantime, however, the outlook for rail passengers remains confused and it is likely that ticket prices that remain unregulated will increase whilst at the same time those services not covered by the PSR are at risk of being withdrawn.

None of this suggests an improved service to passengers that is better value for money. Instead, it proposes a future railway dominated by potential drawbacks for the traveller. It is in the aims and objectives identified by *The Economist* (1993), firmly rooted in the neoliberal philosophies of the free market, that the greatest success is likely to be found. The stated plans certainly indicate that these aims will be fulfilled. There is plenty of scope for 'competition, diversity and choice' in the new structure. However, this philosophical desire to promote competition may be dangerous both for the railways and for public transport more generally. Instead of a high-quality, responsive and affordable

means of transport, the traveller may be left with a fragmented, confusing and expensive-to-use railway suffering from under-investment and decline.

With the railway industry experiencing such a fundamental and systemic transformation it is, of course, very difficult to predict the future with any certainty. With uncertainty therefore being the only certainty, perhaps the major impact of rail privatization will be felt in further demand for road transport.

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