

# **A National Railcard to Deliver Growth: The London Commuter Network gives discounts to regular travellers, will this work in the regions?**

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## **Abstract**

This paper starts by giving an account of the research done to date on a National Railcard. It includes findings on two reports published by The Railway Consultancy Ltd. in April and August 2003. It then conducts additional analysis of the Regional Railway Market to assess the likely impact of this scheme on this market. Finally, it gives an account of the debate up to date and sets out a preliminary agenda for further research.

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## 1 – Introduction

In April 2003, The Railway Consultancy Ltd. published a report on a National Railcard which was commissioned by the Rail Passengers Council and Railfuture.<sup>1</sup>

It focused on analysing the economic implications of introducing a railcard which would enable the solo passenger aged 25-59 to travel at discount rates during the off-peak. This product is therefore a two-part tariff where the passenger pays an up-front fee and enjoys reduced fares for off-peak travel during the course of one year. Theoretically, this pricing technique can be used to maximise profits, yet generating high patronage levels. Moreover, it is currently used in many industries for this purpose, including communications and energy.

The results showed that a National Railcard (NRC hereafter) could be beneficial for passengers, TOCs, the taxpayer and the environment. Incremental profits from this scheme were forecast at £75 M whilst off-peak passenger miles could be boosted by 31%. Additionally, this would imply a reduction in the national subsidy per passenger mile by 1.1 pence and an environmental improvement due to reductions in congestion and pollution from passengers switching from road to rail.

The report analysed a series of pricing combinations for the cost of the card and the discount given. The preferred option from all points of view was a card costing £30 and offering 50% discount (for which results are mentioned in the previous paragraph). However, these results were based on a number of assumptions, and further research is planned to be undertaken in order to confirm their robustness.

In terms of following work, the Railway Consultancy Ltd. has also undertaken an international survey of countries in Europe which have operating railcard schemes. Although many differences were observed, the comparison with these schemes did not necessarily suggest that our forecasts for the UK were overestimates. In addition, a number of marketing initiatives were identified, including the use of the internet to sell the cards, attaching other non-related discounts to the scheme and the issue of longer validity railcards.

This paper will summarize the results obtained so far and briefly discuss the assumptions which lead to them. It will also draw upon additional analysis aimed to ascertain the likely impact of a National Railcard on the Regional Railway market. It is the objective of this paper to summarize the National Railcard debate so far and to stimulate an agenda for the future.

This paper is organized as follows: Section 2 will present the main observed problems in fares policy which triggered research into a National Railcard. In section 2, the economic case for a NRC is explained and the aggregate forecasts for the UK are presented. Sections 3 and 4 will describe the regional market and analyse the likely impact of this scheme on it. Section 5 will give an account of the debate for a National Railcard and in section 6 conclusions will be presented.

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<sup>1</sup> The report, entitled “National Railcard: A report into the economic implications of introducing a National Railcard in the UK” can be downloaded from [www.railfuture.org.uk](http://www.railfuture.org.uk).

## 2- Main problems in fares policy

### *The level of fares*

Fares should take into account the cost of providing the service, the ability of passengers to pay and the positive external effects to society associated with rail. In many cases, this implies setting fares below costs and hence the need for subsidizing the railway. Since privatization, however, some fares (e.g. open fares) have been left unregulated and as a result they have risen substantially.

The principal problem regarding rail fares structure in Britain is that fares are generally set too high. This is evidenced by the large number of complaints received each year by passengers and through international comparison. Moreover, in the cases where “cheap” fares do exist, passengers are not always aware of their existence.

In particular, peak fares are regarded as being too high. A highly discussed recent case was that of Virgin intercity fares from London to Manchester. A Standard Single ticket was £50 in 1995 and is £97 now, meaning a 94% fare increase.<sup>2</sup>

### *The complexity of fares*

The increasing complexity of the fares system has also imposed significant costs to most interested parties within the railway industry, although these may not be fully recognised, as some of these impacts are in terms of the image of the industry.

There is a distinction to be drawn between what might be termed the *sophistication* of the fares/ticketing system (the ability to deal with “complicated” journey requirements) and its *complexity* (the existence of a bewildering array of fares and restrictions for any particular journey).

Since the move to market pricing, adjustments to the fares structure have generally led to an increase in complexity without any increase in sophistication. Nowadays the fares structure generally consists of a single fare (with no time of travel restrictions), and a variety (often a very large variety) of return fares, having differing restrictions on time of travel, length of stay, etc. Moreover, there is often a selection of arbitrarily chosen “permitted routes” and fares bear a limited relationship to distance travelled. As a result, rebooking anomalies abound (i.e. it is frequently possible to make substantial savings by rebooking at an intermediate station).

### *Regulatory anomalies*

Finally, there are a series of regulatory anomalies as fare regulation many times is the responsibility of different authorities. One notorious case is the London commuting area, where National Rail fares are regulated by SRA and London Commuting fares are regulated by TfL. These are spuriously set to diverge as a result of placing different caps on them. The same problem can be verified at the boundaries of other PTEs, where “railheading” is sometimes observed.

With British fares being generally high and the system being complex, it is often difficult for rail to compete with car transport. Car transport has a relatively simple pricing with high up-front payments but low and transparent marginal costs. Perhaps one of the reasons for the relatively low rail mode share in Britain (5.5%) is its uncompetitive fares structure. A National Railcard would resemble car pricing by offering an up front fee and reduced marginal cost of travelling for regular passengers. Moreover, it could help to simplify the fares structure by amalgamating a series of existing railcards, as was the case in many other countries in Europe. In this sense, it is interesting to study the Swiss example, where a mode share of 23% is achieved based on a very simple, cheap and car-alike fares structure.

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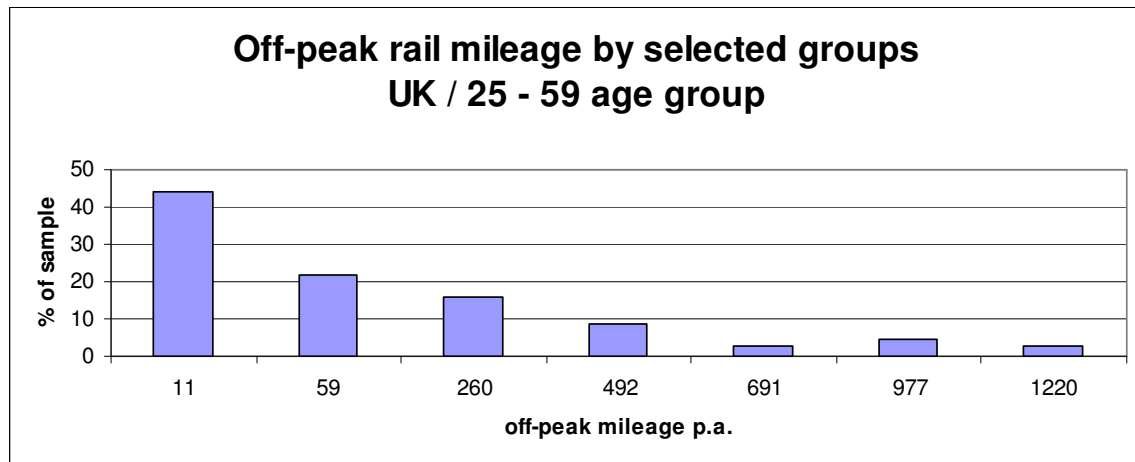
<sup>2</sup> Doe Barry, *Why the SRA won't put all its eggs in one fares basket*, “Rail Magazine” August 7, 2002.

### 3- A National Railcard for the United Kingdom: Summary & Aggregate results

#### *The market for a National Railcard*

The NRC will be only bought by passengers who plan to undertake a considerable number of off-peak trips during the course of the year ahead. It does only make sense to buy the railcard if the amount of discounts which it makes possible exceeds the cost of the card. Consequently, demand for a NRC was derived from a distribution of rail off-peak mileage for individuals aged 25-59. The following graph shows our base distribution.

Graph 3.1



Source: National Travel Survey

As can be seen, according to this distribution, almost 60% of the British population travels less than 59 miles off-peak by rail every year (less than 2 trips per annum). However, there are still some 10% who undertake a considerable amount of off-peak rail travel per year. This is the target market for a NRC. These passengers will be more inclined to buy and use the NRC since they are the ones who can gain considerable discounts which will offset the cost of the card. The demand for a railcard was thus calculated by deriving the conditions under which an individual would buy the card. For a card priced £30 and giving 50% discount, approximately 650 off-peak rail miles need to be undertaken in order to make buying the card worthwhile.

It is clear from the previous graph that a NRC will target a different market than the one which is served by promotions. The latter targets the 60% of non-regular passengers, and all the efforts are made to stimulate sporadic trips or to tempt passengers to switch from other modes. In contrast, the market for the NRC is composed of the most frequent passengers. As shown later, even within the latter, a national railcard might also stimulate abstraction from car, as the targeted market is the most affluent – and car ownership is known to increase with income.

#### *The rationale for a National Railcard*

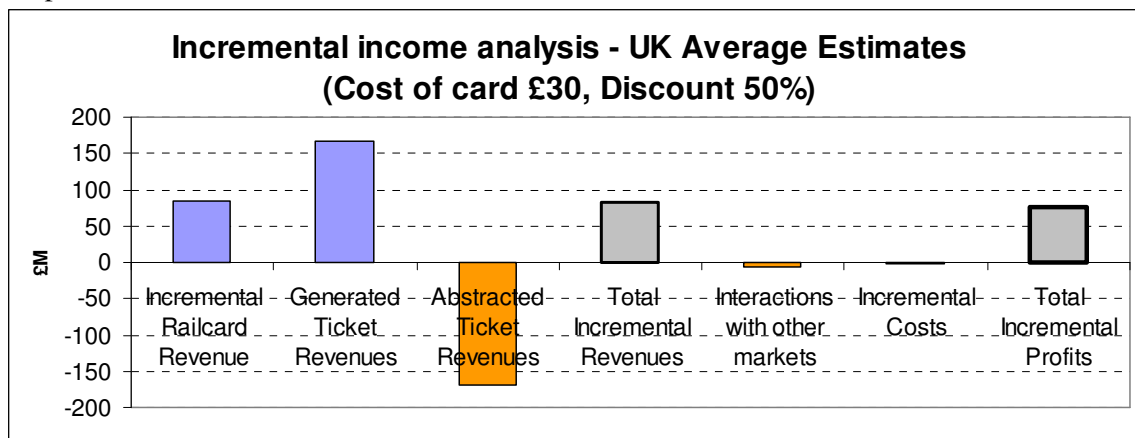
In terms of demand it is quite intuitive that a railcard offering a higher geographic or time-of-day availability will generate more demand. This is because in these cases a larger number of trips will be eligible for discount. Such is the case for the South East region, where 360,000 Network Railcards are sold at present but 500,000 could be sold if superseded by a National Railcard, with its greater geographic validity.

Extending the geographic validity will also enable the holder to undertake long trips (e.g. London-Aberdeen) where the benefits of buying a railcard are instantaneous (it is cheaper to buy the ticket plus the railcard than the ticket alone). In this sense, extending the geographical validity of the card can generate demand even from infrequent users, provided that they undertake such a long (and hence pricy) trip.

If no such long trips are undertaken, the passenger will have to forecast his trip frequency for the next year in order to decide whether to buy the card or not.<sup>3</sup> Now, once the card has been bought, the price paid for the card plays no role whatsoever in the decision of how much rail travel to consume. Individuals will decide how much rail travel to consume by looking at the additional cost of a trip, (i.e. the discounted fare). This is analogous to the car, where once the car has been bought the decision whether to use it or not “this afternoon” is made by looking at the costs of petrol, parking etc. and not by taking into account the initial sunk cost or “investment” made to buy it.

All this means that those buying the card will travel more, as a result of the reduced fares they pay. The extent to which they will increase their off-peak rail usage will depend on their responsiveness to the fare reduction (i.e. their demand elasticity). This responsiveness will also be important to assess the financial impact of the scheme. The incremental impact of a railcard on rail finances can be divided in three parts: Railcard revenues, Ticket revenue generation and Ticket revenue abstraction.

Graph 3.2



Graph 3.2 shows the disaggregated average profit results for a National Railcard in the UK<sup>4</sup>. On the far left side of the graph, there are some £85 M revenues which are forecast to be generated solely as a result from selling the cards<sup>5</sup>. “Generated ticket revenues” refers to all the new tickets that would be sold due to the existence of the railcard (although at a discounted price). Finally, “abstracted ticket revenues” refers to the revenues which will be lost as a result of those trips that would be consumed irrespective of the existence of the card, and that are now sold at a reduced price. The addition of the first three columns generates total incremental revenues from this scheme (column 4). Once revenues are taken into account, a number of assumptions about revenue leakage effects<sup>6</sup> and marketing costs were also made. As explained later, no additional infrastructure costs were assumed as a result of the increased patronage generated by the scheme.

The second and third columns show that for a national railcard in the UK, revenue generation and revenue abstraction are likely to offset each other. This has to do with a relatively high demand responsiveness. The study focused on leisure demand elasticities, which were near -1, implying more or less proportional increase in patronage as a result of a given change in fares. Demand

<sup>3</sup> This type of “specially long trips” are important as demand generators, because they relieve the individual of the uncertainties involved in forecasting their trip frequency beforehand. However, this effect hasn’t been modeled in the original research.

<sup>4</sup> In the original research, two different modelling approaches were followed, which yielded “high” and “low” estimates. Here, an average of both estimates is provided.

<sup>5</sup> Not taking into account the £7.2 M generated by the sales of the currently available Network Railcard, as this would be superseded by the NRC.

<sup>6</sup> For example, ‘Leakage’ refers to the situation when passengers change ticket types (and perhaps even their time of travel) in order to take advantage of a lower fare

responsiveness (or demand elasticity) is generally high because the main off-peak trip purpose is leisure, and leisure trips are generally more discretionary and price sensitive than trips made for other reasons (e.g. business).

The disaggregation of incremental profits also explains why it is preferable to introduce a national railcard scheme rather than simply to reduce fares. A railcard will generate more profits since it will not only have revenue abstractive and generative effects (columns 2 and 3) but because it will also raise a significant amount of money via the sales of the railcard (column 1). A mere reduction in fares will generate the outcomes of columns 2 and 3 only - the ticket generation/abstraction effects.

The economic reason for this lies in the difference between the value that each passenger assigns to a rail trip and the fare paid for it. For a passenger to travel, the economic value of a rail trip (net of any other costs of undertaking the trip) must exceed (or at least be equal) to the fare paid. For many passengers, the value of the trip will actually exceed the fare paid. The fixed fee component of the national railcard will be actually capturing some of this extra value without altering the decision of how much rail travel to consume. As a result, a National Railcard will have the same impact as a fare reduction on patronage and ticket revenue/abstraction, but will generate additional profits from the proceeds of selling the railcards. For regular passengers, the value from rail consumption will be larger, because by definition a larger number of trips is undertaken. Thus, they are most likely to be willing to give away some of this value by paying for the card, and this is why this market has been targeted.

#### *Overall Results*

Once the case for a NRC has been made, our aggregate results for a NRC in the UK can be presented and analysed.

Chart 3.3

<b>National Railcard Economic Research - Average Estimates</b>					
<b>PRICING SCHEME (price of card, discount)</b>	<b>Railcards Sold (M)</b>	<b>Incremental Passenger Miles (%)</b>	<b>Subsidy per passenger mile (reduction, pence)</b>	<b>Incremental Profits (£M)</b>	<b>Value of reduction of externalities (£M)</b>
(30, 50%)	3.1	31%	1.1	75	2

Chart 3.3 displays the average forecasts obtained for a national railcard in the UK. These imply 3.1 M railcards to be sold across the UK. The South East region will contribute 0.5 M of these and the rest will come from the other regions. As a result of the reduced fares, an increase of 31% in off-peak miles is forecast. Incremental profits will be in the order of £ 75 M. If these incremental profits implied an equivalent reduction in subsidies, then the subsidy per passenger mile at the national level would go down by 1.1 pence. This would be the result of more passengers travelling and a reduction of subsidies. Finally, the value of the reduction of negative externalities such as pollution and congestion due to passengers transferring from road to rail was quantified at £2 M.

These results show that a National Railcard can be beneficial to passengers who will travel more, TOCs who would make incremental profits, the taxpayer who will see the burden of financing the railway reduced and society as a whole because of all these benefits plus the reduction in congestion and pollution. These results have passed a first test by comparing them with international benchmarks. Although differing in many ways, railcard schemes in countries like Switzerland and Germany seem quite successful as well. However, these results still need to be confronted with a full battery of additional data analysis, modelling and sensitivity tests, to check for robustness. These experiments are briefly explained in section 6.

#### 4- The regional railway market in the United Kingdom

The railway market in the UK can be divided into three broad markets: London and South East, Inter-city and Regional.

London and South East comprises all the commuting flows into London and all the medium distance flows connecting cities in the South East (e.g. Brighton to Hastings). The Intercity market comprises long distance, often express flows connecting major conurbations. Most of this market is dominated by to/from London flows, although there are a number of other non-London flows (e.g. Virgin Cross Country).

The regional market can be disaggregated into three subsequent segments. Inter-urban flows typically connect two major conurbations (e.g. Manchester -Liverpool) but are rarely particularly fast. Typical trip purposes on these journeys include Business, and Visiting Friends and Relatives (VF&R). Suburban flows connect the suburban areas with the centre of the regions (e.g. Glossop – Manchester). In some cases these are within the limits of the PTEs (e.g. Manchester, West Midlands). The main trip purpose is generally commuting, but with an increasing share of shopping during off-peak times of the day. Finally, rural lines are lines which connect scarcely populated rural areas with bigger towns (e.g. Llandudno Junction – Blaenau Ffestiniog). Due to the limited number of passengers these lines are often heavily subsidized and serve social inclusion objectives. The lines primarily serve local needs, although they enjoy a considerable number of tourist trips, especially in summer.

Chart 4.1

	London and South East	Inter-city	Regional
<b>Journeys (mill)</b>	672	74	226
<b>Percentage of total Journeys</b>	47%	5%	16%
<b>Revenues (mill £)</b>	1,739	1,224	590
<b>Percentage of total Revenues</b>	49%	34%	17%

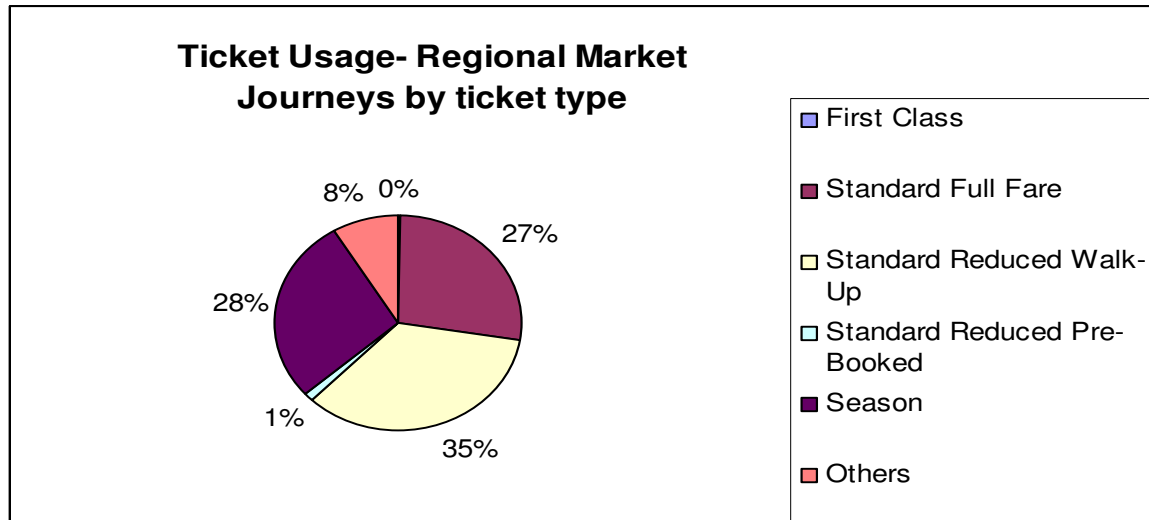
Source: ATOC, 2001/02 financial year.

As shown in Chart 4.1, some 226 million journeys are currently undertaken in the Regional market, generating some £590 million revenues. These figures represent roughly 20% of the railway market, irrespective of the definition adopted. The average price for tickets is £2.61, a similar figure to the average ticket price for the South East. However, the incidence of travelcards and season tickets is considerably higher in the latter.

In terms of ticket usage, the Regional market is dominated by reduced tickets (only available during the off-peak). Some 77 million journeys are made each year on these tickets, representing 35% of all tickets sold in the market (the highest share for reduced tickets within the three markets studied). This preliminary comment suggests the immediate attractiveness of a railcard which is only available during the off-peak in this market.

Season tickets are bought for commuting purposes; however, they permit free off-peak travel on specific areas or flows. Consequently they act as partial substitutes for an NRC since some of the journeys eligible for discount within the railcard scheme can already be made at no cost with the season ticket. The fact that season tickets are less popular in the regional market than in the South East, will comparatively encourage the use for a NRC within the Regions.

Graph 4.2



Source: ATOC, financial year 2001/02

Saver tickets are available for journeys of more than 50 miles. The average regional journey is 21 miles long whilst only a few exceed 50 miles. Consequently, the reduced walk up fares are mainly cheap day returns, or simply the open fare in the cases where it is protected.

As open fares are sometimes the only ticket available for off-peak trips, the share of standard full fares (27%) actually overestimates the share of peak journeys.

The use of pre-booked (e.g. APEX) tickets is also limited. These represent only 1% of the journeys made (as opposed to 8% for the Inter-city market). This might demonstrate the limited number of long distance trips within this market. The use of pre-booked tickets is more linked to trips which are well planned ahead, such as holidays, business trips etc. One incentive to take the hassle of pre-booking is the absolute amount of money to be spent on the ticket.

## 5- Discussing the impact for the regions

As explained earlier, demand for a railcard will depend on trip mileages undertaken by different individuals. Consequently, a distribution on trip mileage per individual was used.

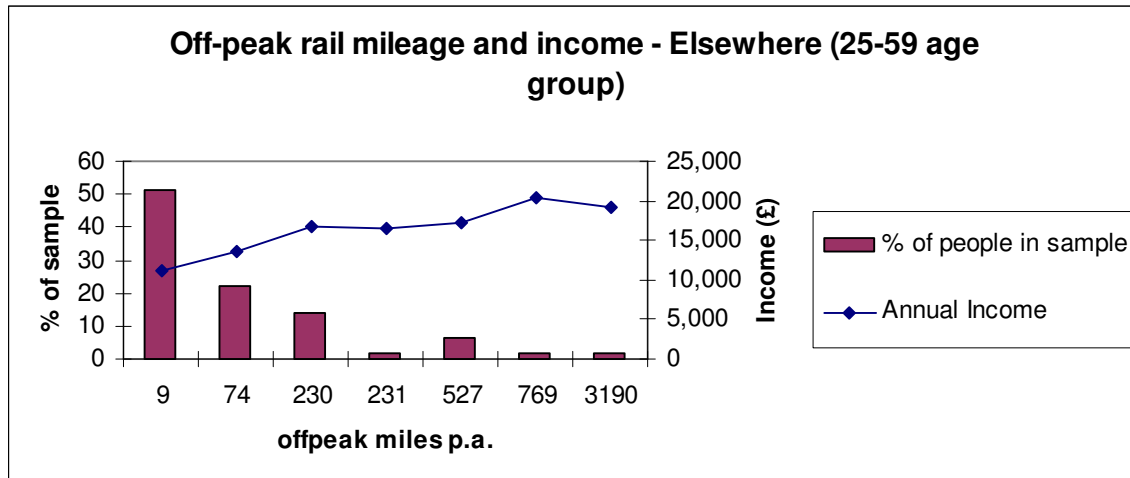
This exercise was disaggregated on a “residence of the individual” basis for London and South East and Elsewhere. Unfortunately, in terms of the market segments described in the previous section, these overlap with the disaggregation used in the NRC research.

An individual living in Manchester might travel from London to Brighton, hence contributing to the London and South East market. Conversely, a Londoner travelling on business purposes from Manchester to Liverpool will be consuming a trip in the Elsewhere region. However, it is clear that the incidence of these exceptional cases will tend to be low and that the Elsewhere region will comprise a high share of the flows labelled as belonging to the Regional market (conversely the same applies for London and South East).

Nevertheless, Inter-city trips are likely to be spread more evenly between the London and South East and Elsewhere regions.



Graph 5.1



Source: National Travel Survey

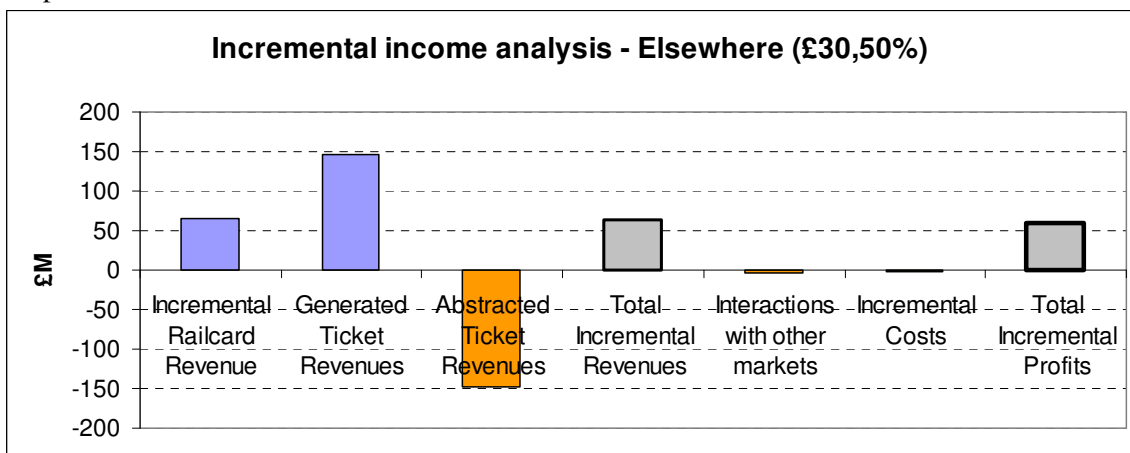
The distribution for off-peak mileage for the Elsewhere region shows that almost 70% of the sample makes only infrequent use of the railway, thereby generating few miles to make buying a NRC worthwhile. However, there is a significant proportion of the sample undertaking a considerable number of miles per year. As fares are generally higher than in the South East, the discounts gained per mile travelled will be higher in this region. As a result, only 431 miles are necessary to make the NRC worth buying. Consequently, for the current pricing, as much as 10% of the appropriately-aged population within the Elsewhere region is forecast to buy the NRC.

It is interesting to observe the relatively high proportion of the sample falling within the category undertaking 527 average miles p.a. This was described as the group making one long holiday trip per year, so this category might comprise a high component of Inter-city trips.

A comparison of data shows that people in the regions travel comparatively fewer miles during the off-peak than people in the South East. The positive relationship between mileage and income is verified for both regions. This means that the product will be targeted to the most affluent individuals. Incomes, however, are considerably lower in the Elsewhere region.

The implication of this fact is that proportionally more people would buy the NRC in the South East (12%). However, the number of individuals in the Elsewhere region is almost three times the one in the South East. Consequently, our forecasts imply selling some 500,000 NRCs in the South East and 2.6 M in the Elsewhere region. These market differences would also have an impact on profit results.

Graph 5.2



As a result of the relative sizes of these two markets, the NRC is forecast to generate £59 M incremental profits in the Elsewhere region and only £ 16 M in the South East<sup>7</sup>.

Graph 5.2 shows the disaggregated profit forecast for the Elsewhere region. Some £65 M is expected to be generated in terms of railcard revenues. Ticket revenue abstraction and generation will almost cancel each other out. This is because the elasticities used were generally very near to -1. However, revenue abstraction is likely to be marginally higher than generation triggering a small net ticket revenue loss. The addition of the first three columns is termed total incremental revenues. Once deductions for the interaction with other markets and marketing costs are taken into account, total profits of £59 M are obtained.

These profits are likely to be shared amongst regional and Inter-city operators. Although the research done to date has not addressed the issue of how to split these incremental revenues, this is likely to be done on the basis of the participation of each TOC in the scheme. Overall, these results show that a NRC would be profitable for Regional Railways as a whole. Irrespective of their accuracy, they only show a positive impact for regional railways as a whole, which does not necessarily imply that every TOC is going to benefit from the scheme.

Profit disaggregations also show the relative importance of railcard revenues. As long as demand elasticities for the concerned markets are near unity, ticket abstraction and generation are likely to cancel each other out and the gains from the scheme are then being obtained from the fixed part of the two-part tariff. However, we have used a constant demand-elasticity framework. This approach overestimates net ticket revenues, especially when considerable fare changes are forecasted. This is because passengers get less responsive to subsequent fare reductions as fares are lowered. As a result, our analysis underestimates the importance of the loss in ticket revenues.

In general, the available research contained in the Passenger Demand Forecasting Handbook (PDFH) suggests elasticities near unity for off-peak tickets in the Regional Markets. However, recommended elasticities for the different flows within this broad market do differ. An overall leisure elasticity of -1.2 is recommended for Non-London Inter-Urban and for rural flows. For Non-London Urban Flows (typically those within the limits of PTEs) leisure elasticities are around -0.9<sup>8</sup>. In the latter case, a lower elasticity is obtained due to the prevalence of shorter trips (with a high fare per mile) and rail's stronger competitive position.

Additionally, due to a variety of reasons the estimates in the PDFH for fares elasticities are likely to be underestimates. For example, these estimates generally refer to the short run effects of a fares change, hence neglecting any long term impacts.

In general, demand elasticities for Regional markets tend to be in line with the ones used in our research for the Elsewhere region. Consequently, revenue abstraction is not likely to exceed revenue generation to an extent of rendering the scheme unprofitable. However, further research, for instance by relaxing the constant elasticity assumption would show a more important role for ticket revenues within the profits equation.

The impact of revenue abstraction is likely to be higher within the PTEs, where rail enjoys a generally more competitive position, trip purpose is mainly commuting and rail trips are generally shorter. The National Railcard, however would be most generative in the case of inter-urban and rural flows.

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<sup>7</sup> Another reason behind this relative difference is that £ 7.2 M were deducted from our results in the South East region to represent the current proceeds from the sales of the Network Railcard.

<sup>8</sup> TCI Operational Research, Passenger Demand Forecasting Handbook, 1997.

## 6- The debate so far

### *The assumptions behind our main conclusions*

Due to the limited resources available to the National Railcard Research, we were forced to concentrate in modelling those aspects believed to be the most important. This forced us to make an important number of assumptions.<sup>9</sup> However, after the publication of the original document, a proposal with a full battery of extra data analysis, additional modelling and sensitivity tests was submitted to the SRA for their consideration.

In terms of data quality, we were forced to estimate some important parameters in our calculations. One of them was the propensity to hold season tickets by different categories of passengers within our distribution. This was important to assess the extent to which trips eligible for discount with an NRC would overlap with those granted by season tickets. The same applies for the number of trips made during off-peak times of the day by different individuals within our distributions. This was important to determine the interaction with other markets. In both cases, assumptions were derived from aggregate figures (e.g. number of season cards sold). However, more disaggregated data is available within the National Travel Survey Database and should be used in further research.

The interaction with other markets was based on two broad assumptions. First, that passengers travelling during the morning on open tickets would not change their time of travelling as a result of the offers given by this scheme (which is an optimistic assumption). On the other hand, it was assumed that passengers travelling on business purposes during the off-peak would show no responsiveness of demand (i.e. zero demand elasticity) to the discount given by the NRC. This rather pessimistic assumption implies 100% revenue abstraction for this type of passengers. The biases in both assumptions are then likely to offset each other.

As mentioned earlier, another important assumption is the constant elasticity of demand framework. This necessarily overestimates our results because we have assumed a constant rate of response to fares when this rate is known to increase with the size of the fare change. Further research should develop a non-constant elasticity framework based on Generalized Cost theory to address this issue.

Finally, probably the most important assumption was that, on average, the network could accommodate 50% more off-peak passengers without incurring in additional costs in terms of rolling stock and infrastructure. As none of the scenarios studied generated this amount of increased patronage, in practice this meant that we have neglected capacity constraints in our research.

Like us, both ATOC and the SRA were unhappy with this assumption. Examples of likely problems include some Inter-city routes on Sunday afternoons to/from London, the first off-peak trains (i.e. those departing after 9:30 from suburban origins into regional centres such as Manchester), and those regional routes with significant holiday traffic (e.g. the Cornish Branches, or Blackpool).

Consequently further research should involve conducting a detailed capacity study of the Network during off-peak times of the day. However, any infrastructure cost arising from the scheme should be deducted taking into account (i) that these represent sunk costs to be paid with many years of NRC's incremental profits and (ii) the additional resources required for the off-peak might be used during other times of the day or other flows.

Even in the presence of these incremental costs, international experience has showed many ways of preventing them from arising. For example, both in Germany and Austria, the currently

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<sup>9</sup> A detailed list of these is included in the National Railcard Research (see footnote 1)

available railcards are not eligible for trips fully within some PTE areas. In Italy and France, differential discounts are used to ensure that demand is driven to meet excess capacity.

The international comparison of railcard schemes has also suggested many marketing initiatives that could be interesting for Britain too. Every single country studied offers a “menu of two-part tariffs” comprised by the ordinary fare, a railcard product and an “abonnement product”, an annual season card available throughout the entire network. This ensures that different market segments are catered for and has the potential of generating even more profits than a single two part-tariff would do. Additionally, cards are sold on a subscription basis, with longer than yearly validities and on the internet. Finally, in many cases other, non-related discounts are attached to the card. These typically are extended for free by third party brands and make the card more attractive.

The optimistic results obtained in the National Railcard Research highlighted that the idea of a National Railcard might not be as far-fetched as previously thought. This was supported by the findings in the National Railcard International Survey, published in August 2003. However, as mentioned earlier, further work is needed in certain areas.

Both the interaction with other products and the crossed effects with other markets must be re-examined. In addition, a non-constant demand framework and a detailed capacity study must be undertaken. In the light of the recent regulatory changes, a study of the interaction of the regulatory framework with the scheme is also suggested.

Finally, the scheme might have a positive distributional impact as some of the value from railway consumption would be extracted from those individuals on higher incomes. This value could potentially be transferred to those on lower incomes (e.g. a free railcard for the unemployed).

#### *The response from the industry*

Responses from TOCs were varied. In general some supported the idea and some were still reluctant. These might be a genuine concern for some TOCs which do not serve many leisure destinations, or that already have some overcrowding during the off-peak (e.g. GNER on Sunday afternoons into London). In some other cases, the cause of this reluctance might lie in the structure of the industry, where TOCs have a short planning horizon that makes them prefer the status quo and rules out taking risk in medium term policies.

The SRA has manifested interest and is also keen on evaluating other options such as a “two-persons railcard”. The idea is to compete with car in a market where rail share is very low, consequently minimizing revenue abstraction.

ATOC is currently undertaking research into the profitability of the Network Railcard. We believe this is likely to be flawed, as its profitability will probably be diminished by the recently imposed £10 minimum fare. Moreover, extrapolations from these results to a NRC are risky, since these products have a very different geographic scope and act upon different markets.

The Transport Secretary, Alistair Darling, has advised the SRA and ATOC to cooperate in conducting research for a National Railcard. We, as well as an important part of the Railway Industry would welcome this, as we believe that although the results on the past research are far from being a blueprint for implementation, they should not be neglected.

## 7- Conclusions

Our original research published in April 2003 brought forward some very optimistic results for a National Railcard in the United Kingdom. It showed that such a scheme could boost passenger numbers yet delivering incremental profits for the industry. These incremental profits could also mean fewer subsidies and hence the taxpayer could also benefit. Finally, it quantified environmental gains as a result of passengers transferring from road to rail.

The intuition behind these results is the following: Two part tariffs are designed to extract the additional value (consumer surplus) that passengers enjoy for using the railways. Passengers would decide to buy the NRC by looking at their expected trip frequency during the course of the year. Once the card is bought it represents a sunk cost and hence plays no role whatsoever in the decision of how much rail travel to consume. This is done by looking at the cost for an additional trip (i.e. the discounted fare). Consequently a NRC scheme would necessary generate better financial results than a mere fare reduction.

In terms of revenues, a NRC would generate Railcard Revenues from the proceeds on selling the cards and will also have revenue generative and abstractive effects on ticket sales. The NRC has been envisaged to be only eligible during the off-peak because (a) There is generally more spare capacity to accommodate additional passengers (b) The main trip purpose is leisure, hence demand responsiveness is greater, favouring ticket revenue generation.

The study was disaggregated into the London and South East and Elsewhere regions. Although these do not coincide with typical market definitions by flows, the latter can be used to proxy the impact of this scheme on regional railways. Overall, fewer off-peak rail trips are undertaken in the regions. This might be because incomes are generally lower or because road congestion is not important. This means that the NRC would be proportionally more successful in the South East. However, as the Elsewhere region has three times the population of the South East, the Regions is where the majority of NRC holders will come from.

Because of this fact, the NRC is likely to be profitable for the regions too. Additionally, regional railways are not likely to suffer from huge ticket revenue losses as regional elasticities generally resemble those used to derive our forecasts. However, the impact of an NRC on the regions is likely to be more positive for Intra-urban operators than for Suburban railways operating within PTE areas.

These results were derived using a number of assumptions, the most important being the use of a constant elasticity of demand framework and the neglect of incremental costs due to capacity issues. Consequently, further work is needed to confirm the robustness of our results and to analyse other (e.g. distributional) impacts of this scheme.

The Department of Transport and the SRA have pledged to take this research initiative further, thanks to the results obtained in our report, the action of campaigning groups and the experience of successful analogous schemes in other countries.

Even if our preliminary results are maintained after a further round of thorough research this would not mean that every single TOC would benefit from the scheme. Consequently, it would then be necessary to take the study one level down to see the likely impact on each TOC in order to design a coherent and transparent cross-subsidy system so that everyone benefits.

To conclude, a final implementation research phase must look on a variety of practical issues (e.g. the effect on first off-peak trains, APEX quotas, etc). This should also consider other marketing initiatives which are used successfully in other countries and which were briefly mentioned on this paper.

## 7- References

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