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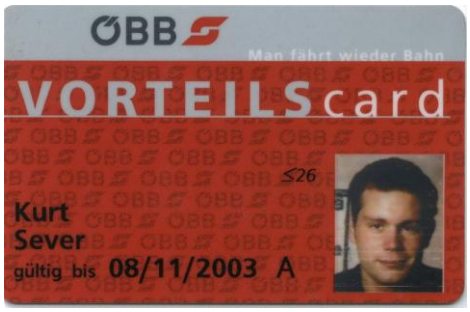
National Railcard International Survey

Commissioned from The Railway Consultancy Ltd by Railfuture



Produced for Railfuture – Promoting Britain's Railway for Passengers and Freight

www.railfuture.org.uk
info@railfuture.org.uk

National Railcard International Survey

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The Railway Consultancy Ltd.
1st Floor South Tower, Crystal Palace Station, London, SE19 2AZ.
Tel: 020-8676-0395 Fax: 020-8778-7439 E-Mail: info@railcons.com

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1 Introduction

1.1 Recent research has shown that many British people find the cost of rail travel a barrier for this mode of transport. Dissatisfaction has been expressed, both with regards to the general level of fares, and to the complexity of discounts to rail travel, where there are any. Therefore, Railfuture commissioned the Railway Consultancy Ltd. to undertake an economic research into a National Railcard (NRC) for the UK.

1.2 This product has been envisaged as a card which offers off-peak discount travel, after an annual payment has been made for purchase of the card. It is effectively an extension of the currently available cards (Young Person's Card, Senior Card, Network (South East) Card) which would be available across the whole UK rail network and for all customers travelling alone.

1.3 The National Railcard Economic Research concluded by the Consultancy (Railway Consultancy Ltd., April 2003) showed some very promising results for a National Railcard in Britain. It showed that it would promote off-peak passenger miles by 30%, delivering £ 81M incremental profits for the industry and reducing the overall subsidy per passenger mile by 1.1 pence.

1.4 In order to complement these findings with data from analogous schemes elsewhere in Europe, Railfuture has commissioned The Railway Consultancy Ltd. to undertake this international survey of countries which already have similar schemes operating.

1.5 This study will focus on the description of pricing and implementation details, passenger usage and the financial performance of each analogous scheme. In order to ensure comparability, all values in this report will be expressed in euros (€), and kilometres (km). Looking at pricing details will convey insights into the suitability of the pricing structures proposed for Britain. Passenger usage numbers will help to compare previously derived estimates for uptake in Britain as well as helping assess the overall success of such schemes in the countries studied. Finally, looking at the profitability of these schemes will help us to establish whether these are run commercially or as a subsidy to public transport. Provisional conclusions regarding passenger demand elasticities in each country will help assess this later point.

1.6 The report is organised as follows: Section 2 gives a short overview of results obtained in the National Railcard Economic Research for the UK. Section 3 describes some of the difficulties and limitations associated with an international comparison as envisaged. Sections 4, 5, 6 and 7 discuss our findings for analogous schemes in Switzerland, Germany, Austria and The Netherlands respectively. Section 8 will briefly describe the existence of similar schemes in other European countries. Finally in section 9, comparative results will be shown and discussed, and in section 10 our main conclusions are summarised.

2 A National Railcard for the UK

British Rail Industry Overview

2.1 Britain's rail network comprises some 16,000 km of track on which 39 billion passenger kilometres are undertaken each year. This network is spread over a total British land area of 244,000 km^2, and serves a population of 60 million. Population density is 244 inhabitants per km^2. However, the population is not evenly spread, with major concentrations around London, and also in other major conurbations in the North. Railway economics means that the railway is particularly important in the London area (especially for commuting), and new investments in infrastructure and rolling stock are currently being made for this market. However, this extra capacity is often underutilised during the off-peak, as is railway capacity in many other parts of the country.

2.2 These conditions imply that any initiative to offer discounted fares during peak periods would generate an additional need for infrastructure and would not help smooth demand. This would undoubtedly not be profitable because (a) it would necessitate significant additional costs, and (b) peak demand tends to be driven more by external factors (e.g. employment levels) than by fares - commuters tend to be relatively unresponsive to prices.

2.3 In contrast, a product such as the envisaged National Railcard (which is designed only to increase off-peak rail usage) can be very profitable, since the extra passengers carried for such a scheme can be accommodated without incurring major additional costs. Additionally, since off-peak (leisure) trips are more discretionary, off-peak passengers are more sensitive to fares.

Conclusions from the National Railcard Economic Research

2.4 The National Railcard Economic Research was aimed at establishing the demand for, and the profitability of, a National Railcard offering discount only at off-peak periods. This was done using a distribution for off-peak rail trips for those aged 25-59. Although this distribution revealed that up to 50% of the population does not travel by rail at all, there is a significant proportion of people making a considerable number of such trips per year. This was the market which was identified for this product.

2.5 Different pricing combinations were studied, but the one which delivered the best results was a card costing £30 (€43) and offering 50% discount. Under this pricing scheme, it would be worthwhile to buy the card for those passengers undertaking more than 770 off-peak kilometres per year. Additionally, different models based on different assumptions yielded "high" and "low" estimates. The following table presents our "average" forecasts for a National Railcard with such pricing for the UK[1].

[1] Note that the forecasts assume the National Railcard supersedes the currently available Network Railcard. In order to ease comparison with other countries, the incremental profit figures include those revenues actually generated by the Network Railcard.

Table 2.1. Summary of National Railcard Proposals
(source: Railway Consultancy, April 2003)

	National Railcard Economic Research - Average Estimates				
PRICING SCHEME (Price {£},Discount {%})	Railcards Sold (M)	Incremental Passenger Miles (%)	Subsidy per passenger mile (reduction, pence)	Incremental Profits (£M)	Value of reduction of externalities (£M)
(30, 50%)	3.1	31%	1.1	81	2

2.6 As shown in Table 2.1, the uptake for this product was estimated at 3.1 M (5% of Britain's population). Due to the discount offered, off-peak passenger miles would be boosted by 31%. Incremental profits for the industry were estimated at £81 M (€ 117 M). These comprise "railcard revenues" (revenues directly receivable from the sales of the cards (£93 M or € 123M)), plus "ticket revenues" (the change in farebox revenues generated by the introduction of the railcard (- £6 M)), less other costs (£6 M).

2.7 The change in fare box revenue involves two elements: On the positive side, there are extra revenues which are obtained from selling tickets for the additional 31% off-peak miles generated by the introduction of the NRC (although these tickets are sold with a discount). On the negative side of the equation, there is an abstraction in revenues due to those tickets which were previously sold at full fares and are now sold at a discount. The extent to which these incremental revenues are positive or negative depends on the prevailing passenger demand elasticity (responsiveness of demand). In the case of the UK, this is slightly negative, because research shows that the likely passenger response is insufficient to compensate for lost ticket revenues. However, it was sufficient to compensate for most of these losses and hence the overall loss in ticket revenues is only £6 M compared with railcard positive revenues of £93M. In other words, although the demand elasticity is less negative than -1, it is not very far from this unitary value.

2.8 Although these results are very positive for the Railway Industry, the limited budget allocated for the original project forced us to make a series of assumptions, which therefore limited the academic purity of our results. As a consequence, further work is still needed. The present study, which will examine other railcard schemes in Europe, will deepen our knowledge of the economics of such systems, but should by no means be seen as a substitute for the further analytical work which is needed to make the results in The National Railcard Economic Research more robust.

Measuring profitability for a National Railcard scheme

2.9 In order to assess the profitability of these schemes in other countries, railcard revenues, ticket revenues and costs must all be taken into account. As shown for the UK, the cost implications are not likely to be high, as long as the introduction of the card does not involve additional investments in infrastructure and/or rolling stock (i.e. if the network has additional capacity to accommodate extra passengers generated by such a scheme). The analysis of these costs is outside the scope of this project and this is thus recommended for further research.

2.10 Railcard revenues are easy to quantify as they result from multiplying the number of cards sold and the cost of each card. However, information on ticket revenues is more difficult to obtain. These could only be accurately measured by looking at passenger numbers before and after the scheme was implemented. In some countries, these schemes have existed for many years, and so data is scarce. An alternative approach is to look at passenger demand elasticities in the markets concerned. As long as these are not considerably less negative than -1, then the impact on ticket revenues will not be significant, as it is in the case of the UK, and railcard revenues will give a fair representation

of the profitability of schemes. The third possibility in order to assess profitability is to conduct interviews with senior railcard management and directly ask if the railcard scheme is seen as serving social or commercial objectives.

2.11 In this study we will make use of all alternative sources in order to assess this issue. Data on railcard revenues, ticket revenues and elasticities, together with conducted interviews will all help assess this point.

3 Difficulties in International Comparisons

3.1 Although it is important to attempt some comparison between the different railcard products available in different countries, there are significant difficulties in this process which need to be set out and understood at an early stage, since they lead to caveats in our conclusions. They fall under the three key headings of geography, economics and politics, and railway characteristics. In many cases, Britain and Switzerland are at opposite ends of a variety of spectra, and are mentioned specifically. The reader should also consider the position of other countries whose railcards are described in sections 4-8.

Geographical Issues

3.2 The sheer geography of a country will affect the profitability of its railway, and hence the success of different ticketing products such as railcards. For instance, Switzerland is centrally-placed within Europe and therefore enjoys a considerable amount of transit traffic between the major economies of Germany and Italy. This boosts passenger (and freight) demand, and hence the level of service provided. However, the services provided are then available for use by domestic passengers, providing a more attractive level of service than might otherwise be justified.

3.3 On the other hand, Britain is not only an island, but is peripheral to Europe. Its only passenger service link to other countries is the Eurostar service which is funded in an unusual fashion, outwith the scope of normal domestic railway pricing.

3.4 Various features associated with population are also key to railway economics. As cities grow, the use of rail rises much more sharply, as road congestion results from the increasing number of trip ends per kilometre of road. This leads to (often uni-directional) peak hour use of the railway by those otherwise not disposed to use rail. Peak rail demand becomes inelastic, because the alternatives are very poor. The peak demand also causes capacity problems, the solution to which is likely to include differential peak:off-peak pricing.

3.5 Countries where the population is dispersed more evenly (for instance, Switzerland) do not have this pressure on peak capacity. First, the demands of a major city such as London do not exist, and secondly, the peak demand on key routes is spread across both directions.

3.6 Physical geography also makes its impact felt where there are features which differentially affect modes of transport. Owing to significant earlier investment in tunnels, the Swiss railway system has an advantage over its road competitors. Crowded valleys have perhaps also led to the Swiss being more environmentally-aware than others of their European neighbours.

Economic and Political Issues

3.7 There is a well-known relationship between economic prosperity and amount of travel consumed. Although the number of trips people make each year may remain stable as they get richer (in Britain, data from the National Travel Survey has shown this over a 15-year period), the length of those trips (and hence the total demand for travel) increases. The countries considered in this report may all be in Europe, but there are actually wide variations in GDP (or similar measures such as Disposable Income), which reflect the impact of income on the demand for travel. Britain is not only relatively poor in a European context, but the cost of living is relatively high.

3.8 Since the Thatcher era, British society has also tended to be market-based, with a prevailing philosophy that the users of services (such as the railways) should pay for them, rather than the taxpayer. This has lead to the balance of support for the British railway industry being markedly different from that in the other European countries; fares are much higher, whilst Government

support is lower. Higher fares lead to higher fares elasticities, and an increased need to segment the market to reflect differing willingness to pay. Where fares are much lower because the railway is regarded as a social service (as perhaps in Italy), there is less need to develop more sophisticated pricing strategies.

3.9 Recent political history in Britain has also stimulated competition rather than cooperation in the market. This may have good economic advantages in some products, but many observers would argue that these benefits are absent in the public transport market, where a more integrated transport solution is required in order to compete against the car. Again, Switzerland is held up as a model of integrated public transport, in areas such as through-ticketing and the availability of connections between modes.

Railway Issues

3.10 The observed level of railway demand is also related to the capacity available. This needs not only to be measured in train kilometres, but also in network availability. Enlargement of the network can enable passengers to reach new destinations by rail, and therefore increasing patronage levels (supply creating its own demand). However, a larger network would not necessarily mean higher demand, as it might be that some of this extra network consists of duplicate or ineffective lines.

3.11 Some countries have also invested more in the development of their rail network. France, for instance, has put much effort into the construction of new lines serving the key corridors. Switzerland and the Netherlands, however, have developed their overall network to provide a regular and frequent service pattern between all major centres.

Other Technical issues

3.12 There are a number of difficulties in comparison of figures related to the way the data is disaggregated for each country. In the case of Austria, Germany and the Netherlands, the existing railcards amalgamate a series of pre-existing railcards targeted at special groups (young persons, families, etc.). Thus, data on aggregate demand for these cards is not representative for comparisons with a national railcard only valid for those aged 25-59.

3.13 A distinction must be made between "demand" for a railcard and railcard "uptake". Unless otherwise stated, we will refer to "demand" as the number of railcards sold each year in a country. On the other hand, "uptake" will mean the number of railcards in circulation at any particular point in time. Of course, there is a relationship between the number of cards sold each year and the number of cards held at any particular point in time. Although this might be straightforward in cases where the cards are only valid for one year (in these cases demand = uptake is a good approximation), it is not so clear-cut in cases such as Switzerland, where railcards are sold with more year's validity. The majority of the data being presented in terms of uptakes, this report will use this variable as a proxy for demand.

Conclusions

3.14 Even before we start our international analysis of railcards, then, we would have some expectations about their price and use. For example, we would not expect a National Railcard in Britain to be as popular as in Switzerland, where public transport fares are lower, services more integrated, and the political system more environmentally-aware and less market-orientated.

4 Swiss Railways (SBB): The Half-Fare Card

Swiss Rail Industry Overview

4.1 Switzerland is a small country with a population of 7 million and an area of 41,000 km^2. On average there are 174 inhabitants per km^2. As opposed to Britain, the population is quite evenly dispersed, with major urban settlements in Zurich, Basel, Bern and Geneva.

4.2 The rail network is also small (3,227 km) but considerable passenger kms are undertaken each year (13,842 M pass. km). In fact, on average, the Swiss travel by rail twice as much as the Germans and three times more than the British. There are many factors that help to explain this high propensity to travel by rail. Human geography is favourable to rail travel, with major conurbations being 50 – 150 kms apart. This enables running a practical system of symmetric, regular timetables. Delays are kept to a minimum with 95% of all trains arriving within less than 4 minutes of their scheduled arrival time. Additionally, Switzerland has been historically one of the most environmentally aware European countries. All these factors help to explain why Swiss Railways enjoy the highest rail mode share in Europe: Swiss Railways capture 28% of all passenger kilometres whilst this figure is only 5.5% in Britain.

4.3 The medium distance between major cities makes the market ideal for rail transport. It also means that the main competitor is the car. On the other hand, the relatively even distribution of population means that peak infrastructure requirements do not imply huge cost escalations with consequent heavy underutilization during the off-peak. This makes the idea of a national railcard available at all times of the day more appealing.

Fares policy and the Half-Fare Card

4.4 Car being the major competitor for rail travel in Switzerland, the fares structure is designed to emulate car pricing. This approach could be summarised as high initial costs, low running costs, an extremely simple system and kilometric pricing.

4.5 As a result, Swiss Railways have a very simple system of kilometric fares (standard and first class) with no peak: off-peak market segmentation. Swiss Railways' pricing philosophy of keeping the structure simple is evident as there is neither market pricing nor yield management, and no reservations or supplements are catered for in the fares structure. Although very simple, this pricing scheme means that profit opportunities are certainly not exhausted. In principle, market pricing and market segmentation could exploit the higher ability to pay of passengers over certain routes and certain times of the day. This is especially true when the average revenue per passenger kilometre for SBB is relatively low at €0.08 per km.

4.6 Even if the base level of fares is not profit maximizing, a well-designed two-part tariff could generate incremental benefits. The Half-Fare Card is an established product and has been available since the beginning of the last century. It costs €118 and gives 50% discount for the solo passenger over virtually the whole network during all times of the day.[2] It is a non-transferable card and there are no nationality requirements for its purchase.

4.7 In addition to the version of this card valid for one year, two year and three year cards are also available (at discounted prices). There is not only a financial benefit for SBB in terms of receiving up front-payments and transferring risk to the passengers. It is also beneficial in terms of ticketing

[2] In terms of its availability on the S-Bahn system (urban railways) it is similar to the proposed NRC in the sense that it offers discount on non-travelcard fares but excludes travelcards/season tickets.

costs and it facilitates capacity forecasting and planning. The Half Fare Card utilizes credit card (magnetic strip) technology and can be renewed on the internet.

4.8 Railcard demand has risen considerably over the past few years, and nowadays some two million persons hold a Half Fare Card[3]. It is interesting to compare these figures with the uptake for the Network Railcard (NWRC) in the Network South East area of Britain. Currently only 360,000 cards are in circulation in this region, which covers a similar area as Switzerland. The comparison renders the uptake of the Network Railcard even worse if we note that the NWRC costs only €16 and that the population to be served in this area is double the one in Switzerland. On the other hand, it is an off-peak product only, which limits significantly the trips eligible for discount (and hence demand for the card), and the discount given is lower (30%).

4.9 Half Fare Card revenues are some € 139M per year, which represent 12% of all passenger revenues obtained in Switzerland. It is difficult to quantify the incremental effect over ticket revenues of this product, since it has existed now for almost 100 years and data is scarce. To assess this point, demand elasticity figures were provided by SBB[4]. When analyzing these figures by ticket type, Half Fare Card holders are the most elastic (-0.8). This might show that relatively frequent travellers exhibit higher than average elasticities, due to the frequency of usage and the implied income effect.

4.10 According to these figures, Swiss passengers' travel behaviour is less elastic than that in Britain. The "leisure" trip purpose both in Britain and Switzerland represents 33% of all trips (generating generally high elasticities). However, base leisure elasticities are lower in Switzerland (-0.7), perhaps reflecting negligible competition from air and a general preference towards environmentally friendly modes.

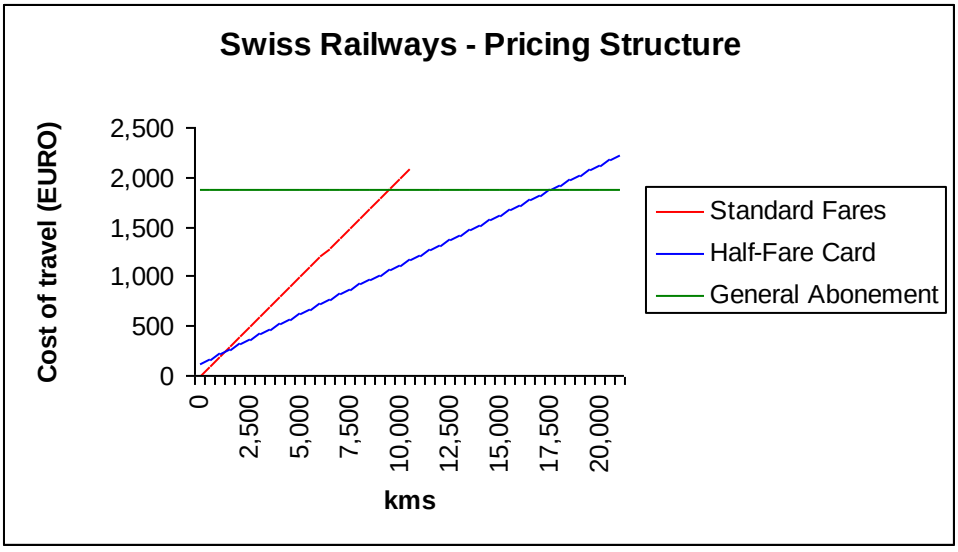
4.11 Demand elasticity is less than one for Half Fare Card holders. This implies negative net ticket revenues for the Half Fare Card. The magnitude of these negative financial impact depends not only on demand elasticity figures but on the "base" distance travelled (and fares paid) by holders of this card. Nevertheless, it is very unlikely that the net negative effect of ticket revenues would outweigh the positive financial effect from railcard revenues. This presumption was supported by a member of the Senior Management of SBB who specifically told us that the Half Fare Card is seen as serving commercial interests – i.e. it generates profit.

4.12 In addition to this product, the "General Abonnement" entitles the holder to free travel by train, bus and boat on the entire Swiss public transport network of 18,000 kms. This product targets the most frequent travellers' market. It is appealing to the railways since it implies savings in transaction costs and ticketing and helps make service operation more efficient. The "Abonnement" is priced at €1,830 for standard class and €2,880 for first class. Some 247,000 of these are in circulation, generating some € 365M annual revenues.

4.13 Thus, the fairly simple fares structure in Switzerland can be represented as a simple menu of two-part tariffs. Using the same notation than in the National Railcard Economic Research we will refer to cards which cost K (in €) and which entitle for D% discounts. Thus, for the least frequent traveller there are standard tickets (K=0, D=0%), for the middle trip rate market, the Half Fare Card (K=118, D= 50%) and for the upper end trip frequency market the General Abonnement (K = 1880, D= 100%). This market segmentation strategy is represented in Graph 4.1.

Graph 4.1

[3] Some 1M cards are sold each year (22% with one-year validity, 66% with two years validity and 10% with three years validity). Source: Christina Schubiger, Marketing Manager Half Fare Card, SBB.
[4] Howald M., SBB Fernverkehr, New Business Marketing, Kompetenzzentrum Pricing, 03.07.2003.



4.14 Graph 4.1 shows that for those passengers undertaking more than 1,500 kms a year it is worthwhile to buy a Half Fare Card, whilst for those making more than 17,500 kms per annum it is more convenient to enter into the General Abonnement. The uptake for this product is 0.25M. However, if the only two products available were the ordinary fares and the Half Fare Card, then this group of consumers would opt to buy the railcard, since - as seen in Graph 4.1 - it would be much more expensive to travel on ordinary fares. Consequently, if the objective is to calculate the potential for demand for a national railcard such as the Half Fare Card in Switzerland, we need to consider these as part of the market for the railcard. Consequently, in our comparisons of section 9 we will consider the market for this card to be 2.25 M rather than 2 M passengers.

4.15 In terms of international comparison, the 3.1 M cards forecast to be sold in Britain for a card priced €43 and giving 50% discount appear considerably low in comparison to Switzerland's 2.25 M railcards. Moreover, Britain's population is nearly ten times that of Switzerland and the envisaged NRC is priced well below the €118 Half Fare Card, whilst both give the same discount.

4.16 However, the Swiss railcard is available at all times of the day whilst the UK's envisaged National Railcard is limited to the off-peak. As a result, uptake for these two different products is expected to differ in important ways. First, the number of eligible trips increases significantly with the extension of the validity of the card to the peaks. Second, as most peak trips are commuting, and as these are more regular trips, they can be most easily predicted, removing the important uncertainties in the decision whether to buy a railcard or not.

4.17 Additionally, as mentioned earlier, there are a number of other reasons to explain the higher propensity to travel by rail in Switzerland (42 trips p.a.) than in the UK (16 tips p.a.). A key reason is that normal (i.e. undiscounted) fares are generally higher in the latter.

4.18 Although there are many reasons to expect a lower comparative uptake for a national railcard in the UK, there is evidence that these fail to account fully for the observed difference. However, this difference is based on observed values (SBB) and forecasted ones (UK). This could mean that (a) we could have underestimated our results for Britain; or that (b) the uptake for a national railcard in Britain is inherently lower.

4.19 Although numbers could not be obtained for comparisons, the Half Fare Card is also profitable in Switzerland. We know this from conversations with key staff at SBB and this could, too, be inferred by looking at railcard revenues and the level of demand elasticities.

4.20 After all, a typical Swiss undertakes four times more trips by rail a year than the average British does. It would be interesting to wonder how much of this difference can be explained by the existence of the Half Fare Card itself.

5 Germany: The BahnCard

German rail industry overview

5.1 With about 82 million citizens, Germany has the largest population of any country in the EU. The country covers an area of 357,000 km^2, which is nearly 50% more than the UK. However, Germany's population density of 230 inhabitants/km^2 is not too dissimilar to the British figure. Major centres of population are spread rather evenly over the country. The largest of these are Hamburg in the North, Munich in the South, Frankfurt in central Germany, Cologne and the Ruhr in the West and Berlin in the East.

5.2 Germany is served by an extensive rail network of just under 36,000 km in length. There are around 1.6 billion rail passengers per annum, and people travel around 75 billion passenger km every year. Compared with Switzerland however, the rail network in Germany is only used about half as intensively. The modal split for rail in this country is around 8.5%.

5.3 Although officially a private company, Deutsche Bahn AG (DBAG) is still more or less a nationalised railway and remains by far the largest operator for passenger rail services. While there are virtually no competitors on the inter-city market, there is small, but increasing competition with other operators, when regional railway services are put out for tender. Currently, DBAG has a market share of 90% for regional services with several other operators sharing the remaining 10%.

Fares policy and the BahnCard

5.4 The BahnCard, the national railcard in Germany issued by DBAG, was introduced in 1992 and proved quite popular with frequent users of the railways immediately after its introduction. Some 900,000 cards were sold during the first six months into the scheme. However, demand growth diminished after the initial upsurge, and today there is an estimated 3 million people holding a BahnCard.

5.5 December 2002 brought major changes to the entire DBAG fares system, and this also affected the BahnCard. The previous kilometre-based tariff was abolished and replaced with separate prices for all origin-destination pairs, prices which are tapered with increasing distance and which also reflect ability to pay as well as the level of the train service offered. Advance-purchase tickets that are valid on specific trains only and offer further discounts were also introduced. The price for the BahnCard was reduced significantly, and the discount offered was cut back to 25%. These changes proved rather unpopular and did not manage to bring about the positive effects predicted by DBAG. Owing to increasing public and political pressure, DBAG was forced to withdraw some of the measures recently and more changes to the new fares structure will come into force in August 2003.

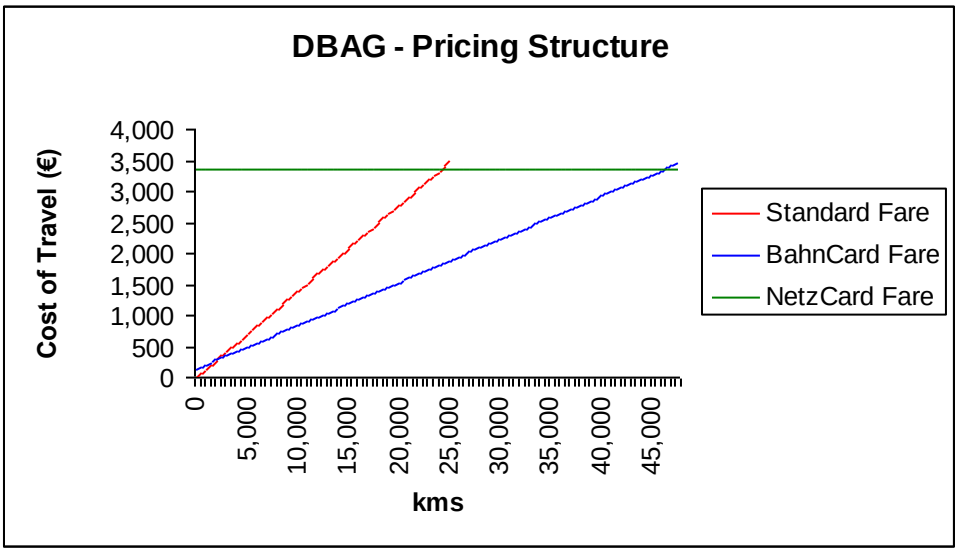
5.6 In this report, therefore, all reference will be made to the "old" BahnCard as it was available until December last year, because the market for the new product has not yet settled and the format of the product itself is not entirely finalised. Referring to the "old" BahnCard will provide a much better picture of what impact a national railcard had on the rail passenger market in Germany.

5.7 The "old" BahnCard offered a discount of 50% on all regular-priced tickets with some exceptions explained later. There were no time restrictions, and the card could be used throughout the day. It was available for Standard class and 1st class at a price of €140 and €280 respectively and was valid for 1 year. It was possible to enter into a subscription scheme for the BahnCard under which the card would be renewed automatically when it expired. As an incentive for passengers to enter this

scheme the validity of the card was then extended to 13 months.[5] Children and young people up to the age of 25, senior citizens over 60 and partners were entitled to purchase a BahnCard at half the price. Families with three or more children and in receipt of Child Benefit could apply for a free set of cards. This "BahnCard Family" would allow the children to travel on their own and receive the full discount, while their parents would only enjoy a reduced fare if they were accompanied by at least one child.

5.8 As mentioned earlier, the uptake for the BahnCard is currently 3 million. However, it is estimated that some 0.75 million of these are actually BahnCards sold at a reduced price to the specially benefited groups described in the above paragraph.[6] In order to compare with the forecasts for a British railcard, we will use a figure of 2.3 M railcards. This comprises the 2.25 M BahnCards sold to the 25-59 age group plus some 5,000 "Netzcards" sold to high frequency travellers, as described in the next paragraph.

Graph 5.1



5.9 Graph 5.1 shows the old DBAG fares structure with the linear kilometre-based standard fare (0.139 €/km) and the reduced BahnCard fare including the initial cost of the BahnCard. The graph also includes the NetzCard, which is priced at € 3,350 (personalised and Standard class; the NetzCard is also available for 1st class and as a transferable ticket) and entitles the holder to unlimited travel across the DBAG network for one year. The graph shows that buying a BahnCard is worthwhile for people travelling more than 2,000 km a year, while a NetzCard becomes viable for travellers of more than 46,000 km per annum.

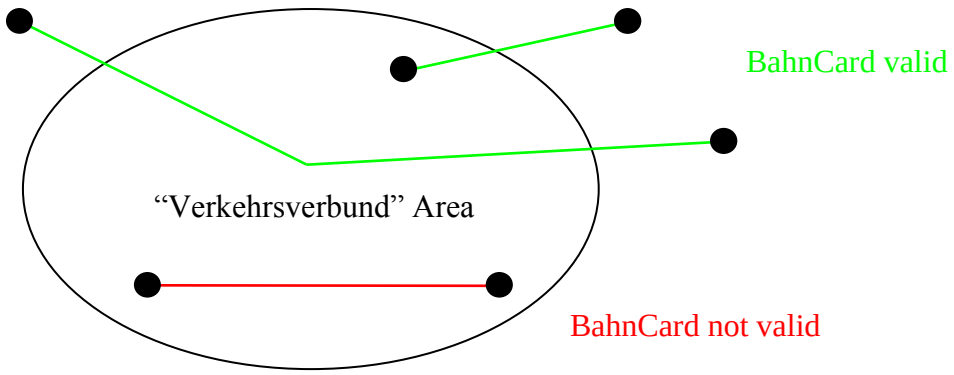
5.10 The "old" BahnCard was not valid for the numerous special offers which existed before the major fares reform last year, nor for other already discounted tickets such as "Sparpreis" (comparable to a Saver ticket in Britain) or "Super-Sparpreis" (comparable to a Super Saver) or any form of season ticket.

[5] This is somehow similar to the reduced price that SBB offer for their two or three year Half Fare Cards However, in the case of the BahnCard, the benefit to the passenger resulting from a longer-term commitment to the railcard accrues in the form of an extended validity rather than a reduced price.

[6] DBAG was unable to provide official figures for differential uptakes. The evidence used here was provided by the fares expert Joachim Kemnitz, of the German rail campaigning group PRO BAHN.

5.11 The BahnCard could also not be used in any of the "Verkehrsverbund" areas, which exist for virtually any conurbation in Germany. "Verkehrsverbünde" are similar to the British PTEs in that they offer through ticketing for all bus, tram, underground and local train services in their area and also co-ordinate timetables to ensure the public transport system works as an integrated entity. The BahnCard discount is not available for any journey wholly within any "Verkehrsverbund" area. However, passengers travelling from an origin within a "Verbund" to a destination outside (or vice versa), or passengers crossing the "Verbund" area are entitled to the BahnCard discount. This restriction limited (and still limits) the usefulness of the BahnCard for shorter journeys around major population centres.

Figure 5.2: BahnCard Validity in "Verkehrsverbund" Areas



5.12 The main reasons why the BahnCard cannot be used in "Verbund" areas are probably problems in revenue allocation, a common obstacle to through ticketing measures. Since the BahnCard is a national product, DBAG would receive all revenues from selling the card. If a proportion of this intake was not passed on to the "Verbünde" they would suffer a revenue shortfall, because there would be no compensation for passengers buying discounted tickets. Developing a revenue allocation mechanism for the entire country would be very difficult owing to the sheer number of "Verbünde" (currently 54). Revenue allocation would be further aggravated by the federal structure of the country: DBAG is a national operator, while the provision and funding of regional transport is the responsibility of the states.

5.13 Capacity constraints do not seem to be a reason for the limited validity in "Verbund" areas. Given the current pricing structure of most "Verbünde", commuters would not gain a benefit from buying discounted return tickets every day using the BahnCard (if this was possible) compared to obtaining a monthly season ticket, as the following example shows:

5.14 For typical commuting journeys in two different "Verbünde" (GVH Hannover and VRS Cologne) the kilometre-based discounted DBAG fare was calculated (a fare that is not actually available due to the "Verbund" restrictions) and compared with the price for the relevant monthly season ticket.

Table 5.3: Comparison of DBAG and "Verbund" Fares

Journey	Dist.	Discounted DBAG Return Fare	Monthly DBAG Price*	Return Fare ("Verbund")	Season Ticket Price ("Verbund")
Wunstorf-Hannover	22 km	3.10 €	68.20 €	5.80 €	71.00 €
Gummersbach-Cologne	58 km	8.10 €	178.20 €	10.40 €	157.20 €

* assuming 22 working days per month

5.15 Table 5.3 shows that in both Verbünde, the fictional DBAG discounted fare would be cheaper than the actual "Verbund" return fare. However, due to the actual discounts given on season tickets, it would still be cheaper for commuters to buy "Verbund" season tickets than to buy 22 return DBAG discounted fares. In the case of Hannover the DBAG monthly price would be marginally cheaper than the season ticket, but the "Verbund" ticket also permits the use of connecting tram or bus services at no further cost. In the case of Cologne the "Verbund" ticket is actually cheaper than the fictional DBAG fare would be.

5.16 The comparison also highlights that occasional travellers would benefit from reduced restrictions inside the "Verbund", since they actually have to pay more now than they would have to if they could use the BahnCard. An increase in patronage could be expected if the restrictions were lifted, but the impact on capacity is likely to be marginal and concentrated during non-peak loading periods, since the highest proportion of passengers in the "Verbund" areas are commuters who would still purchase season tickets.[7]

5.17 DBAG estimates that they serve a customer base of 30 million. Therefore, if 3 million people hold a BahnCard this only represents 10% of their customers. Due to this relatively low circulation of the card, DBAG claim the scheme has not been very successful. We have estimated some € 322 M to be generated in terms of railcard revenues as a result of this scheme. Demand elasticities seem to be quite similar to British ones, with -1 for leisure, -0.6 for commuting and lower values for business travel[8]. For any group of cardholding passengers, the result would be revenue abstractive in terms of ticket revenues (as the average elasticity would be less than unity). However, it is not likely that this revenue abstraction would exceed the proceeds from selling the BahnCard.

5.18 There seem to be several reasons for the relatively low number of cards sold. On the one hand, the high price of the card meant that it would only be beneficial for customers travelling more than 2,000 km a year, which is the highest figure among the countries compared. One could argue, though, that Germany is also the biggest of these countries and longer journeys are thus more likely to occur, but the price of the card could still act as a deterrent. On the other hand, the BahnCard is of limited use for shorter journeys in and around urban areas as described earlier. Therefore, a high proportion of commuting trips is not eligible for discount. Furthermore, the eligibility of the "old" BahnCard over a series of discounted ticket is limited.

5.19 DBAG did not seem to be too keen on efficient marketing of the card either. After the launch of the scheme with the advertising slogan "Ganz Deutschland für die Hälfte" ("The Whole of Germany for

[7] Even if these restrictions are lifted, the pricing structure for season tickets might prevent capacity problems arising because of the all-day validity of the BahnCard. It is not worthwhile for commuters to buy discounted DBAG tickets, as "Verbund" season tickets tend to be cheaper and more flexible. The comparatively low number of additional non-commuting occasional travellers using peak services does not impact significantly on capacity, which is why there is no need for time restrictions for the use of the railcard.

[8] Values provided by Hans-Ulrich Mann, Managing Director of Intraplan Consult GmbH, Munich.

Half the Price") marketing more or less ceased. Instead, a range of special offers and tickets tailored for certain market segments – especially occasional leisure travellers – were introduced which were not eligible for BahnCard discount.

5.20 Consequently, the complicated structure of the fares system that was littered with exceptions and special discounts, as well as the lower than expected uptake of the BahnCard were given as some of the reasons justifying the radical changes introduced last year. As mentioned earlier, passengers have not responded well to these changes; in fact, during the first six months of 2003 passenger numbers fell by more than 10%.

5.21 To halt the further erosion of passenger numbers and the resulting revenue shortfall DBAG is to revise the new fares structure from August 2003. In addition to the "new" BahnCard offering 25% discount, the "old" BahnCard with 50% discount will be reintroduced, yet at an even higher price of € 200. The price for the network card will be reduced from € 3,350 to € 3,000. These changes will not only change the absolute levels of the pricing scheme as depicted in figure 5.1, but will add an additional two-part tariff into the menu. The final menu consists of the standard fare plus three different discount cards offering 25%, 50% and 100% discounts.

6 Austria (ÖBB): The Vorteilscard

Austrian rail industry overview

6.1 Among the countries analysed in this report, Austria has the lowest population density with 97 inhabitants per km^2, which is mainly due to the high proportion of mountainous terrain. It has a population of 8 million dispersed over an area of 84,000 km^2. Nearly a quarter of the total population lives in Vienna and its conurbation. Other population centres are Graz in the South-East, Linz in the North, Salzburg in the North-West and Innsbruck in the West.

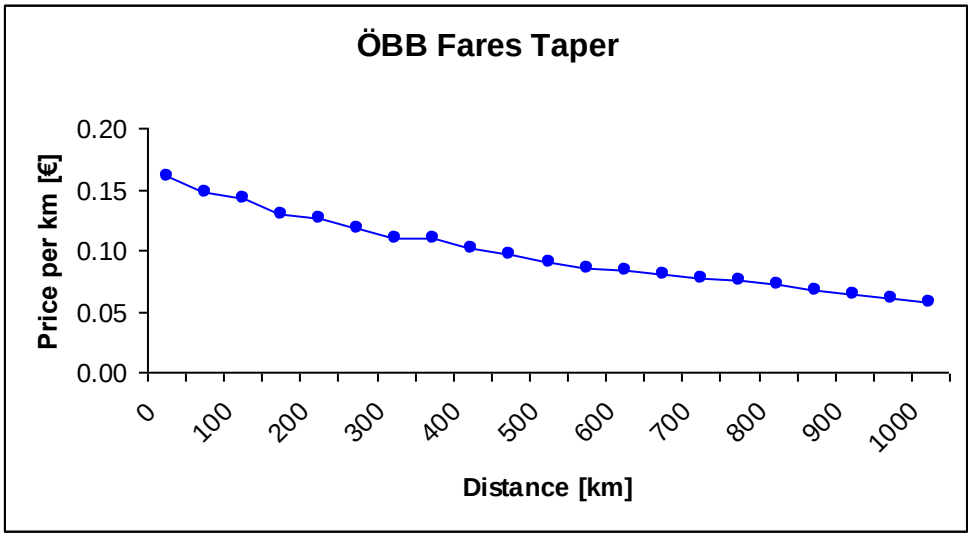
6.2 The rail network in Austria consists of 5,780 km of track, on which 8,355 million passenger km are travelled per year by around 275 million passengers. The modal split for rail is around 8.5%, which is more or less the same value as for Germany and the Netherlands. However, for some trips in the Vienna area the modal share of rail can be considerably higher.

6.3 Virtually all train services in the country are run by state-owned Österreichische Bundesbahnen (ÖBB). Long-established private operators play a limited role in running some regional rail services. In the passenger sector, ÖBB collected fares revenues of € 558 M and about the same amount was received in government grants for concessionary travel schemes and subsidies.

Fares policy and the Vorteilscard

6.4 The ÖBB fares system is relatively simple and mainly consists of a tapering price per kilometre. There is no difference between peak and off-peak prices, single tickets are priced at half the return fare and advance purchasing does not attract further discounts. Figure 6.1 shows the tapering price per km applied in the ÖBB system.

Figure 6.1



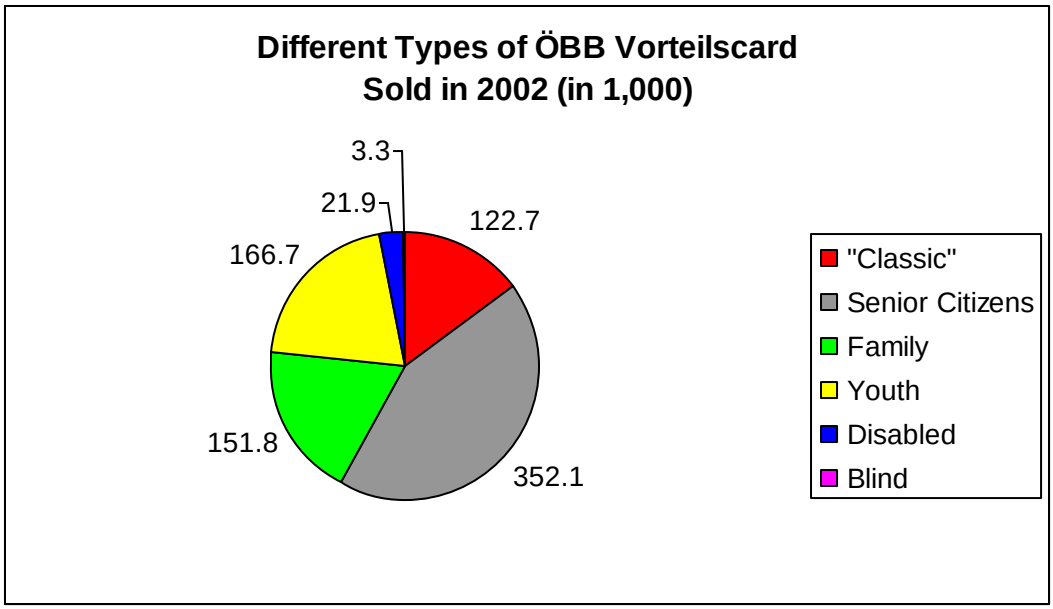
6.5 Monthly and annual season tickets are also available as well as a limited range of special offer tickets. The "Österreichcard" is the recently introduced network card, which offers unlimited travel on the entire rail network for one year. It is priced at €1,690, and discounts are available

for senior citizens, young people and the disabled. To date, around 750 of these network cards have been sold.[9]

6.6 The national railcard available in Austria is called Vorteilscard ("Advantage Card") and was introduced in 1996 as a successor to the "Umweltticket", a railcard available to everyone, and other rail discount cards for young persons, pensioners and the disabled. Currently, there are around 840,000 cards in circulation. This figure has increased from around 700,000 in 1999 and about 820,000 in 2002. In recent years, the annual growth rate slowed down to about 2-3%, and ÖBB estimate that steady state growth will be achieved when about 1 million cards are sold.

6.7 The basic version of the Vorteilscard costs € 93.70 and offers a discount of 45% on all normally-priced tickets. Passengers booking their ticket online receive a further discount of 5% and thus pay exactly half the fare. This non-transferable card can be used throughout the day and there are no time restrictions attached to it. There are various other types of the Vorteilscard as well, including a version for senior citizens (€25.40), a version for the under 26s (€18.10), a version for the blind and disabled (€18.10) and a card for families (€103.70). The family card offers the 45% discount to parents regardless of whether they travel with their children or not. Children up to the age of 15 travel for free and are entitled to the regular Vorteilscard discount when they are older. The "classic" Vorteilscard is available to anyone, while a proof of eligibility is required for the discounted cards.

Figure 6.2



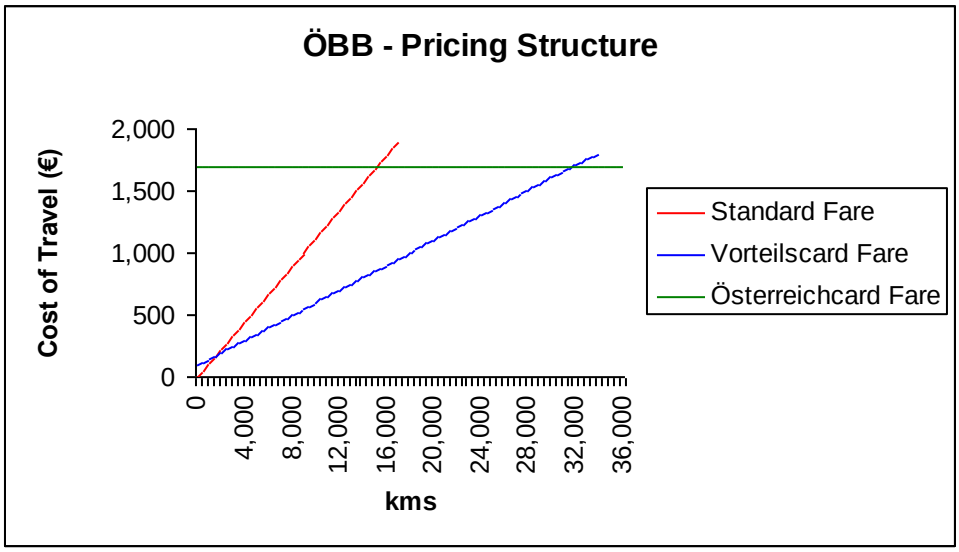
6.8 As seen in Figure 6.2, relatively few "Classic" Vorteilscards, which are available to everyone and do not have any eligibility restrictions, are sold (122,700) in comparison with the number of Vorteilscards sold to senior citizens (352,000) and young persons (166,700). This might be explained by the important difference in price (the "classic" card is about 5 times more expensive than the senior or young person's card) and by the fact that the freely available version of the Vorteilscard has only been available since 1996, whilst the other versions have been around for much longer.

[9] The Österreichcard was only introduced in March 2003.

6.9 Railcard revenues for the Vorteilscard represent €26 M. However, only €11 M are generated by the "classic" Vorteilscard.

6.10 As in Germany, there are several "Verkehrsverbünde" in Austria offering through-ticketing in their respective area, but the acceptance of the Vorteilscard varies. Some "Verkehrsverbünde" do offer a discount off their through tickets to holders of a card, yet not always the full 45% discount, while others do not accept the card at all. Interestingly, the "Verkehrsverbund" for the Vienna region, which is the biggest in the country and serves 2.3 million people, does not accept the Vorteilscard. However, unlike in Germany, where "Verbund" tickets are the only tickets available for trips wholly within a "Verkehrsverbund" (see figure 5.2) it is possible in Austria to buy ÖBB-only tickets, which then are eligible for the railcard discount. Therefore, the Vorteilscard is more useful for shorter journeys around conurbations than the BahnCard.

Figure 6.3



6.11 Figure 6.3 shows the structure of the ÖBB fares system[10]. It is worthwhile to buy a Vorteilscard if the annual distance traveled exceeds 1,500 km. If the annual distance exceeds 31,500 km, however, the Österreichcard would be the cheapest option.

6.12 Within ÖBB the Vorteilscard became increasingly used as a market research and marketing tool. Information from the customer database is being used by the railways to learn more about their passengers in terms of travel patterns and socio-economic background. The card is jointly marketed with other companies, who offer discounts to Vorteilscard holders. Such companies include, for example, car-rental firms, hotels, cultural venues, tourist attractions, travel agents and a major mail order company. This year, a loyalty scheme was set up, under which passengers can earn rewards based on the distance they travel by train, similar to the "Air Miles" schemes promoted by airlines.

6.13 Production and administration of the card are completely out-sourced and run by independent companies outside ÖBB. Since the companies participating in the joint marketing have to pay

[10] The standard fare used was €0.07 and it refers to average revenue per km. The fares taper exhibited in figure 6.1 is not included here since a) the importance of this taper will depend on the number of trips undertaken by the passenger and b) it can be shown that a linear approximation will yet generate the same intersection between the red and blue lines, especially when the fares taper ceases to exist at 1000 kms.

Austrian railways to join the scheme and also for ongoing advertising, the whole Vorteilscard is self-funding from ÖBB's point of view and does not require additional financial support.

6.14 From a marketing point of view, the Vorteilscard is deemed by ÖBB to be a highly successful and highly desirable scheme to attract more passengers to the railways and to become more customer-focused. However, the success of the freely available "classic" version of the Vorteilscard has to be questioned, and is not quite clear why the card is not being used more widely.

7 The Netherlands: The Voordeeluren-kaart

Dutch Rail Industry Overview

7.1 The Netherlands is a country covering an area of 41,160 km^2 with 16 million inhabitants. It is densely populated with 383 inhabitants/km^2 and with large areas in the west, middle and north of the country lying beneath sea level. The economic heart and most heavily populated area of the country lies towards the west and is called the "Randstad". It is the area broadly bordered by the cities of Amsterdam, Utrecht, Rotterdam and Den Haag. Its size and population remarkably resemble the Network South East area.

7.2 The Dutch rail network is relatively smaller than Switzerland's (which is a country of comparable size), with 2,800 miles of track.

7.3 The industry is structured similarly to the British railway industry. Infrastructure ownership and maintenance has remained a government responsibility while passenger train services are currently provided by four private companies (NS, Syntus, Noordned and Thalys)[11].

7.4 In the years after privatisation and separation of the integrated network, punctuality and reliability severely eroded, with now only around 80% of trains running less than 3 minutes late. A shortage of personnel, trains and spare parts forced NS to cut services.

7.5 Attention is currently focussed on improving service reliability, punctuality and providing sufficient capacity. The government owned infrastructure provider is aiming to increase reliability by improving maintenance regimes. The financial costs of recovery are high, and NS has attempted to raise fares twice in the current financial year. In 2002 a fare rise was postponed due to low performance. The proposed second price rise in July 2003 is meeting very severe resistance from passengers and politicians and has resulted in a legal dispute.

Fares policy and the Voordeeluren-kaart

7.6 In the Netherlands a new fare structure is being introduced. The new fare structure is a simplification of the previous system, which consisted of a system of discretely-decreasing marginal revenue per kilometre tariffs. In the new system, fares will be based on an "entrance fee" plus a "distance·tariff unit fee". A tariff unit usually equals a kilometre. The marginal revenue per kilometre is constant. There is no price difference between a tariff unit travelled as part of a single or a return journey. Reduced fares are 40 % of the full fare. The maximum fare is capped by a "day ticket". In its information brochures for the proposed new fares, NS uses an entry fee of € 0.60 and a "kilometre" fee of € 0.12, the corresponding reduced fares being € 0.36 and € 0.072 per "tariff unit"

7.7 The tickets available in the Netherlands are singles and returns, day tickets and a variety of packages of carnets and "weekenders". In certain areas the "Strippenkaart" and "Star travelcards" are also valid on trains. The "Strippenkaart" is a national zonal system for buses and trams that strongly favours pre-bought tickets of 15 or 45 "strippen". The fare to be paid for a journey is one "strip" for vehicle entry and a strip for each zone in which is being travelled. The validity of a validated ticket is time limited and dependent on the number of "strippen". The ticket allows interchanges within its time validity. Areas where the Strippenkaart is valid on trains are the urban areas of Amsterdam, Rotterdam, Den Haag, Utrecht, Maastricht as well as Syntus trains and some further rural NS services.

[11] The Shares of NS are held by the Government.

7.8 Reduced fare travelcards have got a long history in the Netherlands. Up to the early 80's frequent travellers were able to buy a monthly travelcard, giving a reduction of 50% on singles and returns at all times of the day. The cards were expensive at about €20 a month (1980). After that, NS introduced the "Reduction Card". The card was also relatively expensive (about € 210 per year in 1980), available to families, and offered 50 % discount on singles, returns, and some limited discount on travel cards. The card was valid at all times of the day. Any person within the family could use the card individually and there was no need to travel together to enjoy the discount. However, due to its high price, a relative high number of kilometres needed to be undertaken in order to make buying the card worthwhile.

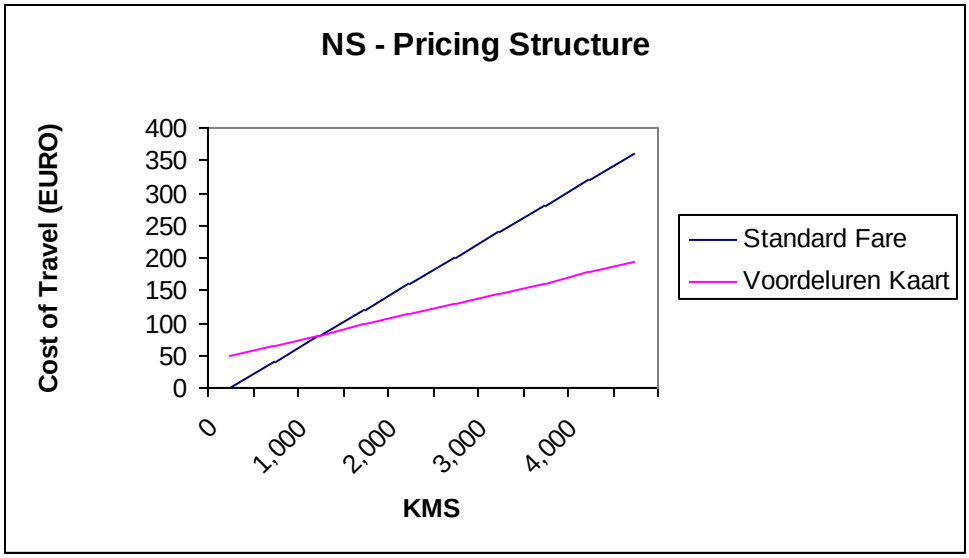
7.9 Due to increasing problems with peak capacity the "Reduction Card" was replaced by a cheaper, individual "Dalurenkaart", with peak time restrictions. The card was valid after the morning peak and offered originally 50 % reduction. The reduction on single journeys and returns was later reduced to 40 %. For the older customer the "Pass 60 +" existed. The formula for this card was similar to the "Dalurenkaart" but offered an additional 7 days free unlimited travel Monday to Thursday after the morning peak. For the frequently travelling pensioner, the purchase of more than 1 card was often a great financial benefit, as the price of an additional card with 7 days free travel is far less than the price of reduced tickets[12].

7.10 Both the "Dalurenkaart" and the "Pass 60 +" were finally amalgamated into the "Voordeeluren-kaart". The "Voordeeluren-kaart" currently costs € 49 and offers 40 % reduction on single, return and day tickets. The reduction is available for all journeys starting after the end of the morning peak (09.00). For users above the age of 60, the additional 7 days of unlimited off-peak travel (Monday-Thursday) are included in the card. About 1,000 kilometres are necessary to make buying the card worthwhile (see Graph 7.1). The Voordeeluren-kaart is personal and non-transferable. The sale of the Voordeelurenkaart is not limited to Dutch Nationals only.

7.11 In addition to this card, the NS Jaarkart entitles for free tavel during all times of the day for the period of one year. Its basic form enabling one individual to travel second class by rail costs € 2,495 per year. Up to six persons living at the same address can be added for additional fees and the validity of the card can be extended to first class and to other public transport modes. Graph 7.1 shows the ordinary off-peak fare and the Voordeeluren-kaart, which is also available off-peak. The Jaarkart is a different product because it provides for free travel during all times of the day, and consequently is not included in this graph. Additionally, some 150,000 of these cards are sold, but for the reasons explained earlier, these are not added to the potential demand for a national railcard in The Netherlands. However, if the Jaarkart were withdrawn, an increase in the sales of the Voordeluren-kaart would be expected, as they can be seen as partial substitutes.

Graph 7.1

[12] The card costing € 46 allows 7 free travel days, which have an estimated value of € 6.50 each.



7.12 The total number of "Voordeeluren-kaarten" sold is just less than 1.3 million and receipts from card sales total € 64 M. About 55 % of these cards are sold to people over 60. Consequently, 585,000 cards are being sold to the equivalent UK-target middle-aged group. This represents € 28 M in terms of railcard revenues. The journeys made with the Voordeeluren-kaart are generally for social/leisure purposes. The majority of the cards customers are female (60 %) and have followed higher education.

7.13 From the countries studied, the Voordeeluren-kaart is the most similar to the proposed National Railcard for Britain. Both are off peak railcards, are priced roughly at € 45 and offer discounts of approximately 50%. However, both the population, area and rail network are considerably smaller for the Netherlands. The uptake of the Dutch card represents 3% of the respective population whilst the uptake for a National Railcard in Britain would represent 5% of the population. The uptake for the Dutch card is more comparable with the estimates of demand for a National Railcard in the Network South East. Under our lower set of estimates, some 500,000 cards were forecast to be sold in this region, of similar population than The Netherlands.

7.14 The aim of the card is to increase patronage outside the peak hours and during the weekends. The afternoon peak is not excluded from reduced fare travel, in order to enhance ease of ticket control. The restrictions on peak travel however are lifted over the summer period which, by staggering school holidays, is spread from the beginning of June to the end of August. This results in a lower morning peak demand and empty seats on peak trains over the summer period.[13] Consequently, the card validity is extended during this period in order to fill spare capacity in the peaks. The extended validity of the card in the summer months is much valued by its users. Customer opportunities for leisure traffic/destinations are at their best during the summer months and this card enables rail to represent a more viable alternative to the family car for these trips.

7.15 The "Voordeeluren-kaart" offers a "Travel Together Discount". The owner of the card can take up to 4 passengers at a reduced fare on a shared journey. The "Travel Together" addition was

[13] The level of commuting for education purposes is high in the Netherlands. A student railcard is part of the financial support package for students over 18 years. It was estimated that the use of this card accounts for 23% of all passenger kilometres (mostly at peak times). Furthermore, the Dutch government is trying to convince schools to amend their starting times to ease peak overcrowding.

introduced to make the cost of a rail journey more competitive to car costs. Against expectations, the introduction of the "Travel together reduction" has not noticeably led to a reduction in the number of cards sold. The main journey purpose recorded for travel together discount is shopping.

7.16 In addition to the above, further incentives to buy the card have been added. These are:

- Reduction on part-ownership car schemes
- Reduction on Rental car rates
- National Museum Card (for customers with automatic renewal)
- "Railplus" can be added to the card for €15. Railplus offers 25% discount on international journeys starting in the Netherlands. For 60+ customers, Railplus is free

7.17 Other incentives offered with the card are aimed at increasing card usage by giving customers suggestions for their journeys:

- Free annual booklet with "leisure" destinations
- Free magazine (4 times a year)
- Free descriptions of walks, cycle rides and skate rides starting from stations

7.18 The Dutch experience shows that suggesting innovative travel ideas to passengers can lead to increasing their usage of the card. A direct marketing channel is established in this sense, and cardholders are contacted personally from a database containing customer details. A number of other marketing initiatives pointed to increase the usage, uptake and retention of the cards are: automatic renewal and payment by direct debit. Those who do not subscribe for automatic renewal are reminded every time their railcard is about to expire.

8 Other National Cards in Europe

8.1 There are a number of other countries which also have similar types of schemes available. It is not within the scope of this report to analyse them thoroughly. However, this section gives an overview of some of these other cases.

8.2 A distinction should be made between railcards and railpasses. A railcard is a card which entitles for discount over an unlimited number of trips for a year. Railpasses, which are available in a number of countries, generally offer a free number of trips and/or free travel over short periods of time.

French Railways (SNCF)

8.3 The French approach to railcards resembles the current railcards menu available in the UK. Although there is no product targeted at middle-aged passengers there are young person's railcards for those aged 12-25 (Youth Card), Family Railcards (Childplus railcard), and railcards for senior citizens. These cards not only give discounts for rail travel, but for other non-related products, including car rentals and airfares.

8.4 These railcards give 50% discounts of the fare over most off-peak routes and 25% of the fares over peak routes. This type of differential pricing reflects both capacity constraints at the peak and generally higher elasticities of demand during the off-peak. However, the cards are expensive compared to those in the UK. The Childplus railcard costs € 58 and the young persons and senior railcards cost € 43. Additionally, these two latter products give a 25% discount on journeys between France and 25 European countries, including the United Kingdom (Railplus scheme).

Italian Railways (FS Trenitalia)

8.5 A number of different railcards, season tickets and railpasses are issued by TrenItalia. The Italian version of the young person's card (the green card) offers 25% discount on all trains and costs €25. The same pricing is used for the silvercard, which is targeted towards those over 60. There is, however, a product analogous to the British National Railcard. This is the "Amicotreno" which gives discounts from 50% to 10% on all first and second-class fares. This card costs €50 and is not subject to any eligibility criteria.

8.6 Interestingly enough, differential pricing is used in the Amicotreno to stimulate demand over certain less crowded flows, effectively addressing demand management issues. A number of trains that typically run with excess capacity are labelled "green trains" and bigger discounts are given in these cases. This enables specific targeting of demand towards spare capacity flows of the network, albeit building a complex structure of discounts which might be difficult to understand by the passenger. Another interesting fact about this card is that it offers discounts on an extensive list of hotels and outlets, hence making it a more attractive product.

Spain (RENFE)

8.7 The market for railcards is not very well developed. The gold card is targeted at senior citizens, those receiving state subsidies and the disabled. These cards are only priced at € 3, but the proof of eligibility seems complex. Discounts offered vary greatly by route and by business area. Additionally there are tri-monthly railcards for students and a number of credit cards in which "points" are accumulated to gain fare savings. Overall, the structure of these promotions seems neither very comprehensive nor very well developed. There would be important gains in the

simplification of the processes to prove eligibility for a card, and in the simplification of the structure of discounts available, as the Swiss and other experiences seem to point out.

Belgian Railways (SNCB/NMBS)

8.8 To the extent of our knowledge, no railcards are offered in Belgium. Instead there are a number of railpasses targeted at senior citizens and young persons. Interestingly, children enjoy free travel (if accompanied by an adult) during the off-peak. The Golden railpass (for senior citizens) costs € 46 and entitles the holder to six first-class off-peak, single journeys in a year. The card is transferable and up to one adult and one child can travel free as well. The go pass (for those younger than 26) costs € 39 and entitles the holder for ten single, off-peak journeys during a year. It is also transferable.

9 Discussion of Results

Framework for comparison

As we have explained throughout this document, there are various difficulties in comparing the take up for national railcards in the analysed countries. This is because of the existence of many different factors affecting demand for these products. First, there are some variables which refer to specific characteristics of the countries and rail networks involved. These are listed as "exogenous variables" within Table 9.1. Although these background variables cannot easily be altered by changing the structure of railcards, they do have important implications for the demand for these products.

9.1 On the other hand, there are other factors influencing demand that *are* dependent on the characteristics of the scheme. The specific characteristics of the cards (such as the pricing scheme, and the eligibility for discounts) will influence demand beyond that explained by background variables (these are listed as "endogenous variables"). Trying to quantify the impact of each factor within the countries studied would imply thorough econometric analysis and this is beyond the scope of this project. However, we can build a general framework describing the expected impacts of the most relevant variables.

Table 9.1: Selected factors explaining demand for a national railcard and their predicted impact

	Exogenous variables (Characteristics of the country and rail network)						**Endogenous variables (Characteristics of the Railcards)**				
							Pricing		Eligibility		
Variable	Population	Area	Network Length	GNI per capita	Average rail trip rate	Level of fares	Fixed cost	Discount	Hours of the day	Sections of the network	Persons entitled for discount
Expected Impact on Uptake	(+)	(+)	(+)	(+)	(+)	(-)	(-)	(+)	(+)	(+)	(+) / (-)

9.3 Table 9.1 shows the predicted impact that, other things being equal, an increment in one variable would generate on the uptake for a national railcard. Population is a well-known positive driver of rail demand and hence over railcards. The surface area of the country could be also said to have a positive impact on demand. Others things being equal, a larger country will enable the passenger to undertake longer (and hence more expensive) journeys, and will then increase the likelihood of journeys being made where the benefits of the railcard are "instantaneous".

9.4 Other things being equal, a country having a higher average propensity to travel by rail would have in average more regular rail passengers and could thus expect to have higher demand for a railcard. However, as the railcard is a product generally designed for the most frequent travellers, the shape of the distribution for distance travelled by different passengers is also relevant. Again, if all other things are equal, a more skewed distribution towards frequent travellers would mean higher uptake for a national railcard.

9.5 Of course there are a number of factors generating the differences in the propensity to travel by rail in each of the analysed countries. For example, the distance between towns, the availability and attractiveness of other modes of transport and the general attitude towards rail all impact on rail travel. There are also other variables that can be measured more readily. Other things being equal, the higher the network length and the lower the general level of fares (relative to other modes), the higher would be the propensity to travel by rail. Finally, an increase in income (as measured by Gross National Income per capita), is also expected to increase demand for rail travel and consequently to impact positively on the uptake for a railcard.

9.6 Once the impact of these exogenous variables is taken into account, the success or failure of each scheme into attracting customers will be dominated by those variables which are intrinsically related to the pricing and structure of the product. As shown in the National Railcard Economic Research, the impact of a higher fixed cost and/or of a lower discount is to reduce the attractiveness of the card and hence to reduce demand for it. In terms of our analysis, any pricing change in this direction would be to increase the threshold value of kilometres at which it starts making sense to buy the card (see Graph 3.1). Thus, it would be limiting the market segments served.

9.7 On the other hand, the applicability regime for the card will act upon the kilometres which will be "counted" by the passenger to compare with these threshold values. If everything else is equal, a card which is available at more times during the day and over larger sectors of the network would imply more passenger kilometres to be eligible and thus would render the product more attractive.

9.8 Finally, the impact of extending the validity of the card to a second person is not so clear-cut. On the one hand, there are some passengers whose "solo" rail distance would not qualify for a single person railcard but that would qualify if discounts were granted to a second person (provided that the railcard holder considers the discount to the second person as a personal benefit). On the other hand, two persons who would have bought one solo railcard each, could now buy just one railcard which offers discounts for two persons. However, for these two counter-acting forces to apply, the two persons must be able to forecast a considerable number of trips to be made together during the course of a year (for example, a married couple working in the same local area).

Comparative Results - Railcard Demand

9.9 There remain some further issues in comparing demand figures from different railcard schemes. These arise for example, due to the fact that multiple different discount products are offered within the same country, because the "longevity" of the studied railcards varies significantly and due to other unobserved variables. In the cases of Germany, Switzerland and Austria we have added the take-ups for abonnement products, in order to establish a comparative railcard demand figure.

9.10 Table 9.2 on the next page, presents the results for the different variables studied throughout this document[14]. This reveals important differences in the characteristics of each railway industry to be compared. Additionally, despite the many common features, there is an important variety in the characteristics of the respective national railcards, both in terms rules of eligibility, applicability and marketing approach.

Table 9.2: Comparative Results of Different European Railcard Products

[14] The average level of fares for the United Kingdom and The Netherlands refer to off-peak fares.

	Demand	Charactericstics of the country and the rail network						Characteristics of the railcards				
								Pricing		Eligibility		
Country		Population	Area	Average rail trip rate	GNI per capita	Network Length	Level of fares	Fixed cost	Discount	Hours of the day	Network	Persons entitled for discount
	(Mill)	(Mill)	(Thou. Km2)	(Trips p.a.)	(€ per inhabitant)	(Km)	(€)	(€)	(%)	(peak, op)	(High (H), Medium (M), Low (L))	(1, 2 or more)
United Kingdom	3.1	60	244	16	21,778	16,300	0.11	43	50	op	H	1
Switzerland	2.21	7	41	42	33,231	3,227	0.08	118	50	p, op	H	1
Germany	2.30	82	357	21	20,427	35,986	0.14	140	50	p, op	L	1
Austria	0.12	8	84	23	20,756	5,780	0.07	94	45	p, op	M	1
The Netherlands	0.58	16	41	20	21,095	2,809	0.08	49	40	op	H	4

9.11 In terms of relative demand for railcards, Switzerland has the highest, with 31% of its population holding a railcard. In spite of the scarce population and limited area (10 times less and 6 times less than the UK respectively) their inhabitants exhibit a very high propensity to travel by rail. This in turn might be explained by a number of factors including high income per capita and relatively low priced fares. In terms of pricing, all cards offer similar discounts and within the cards which are valid all-day, the Half Fare Card is moderately priced.

9.12 In comparison with the forecasts for the National Railcard, the Swiss Half Fare Card does seem successful, attracting 31% of its population, compared with a forecast of 5% in Britain. However, when comparing these figures, it must be remembered that these are two intrinsically different products, one offering discounts during the off-peak (when trips are more infrequent and unplanned) and the other one during the whole day.

9.13 The uptake of the BahnCard in Germany is lower than the one forecasted for Britain, and it represents 3% of its population. One might expect the German card to be more popular, as the market it serves is considerably larger both in terms of population and area. Moreover, the German rail network is more than twice as large as the British. However, as highlighted in paragraph 3.10, this does not necessarily mean that the rail product would be that much more attractive in Germany. Additionally, the availability of the BahnCard is limited in regional flows and various discounted ticket types whilst the British one is envisaged to be more comprehensive. Although the German BahnCard is available during all times of the day, the issue of restricted regional applicability actually limits its eligibility for many commuting trips and so this makes the BahnCard more similar to the National Railcard than other all-day validity cards. A further endogenous variable explaining this result is the relatively high cost of a BahnCard, which costs between two and three times more than the proposed British National Railcard.

9.14 The performance of the Austrian Vorteilscard also seems quite lacklustre. Although having a relatively high average trip rate of 23 rail trips p.a. (compared with 16 for Britain) and a relatively low-priced card available throughout the day, the "classic" Vorteilscard is held by only 1% of the population. This cannot be explained by a large number of restrictions upon eligibility either, as only some regional centres deny railcard discounts on their tickets. The explanation in this case might lie however, in the fact that the Vorteilscard has only been in existence for 7 years, and is still going through a phase of rapid growth. This is illustrated in the uptake for other cards (Senior, Young Persons, etc) which are higher and have existed for longer (see Figure 6.2).

9.15 The Netherlands is an interesting case to compare with the Network Railcard available on the Network South East. The two geographical areas have similar characteristics both in terms of population, area and length of network. Additionally, the Dutch railcard is priced similarly to the Network Card (although it offers 15% more discount) and is valid only during the off-peak.

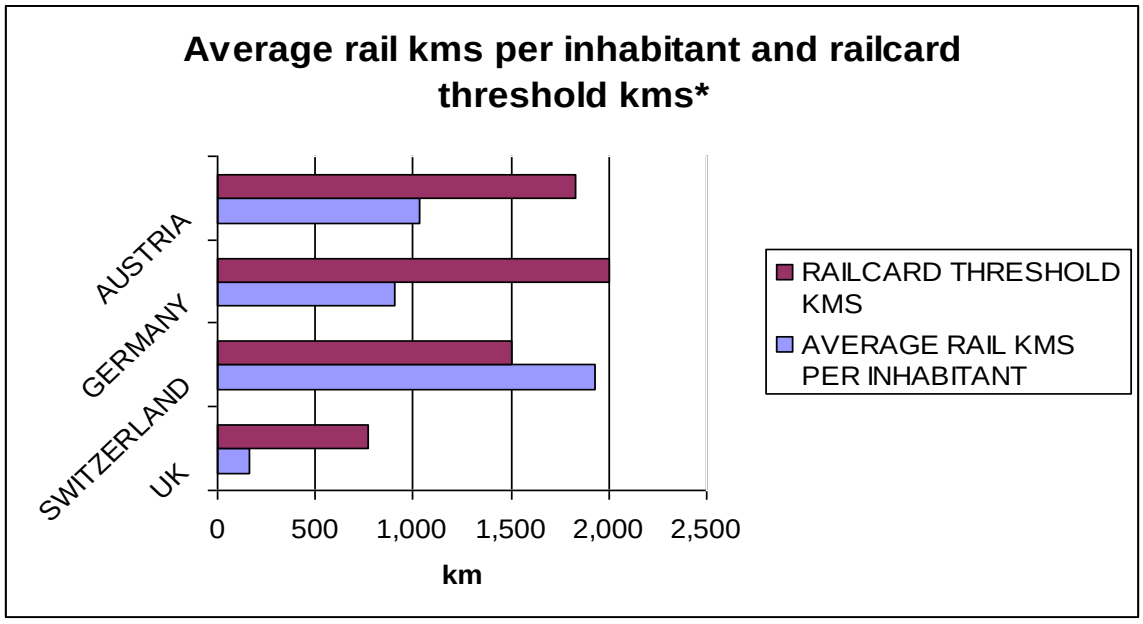
9.16 The uptake for the Voordeeluren-kaart, at 560,000 exceeds considerably the 360,000 Network Railcards currently in circulation in the South East area of Great Britain. However, this number matches the number of National Railcards forecast to be sold in this region for a card of analogous pricing. The Dutch Railcard is held by 4% of the population. This is similar to the forecasted 5% of British people holding a National Railcard. However, it should be remembered that the Dutch card is an intrinsically more attractive card, since it enables for all-day travel during the summer season.

Comparative results –pricing

9.17 Despite the many differences highlighted within the passenger markets studied, the pricing schemes for the different railcards tend to be similar. The discount offered is in the order of 50% for the studied cards. Moreover, the price of all day valid cards tends to be near € 100, with the exception of the more expensive BahnCard. Off-peak cards tend to be priced at half the price, approximately € 45.

9.18 Combining the pricing scheme with the price of ordinary fares we can calculate the threshold number of rail kilometres that a passenger must undertake so that it starts making sense to buy the respective railcard. This can be compared with the average number of rail kilometres per inhabitant for each country.

Figure 9.3



* UK refers to off-peak kilometres whereas other countries refer to total kilometres

9.19 Figure 9.3 shows the threshold number of rail kms when buying a railcard makes sense, and it compares this with the average number of kms per inhabitant in each country. This explains the relative success of the Swiss railcard, which implies undertaking fewer kilometres than the national average distance travelled in order to buy the Half Fare Card. The United Kingdom, Germany and

Austria have all focused on more frequent passengers, compared to the average distances travelled. Nevertheless, the average distance travelled is only a central indicator for the overall distribution of distance travelled by rail. Comparing the threshold number of kilometres with the actual distribution is what defines demand for these products and what might be in turn the reason for the different pricing observed.

Comparative results – Revenues

9.20 In terms of demand, it is obvious that revenues can be maximised by designing a very cheap and high-eligibility railcard. However, decisions about the structure of a railcard are subject to various constraints. It is not clear that the financial performance of a card would be enhanced every time the price is reduced in an attempt to attract more customers. The "threshold distance" can be reduced either by lowering the cost of the card or by offering more discounts. Although this increases the uptake, it reduces the yield over existing holders of the card. On the other hand, we came across examples where the eligibility of the card both in terms of times of the day and sections of the network is reduced in order to prevent capacity problems arising (e.g. Netherlands (currently) and Britain (as proposed)). A discount card available in the peaks in these countries would surely generate overcrowding in peak trains, leading to an escalation of costs in terms of further investment in rolling stock and infrastructure. In general, this is not a big concern in Switzerland and Germany. However, the use of the discount cards is limited in certain regional centres, and one of the reasons to explain this can be to prevent overcrowding.

9.21 A complete financial appraisal of these schemes must take into account both railcard revenues, ticket revenues and incremental costs. The two latter are difficult to estimate since many railcards have now existed for many years. Additionally, data on demand elasticities that would shed some light on the probable direction and order of magnitude of ticket revenues was only available for Switzerland and Germany.

Figure 9.4

Country	Railcard Revenues	Passenger Revenues	Percentage
	(€ , mill)	(€, mill)	(%)
United Kingdom*	133	1,112	12%
Switzerland	139	1,160	12%
Germany**	322	9,610	3%
Austria	11	558	2%
The Netherlands	28	na	na

* Estimated Railcard Revenues ** Estimated off-peak Passenger Revenues

9.22 Figure 9.4 shows railcard revenues for each country, i.e. the proceeds from selling railcards. The BahnCard produces an estimated € 322 M from its sales due to a relatively high demand for a relatively expensive card. In comparison, the British National Railcard is envisaged to generate some € 133M in railcard revenues, and this represents 12% of the estimated off-peak total revenues. The same percentage of railcard revenues over total revenues is achieved in Switzerland, although these figures refer to revenues obtained during all times of the day. Austrian fares are relatively low, and although Vorteilscard revenues are also low, the latter represent 2% of overall passenger revenues. Finally, the Voordeeluren-Kaart generates some € 28 M railcard revenues, but these cannot be compared with ticket revenues, since a disaggregation for off-peak ticket revenues was not available.

9.23 The National Railcard Economic Research showed that a national railcard would be profitable in the UK, since negative net ticket revenues are insignificant and incremental costs were also assumed to

be negligible. In the case of Switzerland, the case also seems to be for a profitable scheme. This was supported by evidence on demand elasticities and was also backed by SBB management. Even though the BahnCard might have been profitable in the past, there is evidence of general reluctance from the public to accept the new modifications to its structure, and this might have negative financial consequences due to reduced demand.

9.24 Notwithstanding these comments, further research is needed on this topic to determine the extent to which these schemes are seen as serving social or commercial needs in each country.

Lessons from other schemes

9.25 The economic case for a National Railcard in Britain has been built upon the ability of two part-tariffs to extract more consumer surplus from passengers, yet delivering the same trip generation that a reduction in the single tariff would do.

9.26 According to our sources, this has been the case in Switzerland, where the popular Half Fare Card is both financially profitable and it also contributes to the high demonstrated demand for railway services. However, in the cases of both Switzerland and Austria, peak capacity constraints are not binding and thus the cards are available over the whole network and at all times of the day.

9.27 In Britain, the concentration of traffic in the major conurbations means that extra resources must be acquired for peak operation, and these are generally underutilised during the off-peak. Here, as well as in the Netherlands, this has led to peak:off-peak price differentiation. In these cases, it would not make sense to make the railcard eligible during the peak, as this would imply additional investment, in order to alleviate the consequential overcrowding.

9.28 Interestingly enough, there are some cases where differential discounts are given by discount cards at different parts of the day and different sections of the network. This is the case of France and Italy. Differential discounts can help prevent capacity problems and exploit the higher willingness to pay of certain customers. However, the disadvantage of these schemes is an increasing complexity of the discount structure.

9.29 Other capacity problems are addressed by restrictions of applicability over certain areas and certain tickets. Although in Germany the BahnCard is not eligible for trips starting and ending within a "PTE" (or Verbund) area, there is preliminary evidence that increasing its eligibility to these areas would not cause severe overcrowding if season tickets were not eligible for discount.

9.30 In terms of pricing, in Switzerland and Germany, Austria and The Netherlands a menu of two-part tariffs is offered. It is widely recognised that two-part tariffs can achieve their economic aims when applied to a market of homogenous travellers. However, these benefits diminish as the markets to be served differ. In these cases, economic literature suggests that using a menu of two part-tariffs, each customised to serve different segments of passengers, is the best policy.

9.31 The available menu of two-part tariffs in these three countries generally consists of the ordinary fares (for those with the lowest trip frequencies), a railcard product (for those with middle trip frequencies) and an expensive abonnement that allows free yearly travel for those most regular passengers. Further research should address this issue for the British market, where a menu of two-part tariffs could potentially deliver better results than the ones obtained for a single one.

9.32 In the cases of Germany, Austria and The Netherlands, a series of pre-existing railcards for the young, the elderly, etc. were amalgamated into the national railcard scheme. This was done by charging different prices to different customers, limiting the interactions between different products and minimizing marketing and administrative costs.

9.33 Other marketing innovations are worth highlighting. In the case of Switzerland and Austria railcards can be bought on the internet. A magnetic card technology enables consumers to top-up their cards, hence reducing transaction costs both for the railway and the passenger. Additionally, options for different validity durations for the cards are offered in both Germany and Switzerland. This benefits the railway company which receives more money up-front, spreads operational risks to consumers, saves in ticketing costs and is able to forecast demand more easily.

9.34 Another marketing initiative which has been followed in the case of Austria, Italy and France is the offering of other non-related discounts with the purchase of the card. Typically, these range from discounts in hotels, an array of retailers and even other transport modes. These cross selling initiatives are typically welcomed by third parties who would not expect to be compensated for issuing them by the railway company and they inevitably make the card more attractive. Indeed, in the case of Austria these third-party brands actually pay to give their discounts through the card, and these payments are used to cover the card's marketing and administrative costs. As a hypothetical example for Britain, it might be the case that typical station retailers such as Boots or WH Smith would be keen to offer special discounts to the holders of National Railcards. [15]

9.35 The railcards studied belong to the Railplus programme. This enables the respective products to offer discounts of up to 25% on rail fares in countries abroad. The Half Fare Card, The BahnCard, the Vorteilscard and the Voordeeluren-kaart adhere to this scheme, which involves many other European countries as well.

9.36 Finally, there is no evidence so far of the use of smartcards to implement these schemes. Smartcards can be potentially instrumental towards generating enhanced demand for these products. The decision whether or not to buy a railcard is subject to uncertainties. However, smartcard technology would enable ex-post pricing. This "pay as you use" technology (e.g. the one currently increasingly common amongst mobile network providers) could mean that the passenger is relieved of having to forecast in advance his expected trip frequency and would hence be more keen to consume rail travel knowing that if sufficient trips were made, the system will automatically reward him with the National Railcard discount.

[15] This would be especially true if these very regular consumers of rail services are believed to be price elastic with respect to the goods sold by these retailers.

10 Final Conclusions

10.1 This report has given an overview of the functioning of railcard schemes in Switzerland, Germany, Austria and The Netherlands. Its findings were instructive in comparison to our results for a National Railcard in the United Kingdom. They were also useful in terms of suggesting new marketing initiatives that should be studied in depth.

10.2 Comparing demand for the different national railcards proved to be difficult because of different underlying circumstances. Human geography and railway capacity issues meant that the products available in Switzerland, Germany and Austria offer discounts for both peak and off-peak periods. This makes these products intrinsically different to a railcard offered in The Netherlands, and the one proposed for Britain, which are both off-peak-only cards. Additionally, in some cases the issue of overcrowding is not tackled using time of the day restrictions, but through restrictions on certain flows and differential discounts. The cost of such measures is thus increased complexity in the level of discounts.

10.3 Despite the many underlying differences, demand figures were found to be significant in the countries studied, as it was in the case for the proposed British National Railcard. The BahnCard has an uptake of 2.3 M and The Half Fare Card in Switzerland has an uptake of 2.25 M, although being ten times smaller in population than Britain. In the Netherlands the uptake is relatively similar to Britain, with 4% of the population holding a Voordeeluren-kaart.

10.4 The analysis of the relatively new Vorteilscard available in Austria rendered its demand low, taking into account the fundamentals studied. The suggested explanation for only 120,000 cards being held, lies in the relative novelty of the card. This highlighted the issue of the build-up for demand. Thus, the figures obtained in the National Railcard Economic Research might refer to a steady state take-up and it can be expected it to be far below these estimates for its first few years of operation.

10.5 Despite the important differences in the markets served, the pricing arrangements for these cards seem to be consistent. They all offer 50% discounts and, with the exception of the €140 BahnCard, all-day valid cards are priced at approximately €100 whereas off-peak ones are priced at around €45.

10.6 A complete assessment of the financial performance of this scheme should include railcard revenues, ticket revenues and incremental costs. However, the latter two of these proved to be very difficult to assess due to the unavailability of data. A further econometric study should then look at the starting year of schemes, in order to try to assess the impact over time of ticket revenues (also controlling for external drivers of demand) and incremental investments which were made due to the increase in patronage from this scheme.

10.7 In addition to the positive financial forecasts for a National Railcard in Britain, there is preliminary evidence of incremental profits being generated by the Half Fare Card, as this product is seen as serving commercial rather than social objectives. Additionally, demand elasticity figures were obtained for Switzerland and Germany, and these resembled the values published for Britain. These showed that the extent of ticket revenue abstraction in Switzerland would be limited in comparison to the proceeds from selling the cards and consequently supported the case for the profitability of the Half Fare Card.

10.8 As a by-product of this research, a wide array of alternatives for marketing this product were gathered. These included internet availability of railcards with magnetic band technology, the offering of cards valid over longer periods, and making the card more attractive by including other non-related discounts.

10.9 Furthermore, a menu of two part tariffs is offered in Switzerland, Germany, Austria and the Netherlands. This customizes the offer for the high trip frequency and middle trip frequency market segments. Economic literature has suggested the use of a menu of two-part tariffs when the markets to be served are heterogeneous. As this is the case for the United Kingdom, it might also be worthwhile to analyse this option in further research.

Appendix A – Data Sources and acknowledgements

Multiple data sources were used in this report. This section describes the wide array of documents, websites and other resources used to complete the different sections of this work. In addition, a number of conversations were held with responsible staff for railcard schemes in each country analysed. We are very grateful for the insights given by these people, who are mentioned below. The usual disclaimer applies, however – any remaining errors are our responsibility.

General Sources
Some useful general sources were used to underpin the general comparison of the railway industries of the analysed countries.

Two Excel based datasets from UIC (International Union of Railways were used). These show general data on population, country area, length of network, passenger kilometres and passenger revenues. Additionally, mode shares were extracted from the European Union statistics web site.

British Railways

The main input into our analysis of British Railways was obtained from the National Railcard Economic Report (The Railway Consultancy Ltd. April 2003). Additional data sources used include the National Travel Survey and a dataset by ATOC on tickets sold and revenues disaggregated by ticket type and market.

Swiss Railways

The preliminary source for data was the presentation at the Railway Study Association on May 2003 by Andreas Willich, Director International Productmanagement of SBB. Additionally data was extracted from the SBB 2002 Annual Report entitled "Time to Read" and from the 2002 comparative SBB fact sheet entitled "Time to Compare".

Some apparent inconsistencies were discovered between the data available from these sources. In order to understand these and to acquire additional information, a number of conversations were held with Mr Willich and Christina Schubiger, from the Half Fare Card marketing division at SBB.

It is worth mentioning both the quality and the transparency of the data provided by SBB.

Germany
Input for the analysis of the German railcard is largely based on personal knowledge from our analyst Sven-Jöran Schrader. Additional information was obtained from Verkehrsclub Deutschland (VCD), a sustainable transport lobbying group, and from freely available DBAG data sources.

Useful estimations for key parameters were given by Ulrich Mann, Managing Director of Intraplan Consult and by Joachim Kemnitz of the German rail campaigning group PRO BAHN.

Unfortunately, DBAG was reluctant to reveal any data or information on the BahnCard other than that available from public sources.

Austria

General information for Austria was gathered from the ÖBB website. More detailed information about the Vorteilscard was provided by Ferdinand Dotter, Product, Pricing and Services Manager within ÖBB.

Netherlands

As well as benefiting from personal knowledge of senior analyst Ties Van Ark from The Railway Consultancy, a number of other inputs were used to supplement the analysis of the Dutch railcard.

Data was obtained from the 2002 NS Annual Report and from the official web pages from NS, CBS, Syntus and Nordnet. Additionally, Mrs. Fianne Stroechen Marketing, Manager NS Voordeeluren kaart, was very helpful in replying to qualitative questions. NS was not prepared to disclose financial / quantitative information other than publicly available.

Other European Countries

The main sources used for other European countries were the respective railway's web-pages. Additionally data supplied by our client proved very useful at this stage too.

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Web based resources

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- http://www.bahn.de Deutsche Bahn, German Railways
- www.b-rail.be SNCB, Belgian Railways
- www.cbs.nl CBS, Netherlands
- www.fs-on-line.com Trenitalia, Italian Railways
- www.noorded.ns Noordned, Netherlands
- www.ns.ni NS, Netherlands
- www.oebb.at, OBB Austrian Railways
- www.prorail.nl Dutch Pro Rail Association
- www.rail.ch, SBB Swiss Railways
- www.renfe.es RENFE, Spanish Railways
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- www.syntus.ni Syntus, Netherlands
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- www.worldbank.org, The World Bank Group

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www.railfuture.org.uk
info@railfuture.org.uk