

# **APPRAISAL ISSUES IN THE PRIVATISED RAILWAY**

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## **1. INTRODUCTION**

By the time of the conference not only will the new structure of the rail industry in Britain have been in place for some time, but also all the new companies will have been privatised. Broadly what has happened is that the infrastructure has been placed in the hands of a new company (Railtrack) which was privatised in the form of the sale of shares in May 1996. Passenger rolling stock was placed in the hands of three companies, now privatised by outright sale, which lease it to the operators. Domestic passenger train operations were placed in the hands of 25 train operating companies, and their management franchised out for periods of 7-15 years (the longer periods being applicable where major investment was required). British involvement in the Eurostar services via the Channel Tunnel passed to another private company, London and Continental Railways, which is committed to building a new high speed line from London to the Channel Tunnel. Track renewal and maintenance work and rolling stock heavy maintenance was placed in the hands of a number of companies which were then sold outright, and now have to compete for the contracts to undertake this work. A recent update of experience so far is contained in Nash (1997).

Two new government bodies were created - the Office of Passenger Rail Franchising (OPRAF), which is responsible for franchising out passenger services, and the Office of the Rail Regulator (ORR) which has various duties the most important being the licensing of train operators and regulation of the prices and terms of track access agreements.

The new structure of the industry raises interesting questions concerning the role and form of appraisals which this paper seeks to explore. In the next section we consider the appraisal practice of British Rail under the old regime, as a point of contrast with the new situation. We then consider the appraisal process with respect to the role of the new railway companies, before turning to the role of OPRAF. OPRAF's recent consultation document on appraisal procedures is discussed and three particular issues - namely, benefits to rail users, whether proposals to improve or worsen services should be considered symmetrically, and differences between market prices and resource costs of proposals in the new regime - are then discussed. Finally we draw some conclusions.

## **2. APPRAISAL PRACTICE UNDER BRITISH RAIL**

The situation regarding appraisal under the previous regime is described in Nash (1992). Broadly, in the case of Inter City passenger services as well as freight, British Rail was required to run them commercially, and appraisals were therefore conducted on a purely financial basis. In the case of other passenger services (Network South East in the London commuter area, and Regional Railways providing cross country and local services in the rest of the country) there was an obligation to maintain levels of service at broadly comparable levels to those already existing with the aim of reducing the subsidies necessary to do this. Thus the main method of appraisal was again financial, in order to compare the costs of maintaining services with and without investment. Investments in local services designed to improve services were eligible for grants under Section 56 of the 1968

Transport Act, and projects for which such assistance was sought (generally by local authorities) were subject to a 'restricted' cost benefit analysis (see below). But otherwise the use of social cost-benefit analysis was largely confined to one or two major schemes in the London area, where it was believed that there was a special case for using a full cost-benefit analysis, and schemes sponsored by Passenger Transport Executives in the other major conurbations. There was no systematic approach to the appraisal of the support given to the railway network.

### **3. APPRAISAL AND THE NEW RAILWAY COMPANIES**

In the new structure there are many different types of private company who will be involved in investment appraisal decisions - for instance track maintenance and renewal companies and rolling stock maintenance companies, in respect of their own facilities. However, from the point of view of passenger services there are three main sets of players amongst the new companies - the infrastructure provider, rolling stock leasing companies and of course the train operating companies themselves.

Investment by the infrastructure provider may have the aim of simply maintaining existing standards, or it may have the aim of providing increased capacity or a better quality of service. In either case, one would expect the interest of the infrastructure provider to be primarily in the financial returns on the investment, unless it is involved in an application for public funding of one form or another (in the case of passenger services, this will normally be via increased track access payments financed or underwritten by OPRAF). In the case where investment is needed simply to maintain the existing quality of service, the regulated track access charges provide for the cost of renewals as seen by the Regulator (ORR, 1995); the incentive for the infrastructure provider to undertake the investment is provided by the performance regime. A failure to maintain service standards results in penalty payments. Provided that these payments are an accurate reflection of the social costs of declining rail service quality, then it would appear that appropriate incentives to invest are maintained - indeed the direct financial penalty for service failure may make these incentives stronger than under the previous regime. Perhaps the biggest worry is that the infrastructure provider may discount at a rate above the social rate of discount (currently it is understood that Railtrack uses a rate of 8% in investment appraisal whereas OPRAF uses 6%) or be unduly cautious about investment on grounds of risk, preferring to 'make do and mend'. The main risk involved in renewals investment is that the level of capacity required may be reduced at the end of the current franchise - i.e. 7-15 years from now, but obviously the problem will get greater as franchises get nearer their end. This may lead Railtrack to appraise projects over a much shorter life than that of the assets, particularly for routes used by loss making services dependent on government funding for their future. This is only a problem if Railtrack takes a more risk averse approach to such investments than would be socially optimal. Certainly the Regulator has expressed his concern at Railtrack's level of investment so far, although it is early days yet.

The situation regarding expansion or improvement of capacity is more complicated. Generally, the way in which such investment would increase revenue is by increased track access charges paid by the operators. The Regulator takes the view that the benefits of improved infrastructure should be shared between train operator and infrastructure provider in accordance with the sharing of risk (ORR, 1994). However, if the enhanced services will not be profitable, but will yield social benefits, then OPRAF becomes involved. It will be necessary for these services to be part of the franchise agreement, with OPRAF paying accordingly. Again, a key issue is the risk that the services will not

continue; if necessary OPRAF can give a commitment (under section 54 of the Railways Act) to continue financing the enhanced access charges beyond the end of the existing franchise agreement. Presumably such a commitment could also be given in the case of a major renewals programme, although it is unlikely to be given in the case of routine renewals expenditure.

In the case of rolling stock providers, similar issues arise. Provision of new or upgraded rolling stock will be the subject of a leasing agreement with a train operator, but these will typically extend for much less than the life of the rolling stock. The more dependent the services in question, and others on which the rolling stock could be used, are on subsidy for their continued existence, the greater the 'political risk' involved in the investment. Again, OPRAF will be involved in additional franchise payments if the enhanced service provided is not justified in terms of passenger revenue, and again it can give commitments to continue to employ the new rolling stock beyond the end of the life of the existing franchise.

The train operators themselves are only involved directly in investment to a limited extent. It is not expected that they will typically provide the capital for enhanced infrastructure or rolling stock, although they could if they wished. Major marketing campaigns or provision of new services may of course be seen as an investment, costing money in the short term in order to reap longer term benefits. But the major involvement of the train operating companies is likely to be as a key player in projects financed by others. They are the people best placed to investigate new service patterns and forecast their consequences for passengers and revenue. However, their incentive to do so where major investment is involved may be limited. A major investment takes several years to bring to fruition, during which time services may be disrupted (of course, the train operator will be compensated for this under the performance regime if the disruption is caused by the infrastructure provider or the rolling stock leasing company). Moreover, the benefits of any particular infrastructure may be split between a number of operators, making the resulting negotiations more difficult, and reducing the incentive to anyone to take the lead in pursuing the proposal. For example the West Coast Main Line upgrading is of prime concern to Inter City West Coast but affects the operations of several other passenger and freight companies. Whilst this particular franchise is for 15 years, because of the investment involved, many are only for 7 years. Certainly in the case of a 7 year franchise the time left to reap any benefits may be very limited, unless the incumbent takes a positive view of their ability to win the franchise again when it is retendered (This is clearly an issue of some importance; will it be the case that the incumbent has a strong position in retendering, because of inevitably superior knowledge, provided that they have performed adequately? This did not appear to be the case with management buyouts in the first round of tendering, but management buyouts generally lacked the financial strength of their competitors and arguably were therefore more inclined to be risk averse in their bids). Alternatively it may be a condition of the investment that the franchise period is lengthened, although this is unlikely to be to anything like the length of life of the assets in question. Thus it may fall to the infrastructure provider and/or OPRAF to take the lead in investigating possibilities for major projects. The role of OPRAF will depend on how enterprising and willing to take risks Railtrack turns out to be.

#### **4. THE ROLE OF OPRAF**

We have already seen that in the appraisal of major projects OPRAF is likely to play a key role. This is not just because it is the main provider of public funds for the passenger railway, and thus any projects which yield public benefits but are not profitable will depend on OPRAF financial support,

but also because OPRAF is the body with an indefinite time horizon, with a stronger incentive to take into account costs and benefits beyond the end of the existing franchise period.

In the first round of franchises, it appears that OPRAF took as its objective achieving a level of service generally at least as good as that existing at present. Therefore, it issued passenger service requirements which were similar to existing services for loss making services, but which provided more flexibility for the operator where it judged that they would have a commercial incentive to provide at least as good a level of service anyway. However, it is under a duty to publish the criteria it uses in its support decisions. To this end, it commissioned us to undertake a review of current best practice in appraisal methodology in the sector, following which it published a consultation paper on the criteria it proposed to use. (OPRAF, 1996).

The closest comparison to the task facing OPRAF is the experience of local authorities in placing bus services out to competitive tender following the 1985 Transport Act, which made it impossible for local authorities to subsidise bus services except where there was no adequate commercial service, and even there they were only permitted to do so via competitive tendering. We undertook a survey of methods in use amongst local authorities in 1991 (Bristow et al, 1992). It appeared that most authorities used methods based on accessibility criteria; use of cost-benefit analysis was rare.

Responses were obtained from 51 authorities, over 80% of those sampled. The methods used in appraisal fell broadly into three categories:

- standards or targets;
- priority scores or ranking;
- demand related financial criteria.

In addition a number of authorities used a combination of these approaches and a few had no formal evaluation techniques.

Standards and targets were most often set regarding frequency related to type of settlement or population density. The walking distance to the nearest bus stop was also in popular use. Point scoring techniques tended to focus on journey purpose and the availability of alternative public transport services; however, cost, patronage, accessibility and socio-economic indicators were also in use. The most common financial criteria in use were support cost per passenger, support cost per passenger mile and revenue as a percentage of operating cost (operating ratio). The methods were often used to identify services for review, thus aiding and focusing the decision making process. The lack of use of CBA outside a few PTEs may be partly a function of its perceived complexity, and partly due to the relatively small sums of money involved in individual services and hence concern as to the cost effectiveness of such an approach. It is also certainly the case that appraisal of the benefits of a service which opens up journey possibilities that otherwise could only be met by taxi is more difficult than when an alternative public transport service is available.

The situation facing OPRAF is different in that the sums of money involved are much larger, and there generally is a bus alternative. OPRAF's proposed approach is based broadly on cost-benefit analysis, supplemented where necessary by a more detailed environmental impact appraisal. However, it recognises a need to be flexible in what is considered. OPRAF may be involved in underwriting anything from an additional late evening service on a particular route to a multi-billion pound renewal and upgrading of a main line, and - whilst the principles should be the same in both

cases - the range of effects which will be considered material will obviously differ. In the former case, it is likely that the principle benefits would be to users themselves, whereas in the latter it will be necessary to consider benefits to road users and a wide range of environmental costs and benefits of the proposal.

An argument frequently met is that rail services are important for the economic development of a particular town or area. However, evidence on this in reality is thin. OPRAF would generally regard such benefits as outside its remit; it would expect other bodies such as local authorities, to finance any services that were only justified on this criterion.

Amongst the key issues the report raises are:

- should benefits to rail users be included in the appraisal?
- should proposals to improve or worsen services be considered symmetrically?
- should costs be treated as simply costs to OPRAF, or should the true resource costs of the proposals be taken into account where the two differ?

Each of these will now be considered in turn.

## **5. BENEFITS TO RAIL USERS**

For many years, the policy of the Department of Transport regarding grants to public transport schemes under Section 56 of the 1968 Transport Act has been that they should only be paid in respect of benefits to non public transport users. The aim of this is to give operators an incentive to recover benefits to users in the form of higher prices, thus reducing pressures on public finance, and to avoid distorting competition with unsubsidised bus operators.

The problems to which this leads have been documented elsewhere. (Nash and Preston, 1991). Broadly, it is often the case that the price elasticity of demand for the rail service in question is relatively high, and no effective method of price discrimination has been devised which could capture the bulk of user benefits in the form of revenue. Moreover, the same argument is used regarding disbenefits to existing public transport users whose services may be harmed by competition from the new service; it is assumed (with little justification) that any disbenefits to them will take the form of a loss of revenue to the operator. By ignoring disbenefits to users on existing services, decisions which lead to serious loss of benefits for existing users, e.g. on parallel bus services, may be taken without taking these into account. Only to the extent that there are consequent needs for public support for tendered bus services would this be a relevant factor in a Section 56 'restricted' cost-benefit appraisal. The sort of effect that excluding benefits and costs to bus and rail users may have on an appraisal is illustrated in Table 1.

To date, the major exception to this rule has been in London, where it has been accepted by the Department that, with a zonal fare scheme and complicated routing options it is impossible to charge users for the benefits new schemes provided (for instance, Thameslink 2000 may provide important benefits to users of sections of the Victoria line by relieving overcrowding but it would be impossible to provide for additional fares by those passengers to contribute towards the costs of the promoters of the project.

OPRAF state in their document that 'The Franchising Director would typically expect benefits to users to be captured through the fare box unless there were compelling reasons why this was not possible.' (Para 5.16). Thus there will remain pressure to seek ways of recovering user benefits in the form of revenue, but the way appears open to argue that this is not possible, and that user benefits should be taken into account in the appraisal. This appears to be an important issue. If user benefits were automatically disallowed, that would be bound to have a strong influence on the pattern of support, with schemes in congested areas (i.e. mainly urban and inter-urban) taking precedence over support to more rural services. However, other measures are designed to ensure that changes in the pattern of services supported are marginal at first and change slowly, and these will be considered in the next section.

## **6. SHOULD PROPOSALS TO IMPROVE OR WORSEN SERVICES BE CONSIDERED SYMMETRICALLY?**

In Para 3.6(c) OPRAF say:

'The Objectives, Instructions and Guidance given to the Franchising Director by the Secretary of State emphasise the great importance Ministers place on maintaining the existing level of service'. The Franchising Director would, therefore, initially expect the cut-off level of his decision-making rule to be set at a level which leads to marginal changes in service levels only. He therefore proposes that there should be asymmetry between service enhancements and reductions such that the cut-off ratio of NPV : K for improvements will be higher than that for withdrawals.'

It appears that the case for this is seen to be not just one of meeting political objectives, but also one of unquantified costs and benefits. Paras 5.23-5.26 list option value, existence value, transitional costs of change and preference for the status quo as unquantified benefits of maintaining existing services which would not apply in the case of new services (although it is not actually clear that option values and existence values could not be relevant in the case of new services as well). This seems to lead to considerable importance being placed on option and existence values in rail appraisals, and therefore a need to try to measure them. We have made attempts at this in the case of both bus and rail services (Bonsall et al, 1992). Detailed work on local bus services indicated that these benefits could form around 20% of total net benefits to users. We also found that non-users were willing to pay more to secure such benefits than users, around £1.50 a week in 1990. Although the study was exploratory, the results suggest that option values do exist for bus services. It is perhaps to be expected that they would be more significant for rail where reversibility of closure decisions may be more difficult, although conditions regarding maintenance of the trackbed may be attached.

Similar exploratory work has been undertaken for rural rail services (Crockett, 1992). A survey of residents in the summer of 1992 suggested a mean non-use benefit of 69 pence per person per week.

Amongst those surveyed non-use benefits were roughly equivalent to use benefits (in fact 17% higher) but this reflects the low usage of the service by residents. However the rail service considered attracts considerable tourist traffic (75% of users and a higher percentage of revenue) and the residents' non-use values was thus found to be equivalent to 15% of total revenue.

## 7. RESOURCE COSTS OF PROPOSALS IN THE NEW REGIME

A standard rule of social cost-benefit analysis is that it should take account of benefits and costs no matter who receives them. Thus it is normal to value all costs at resource cost even where the market price differs from this. Two major causes of such differences are the presence of taxation, and of monopoly power.

Taxation may be ignored when it impacts on all costs and benefits of projects relatively equally. However there are two reasons why this is unlikely to be the case with respect to rail projects:

- the current exemption of public passenger transport from VAT
- the high levels of taxation on road transport.

Thus projects which divert road traffic to rail may have a considerable cost to the exchequer, and vice versa. It may reasonably be argued that these taxes reflect the high external costs of road transport in terms of congestion, accidents and environmental degradation. However, if externalities have already been taken into account then it would be double counting to ignore the loss of taxation on these grounds.

The other major cause of distortions is monopoly power. The cost of rail projects will be influenced considerably by the level of charges made by Railtrack and by rolling stock leasing companies, and it is therefore of some importance to consider how far these charges may reflect true resource costs.

In the case of rolling stock, it is expected that a highly competitive market for new rolling stock will emerge, as also seems to be the case with track renewals and track and rolling stock maintenance. Thus the issue is more one of the leasing charges written in to the first round of rolling stock leasing contracts. To the extent that these charges overstate the true alternative use value of the rolling stock in question, they may lead to excessive support costs of services in the short run, but this should be irrelevant from the point of view of changes in service levels following award of the initial contracts, since the costs involved in the initial leasing deal are essentially fixed costs. The principle worry concerning continuing monopoly power may arise where there are relatively small fleets of specialised equipment.

The issue regarding access charges for track and other infrastructure facilities is more serious. Railtrack will clearly continue as a monopoly supplier in the majority of cases. Although the charges are regulated, there is reason to believe that their existing levels do not in every case represent marginal cost. This is particularly true of station access charges, where our understanding is that fixed costs are simply shared between operators in accordance with some measure of use. Thus a new service may attract a charge in excess of its marginal cost; similarly the savings from closing a service may be overstated. If the sole effect of this were on Railtrack's profits, then we could see an argument for ignoring it on the basis that OPRAF is in existence to provide benefits for the public at large rather than profits for the rail industry. But of course in this sort of case the impact will be passed on to other operators' costs and thus affect either the fares/service package received by rail users or the level of support paid by OPRAF to other operators. It thus appears that careful examination of the true infrastructure resource costs of projects will be necessary, although this will obviously be difficult for an outside body, and Railtrack will have an incentive to exaggerate the costs in order to raise its share of the revenue resulting from the project.

## 8. CONCLUSIONS

The new regime for rail services in Great Britain has major implications for appraisal methods. Paradoxically, far from reducing the role of cost-benefit analysis, privatisation seems to have enhanced it by creating a clear distinction between commercial operators and the providers of funding, and leaving the latter in need of formal criteria on which to base their actions. Moreover, by introducing performance regimes with actual cash payments related to quality of service, financial and social appraisals may have been brought closer together in some respects.

The worries are however that in the new regime investment planning becomes an extremely complicated business involving many parties. The incentive for the train operating companies, who are the players best placed to identify opportunities to benefit passengers by major projects, to take the initiative in developing major projects may be weak, whilst Railtrack may be disinclined to take a long term view particularly where services need financial support on grounds of risk aversion.

The key player, then, not just in appraising projects but also in taking the initiative in getting them off the ground may well prove to be OPRAF. Its success in building investment into a number of the first round of franchises, and in taking forward the Thameslink 2000 project is therefore very encouraging, as is its publication of the criteria it intends to use, and the fact that it is developing a research programme on forecasting the effects on demand and appraising the benefits of rail investment. We look forward to seeing how these criteria work out in practice.

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**Table 1: Cost Benefit Analysis of a New Rail Service (£M NPV at 6%)**

<b>Cost</b>		<b>Benefits</b>	
Capital and operating cost	16.8	Fare revenue	15.5
Maintenance cost	1.9	Bus operating costs saved	4.2
Bus revenue lost	4.2	Time savings to rail passengers	14.6
Tax loss	1.3	Time savings to car users	3.2
Time losses to bus passengers	11.9	Bus accident savings	2.3
Rail accident costs	2.3	Car accident savings	4.4

NPV = 5.8

NPV (excluding affects on rail and bus users) 3.1