PROFITABLE PASSENGER RAIL TRAFFIC

Analyses for the Railway Commission

SIKA Report 2003:7

Background

In connection with the work of the Railway Commission that is now in process, SIKA has carried out a number of analyses of rail traffic, focusing on the profitability of the railways. We have studied how various factors such as pricing, costs and frequency of services affect the ability to operate commercially profitable rail services. The initiative to the study was taken in discussions with the Railway Commission with the objective that the results of the analysis should be able to serve as the basis for the commission's work. The study was carried out in close collaboration with the secretariat of the Railway Commission and the results have been regularly presented at the commission's meetings. In its work with the study, the Railway Commission was also assisted by Hans Hellström, controller at the public enterprise Swedish State Railways.

The results presented in this report are mainly based on model calculations carried out by SIKA. The material on the costs of rail traffic, inter alia, has been produced by the Railway Commission and SJ have provided documentation to reconcile the results from the model with the actual financial results.

Project managers Sylvia Yngström Wänn, Peter Roming, Helena Braun, Roger Pyddoke and Anders Wärmark from SIKA have participated. The work has been carried out with the support of an internal steering group consist of Staffan Widlert, Marie Heiborn and Göran Friberg.

The contents of this report are also being published by the Railway Commission as a supporting report for the final report of the commission.

Summary

In August 2001, the government appointed Jan Brandborn, former Director-General of the Swedish National Rail Administration, as special investigator to carry out a broad review of the organisation and legislation in the railway sector. SIKA undertook to carry out a study of the profitability of rail traffic on behalf of the Railway Commission. The results are intended to serve as a basis for the commission's analysis of possible development paths for passenger traffic on the railways. The commission will produce its final report in autumn 2003.

The objective of SIKA's analyses has been to attempt to survey the profitability of the rail network served by SJ today, and to analyse the financial prerequisites to operate services in the future.

The profitability of the most heavily trafficked corridors has been studied in the present situation, in 1997, and in a future situation, based on a forecast of the development of rail travel up to 2010. Rail travel is forecast to increase by approximately 40 per cent up to 2010. In reality, the pace of development in recent years has exceeded that forecast and this has been taken into consideration in the analyses.

The forecasts and profitability calculations have been made with models that have been jointly developed by the transport agencies, Vinnova and SIKA. The models (referred to as the model below) have been checked against the actual results in 1997. In our assessment, the model should be able to provide a reasonable picture of how profitability will develop for the corridors studied in different conditions.

The assessment of the profitability of individual corridors is restricted to how the corridor bears its own fixed and variable costs. However, the assessment does not take into consideration that a corridor that is unprofitable, per se, can nevertheless contribute to increasing the profitability of an integrated network. It should also be pointed out that the fixed costs are not known for particular corridors. In the calculations, each corridor is allocated a proportion of the fixed costs for the ten corridors in proportion to the volume of traffic in the corridor. The estimation of income per corridor also contains simplifications. It is difficult in the models to specify exactly the large number of different types of tickets that actually exist. Furthermore, it is not self-evident how the income for a journey that takes place on a number of corridors is to be apportioned to the respective corridor.

With these assumptions, the model results show that only one of the corridors studied, the Western Main Line, was profitable in 1997. They also show that the prerequisites for operating profitable railway traffic will increase markedly by 2010, that travel will increase and that the costs per produced unit will decrease. Despite this, there will be losses in the basic scenario 2010 for all corridors except for the Western and Southern Main Line and the East Coast Line.

In the past five years, transport performance has increased rapidly, by an average of almost six per cent per year. This is considerably faster than in the forecast, where transport performance increases by less than three per cent per year. A sensitivity analysis has therefore been carried out with ten per cent more long-distance transport performance. This corresponds to an increase of transport performance by 47 per cent for the period 1997 to 2010, compared with 40 per cent in the basic scenario for 2010. This rate of increase corresponds to approximately three per cent per year. In this scenario, the total net [income] for the ten corridors will be more positive, although no additional corridor will be profitable.

In a sensitivity analysis where the costs of operating high-speed trains is expect to decrease, profitability is improved. Income remains at the same level as in the basic scenario while costs decrease by approximately eight per cent and the total net income for the corridors is positive. The same corridors are profitable as in the base scenario.

Sensitivity analyses have also been made for increased ticket prices. Price increases lead to a reduction in travel although also to higher income per passenger. The results show that increased prices can probably improve net income for rail traffic. This is the case not least for the corridors where investments up to 2010 lead to an improvement in competitiveness. Since there is uncertainty about the price sensitivity of the model, we have made a special calculation with higher price sensitivity. This calculation confirms the conclusion that profitability would be improved with higher prices.

The fact that certain corridors do not bear their costs could lead to reduction in services in these corridors. However, a reduction of this kind could also lead to a reduction in travel and thus income for the profitable corridors, since there are journeys that include changes between profitable and unprofitable corridors. Some of the income from the profitable corridors depends therefore on services in the unprofitable corridors. An analysis has been made to study the effect of reductions in the frequency of services on the corridors that are unprofitable according to the model. The result is a decrease in the losses for the unprofitable sectors and that the loss for some corridors is transformed into a small profit. The effects on the corridors that are already profitable, in the form of reduced feeder traffic from the unprofitable corridors are not considered to be so great that these corridors would become unprofitable.

The analyses made by SIKA have confirmed the picture that today's rail passenger services are provided at a very substantial loss. The analyses for 2010 show, however, that the financial prerequisites for rail passenger traffic can improve markedly. The corridors that are calculated as being profitable in the forecast year 2010 thus account for two-thirds of the services, measured in passenger kilometres. At the same time, the results show that the poor profitability will persist in large parts of the rail network, despite the projections entailing substantial increases in travel and a reduction in costs per passenger kilometre.

Our analyses show that further price increases are probable since it seems that they can improve the financial outcome. Price increases are most probable where new investments take place and lead to an improvement in the competitiveness of the railway. In this case, this would mean that a not-insignificant part of the benefit of new railways would arise in the form of reduced losses for the operators and not only in the form of improved standards for passengers.

The analyses also indicate that the financial profitability can be improved if services are reduced on a number of the present railway lines. This conclusion applies to the existing form of organisation and is probably even more valid in a system with many competing train operators.

It emerges from the results that it is not impossible that a retained SJ could provide services on the ten corridors studied with a positive net income in the future.

In our assessment, it is only the corridors between Stockholm and Gothenburg and Stockholm and Malmö that have the prerequisites to provide sufficient margins of profitability to enable commercial rail services to be realistic.

Taken as a whole, the results of our analyses indicate that the conditions for operating financially profitable rail passenger services are very uncertain. It cannot be excluded that rail traffic in the future can be operated in a more cost-effective way than to date, or that the conditions in the surrounding environment change in such as way as to lead to increased demand for rail travel. On the other hand, many of our basic assumptions, for instance, on the development of costs for the railway, must be regarded as being rather optimistic. We have, for

instance, assumed that the tax situation for rail traffic in future will be as favourable as it has been to date, which is not self-evident.

Our analyses indicate that considerable parts of the commercial network cannot be operated in a financially profitable way, not even in the longer term. One of the basic pillars of current rail policy would therefore not seem to be viable – if large parts of the commercial network are not profitable even in the long-term, there is a risk that the part of the network regarded as being procured as a complement will make up the predominant part of the system. The arguments for subsidising traffic that does not bear its variable costs are rather weak, at the same time as it hardly seems reasonable to terminate services on newly constructed track. We seem therefore to be confronted by a considerable transport policy dilemma.

THE SWEDISH INSTITUTE FOR

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- To carry out studies for the Government
- To develop forecasts and planning methods
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