Indian Railways
Growth, Sustenance and the Leap Forward
A Case Study

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Abstract

Indian Railways (IR), which was declared to be heading towards bankruptcy as per the Expert Group on Indian Railways in 2001, is today the second largest profit making Public Sector Undertaking after ONGC. A case study on IR could focus on multiple facets - Detailed analysis of the turnaround, Critical Appraisal of these strategies, Sustenance of this growth, Role of organizational structure of IR etc. In this case study we look at only certain aspects of IR due to the constraints such as limited time. We first do a brief diagnosis of the strategies that were behind the turnaround of Indian Railways. This is a very well studies and documented area so we move on further to probe two particular questions pertaining to IR. First, we study the marketing strategy of the Indian railways among the masses so as to counter threats like Low Cost Airlines. Secondly, we focus on the major question of Privatization of IR which has been lingering around for quite a while now. We do a comparative case study with the privatization of British railways and then justify the model of privatization that is slowly being adopted now for IR.

Contents

Indian Railways : Financial Snapshot					
Rs b	FY91	FY01	FY05	FY06RE	FY07BE
Freight revenue	82	230	308	365	403
Passenger revenue	31	105	141	151	168
Total revenue	125	349	474	547	600
Net revenue	11	11	53	70	75
Operating ratio (%)	91.2	98.3	91	83.7	84.3
Wagon turn around time (Days)	11.5	7.5	6.4	5.5	5

Source : Ministry of Railways

Figure 1: Financial Growth of Indian Railways

1 Introduction

Indian Railways (IR) has been the prime mover of the nation and has the distinction of being the largest railway system in Asia and the second largest railway system in the World under single management. IR operates more than 11,000 trains per day of which 7000 are passenger trains. The railways have played a critical role in catalysing the pace of economic development and continue to be an integral part of the growth engine of the country.

IR had its share of financial difficulties in the 1990s, which hampered its growth and there were concerns on its ability to provide competitive transport services in the future. This was in large part due to the tradition of seeing railways as an essential public service, the usage of which can not be denied even to those unable to pay. Under a tariff regime, where freight services continually subsidized passenger services and with IR losing traffic to the roads steadily, a financial crisis always seemed imminent within the Railways.

However, after being written off as a financially unviable concern by industry watchers and nonchalant soothsayers, Indian Railways has staged a dramatic turnaround in recent years. The Railway's renaissance has been engineered by simple entrepreneurial practices, which have evoked the admiration of internationally renowned institutions and companies alike. In a marked departure from its legacy, the focus on capacity utilization, reduction in unit costs, and improvement quality of service has yielded remarkable results. The Railways now looks all set to achieve the declared target of INR 20,000 Crores surplus revenue in the current financial year (2006-2007).

Figure 1 shows the financial growth of the IR on various fronts. The revenues are on an all time high and are still increasing. Based on the ratio of total working expenses to total earnings, a parameter called the operating ratio is assessed as a percentage. As seen in Figure 1, the operating ratio had reached a peak of 98.3 in 2000-01, reflecting a relatively poor performance. It had reduced year on year till 91.0 in 2004-05. It dropped sharply to 83.8 in 2005-06. (As stated above, this was both due to better utilization of rolling stock and changes in accounting practice.) The IR is targeting an improved operating ratio of 77 for 2006-07. This means that it aims to earn Re 1 by spending 77 paise in 2006-07, against 83.8 paise in the last financial year [6].

Modernization, safety and security of passengers, replacement and renewal of assets, track renewal,

Increasing Capacity Through Efficiency Improvements					
	Earlier	Now	Change	Proposed	Change
Wagons per train	58	58		58	
Axle load	20	23	13%	25	11%
Total weight (per wagon)	80	90		100	
Tare weight	22	22		22	
Payload	58	68	17%	78	15%
Payload to tare	2.6	3.1		3.5	
Total train payload capacity	3.364	3,944	17%	4,524	15%
Average turnaround time (days)	6.4	5.5	-14%	5.0	-9%
No of locomotives	3.750	3,750		3,750	
Locomotives available per day	586	682	16%	750	10%
Capacity available per day (m MT)	2.0	2.7	36%	3.4	26%

Source : Ministry of Railways, Deutsche Bank

Figure 2: Efficiency Improvement in Freight Load

improvement in passenger amenities, reduced expenditure, increase in productivity and reduction in operating ratio, computerization of railway systems, induction of new technologies for signaling and telecom and prevention of leakages of revenue have been the salient features of the overall development of Indian Railways.

The organization of this case study is as follows. In Section 2, we look at the strategies of IR that are mainly responsible for the profitability. Since this is a very well documented area already, we'll do only a brief a study and refer to the existing reports. With the onset of low cost airlines, there is a need to woo the passengers so as to sustain the achieved growth. In Section 3, we look at strategy to market the Indian railways in the Indian masses. Further, in Section 4 we analyse the critical question of privatization of the Indian Railways.

2 The Turnaround Story

In this section, we look at some major strategies followed by the Indian Railways which led to the complete turnaround. **All the data mentioned in this section had been sourced from official Press Releases of Indian Railways.** [2], [3]. For a complete analysis of the strategies and their critical appraisals, see this report from IIM Ahmedabad [4].

2.1 Capacity Enhancement

The Indian Railways has a massive infrastructure in place and the costs incurred are predominantly fixed and independent of the operations. The challenge was therefore to achieve enhanced capacity while not incurring additional capital expenditure. Following are some key innovative and effective measures that led to this:

- Productivity Improvement - By increasing wagon loading capacity and significantly reducing wagon turnaround time. This is seen from data in Figure 2.
- In the past, loading/unloading was done only during day time (10 hours a day on an average) and trains used to lie idle at customer sites overnight. The Indian Railways provided incentives to customers to undertake loading/unloading 24 hours a day. Consequently, the average time taken for loading came down from 30hrs to 16hrs and for unloading from 34hrs to 18hrs, reducing the turnaround time by over a day.
- IR did away with the system of train examination, which consumes about 16 hrs on an average. Earlier, train examination was done every time a train came back to its base station, irrespective of the distance traveled in the interim. In recent times, examination is being conducted only after 4,500 kms. or 15days (whichever is later). This strategy was very successful and has been later extended to 7,500 kms.

2.2 Capacity Utilization

- Dynamic Pricing Policy

  Till recently, IR had a fixed price policy, irrespective of demand scenario and competition. In order to be able to effectively face the challenges posed by stiff competition, a Dynamic Pricing Policy was introduced for freight as well as passenger, for peak and non-peak seasons, premium and non-premium services, and for busy and non-busy routes. As per this policy the rates for non-peak season, non-premium service and empty flow directions would be less than the general rates and the rates for peak season and premium services could be higher than normal.

- Tariff Rationalization

  To simplify and rationalize goods tariff, the classification of items was reduced from over 4000 to a mere 28 groups of commodities. In 2005-06, the total number of classes in the freight tariff schedule was reduced from 27 to 19. The highest class - 250 for charging freight was lowered to 220 in 2006-07. **This was a very clever policy as more classes were put in the higher price category. Thus even though the maximum cost was lower in new tariff rates, the nett revenue weighted over the traffic in all the classes was larger.**

- Non-peak Season Incremental Freight Discount Scheme

  The demand for freight transportation typically dips from 1 July to 31 October on account of monsoon. It was estimated that over 400 trains remain idle in this period due to lack of demand. Hence, during this period, freight rebate of 15% was offered for incremental freight revenues of over Rs. 5 Crore in a month and 10% for incremental earning of less than Rs. 5 Crore.

- Long term freight discount scheme

  Merchants want to make transportation arrangement for goods on a long-term basis. Hence, long-term freight discounts were offered to attract new customers and new freight traffic. Under this scheme, zonal railway administrations were able to offer a discount of up to 20% during non-peak season and up to 10% in the peak season for a period of three years. For loading in empty flow direction, the discount was up to 20% and 30% during peak season and non-peak season respectively.

Many other schemes have been launched by the IR over the past few years the details of which are available at the Official IR website [2].

2.3 Revenue Enhancement

The incentives to ramp up volume were complemented by a two-pronged revenue enhancement strategy, which capitalized on opportunities and reduced losses by exiting non-core operations.

The strategy in freight operations was to recognize low-cost high-volume operations where the Railways enjoyed significant comparative advantage vis-a-vis road and air transport and achieve higher realizations on these operations. For example, the tariff on ore has been increased by 70% (virtually no competition) at a time when rate on iron and steel has been reduced 30%. The strategy to focus on capacity utilization resulted in high volumes and compensated for the discounts and the lowered tariffs.

Some of the innovative measures adopted in the passenger segment included increasing the number of coaches in popular trains and encouraging occupancy in the profitable upper classes. The passenger tariff was rationalized such that the fares of AC First and AC Second Class were 11.5 times and 6.5 times the Second Class fare respectively. This, coupled with the innovative automatic upgradation scheme, enabled higher occupancy in the profitable upper classes.

The Railways also exited from the loss-making parcel and catering services and offered it to private players on a bidding basis. There was also a significant thrust on non-fare income streams such as advertising and allied services including land-use rights at railway stations.

3 Marketing Indian Railways to the Masses

The turnaround of the Indian Railways has largely been due to volume of its freight services. Hence, to sustain its current level of growth, it needs to focus on the other services that it offers - passenger travel and other earnings from parcel, catering etc. In this study, we would focus on the steps that have been and need to be taken to increase its volume in passenger traffic.

The situation then

The Indian Railways has been largely functioning according to the Supply concept which states that supply of the product/ service ensures demand. This concept held in the older days, where rail was the only mode of cheap long distance transport and hence people had to depend on it for all their travel needs. Therefore, by simply ensuring that rail routes existed and trains were being run, the railways was ensured of demand for its services and hence assured earnings.

The situation now

The scenario has altered drastically in the past decade with the onset of alternative cheaper and faster modes of travel i.e. the airplanes. This trend is clearly visible in the growth of number of passengers travelling by the airlines in comparison to railways as shown in Figure 3.

The main areas where air travel scores over railways are:

- Time of travel

  This is one aspect which the railways cannot change because of its inherent dependence on transport on land. Air travel reduces the time of traveling by more than 75% in most cases when compared to

Year	2001-02	2002-03	2003-04	2004-05
Railways	5,093	4,971	5,112	5,475
Airlines	12.81	13.32	14.54	18.17

Figure 3: Number of passengers (in millions) travelling through Railways and Airlines (source: Ministry of Civil Aviation, [4])

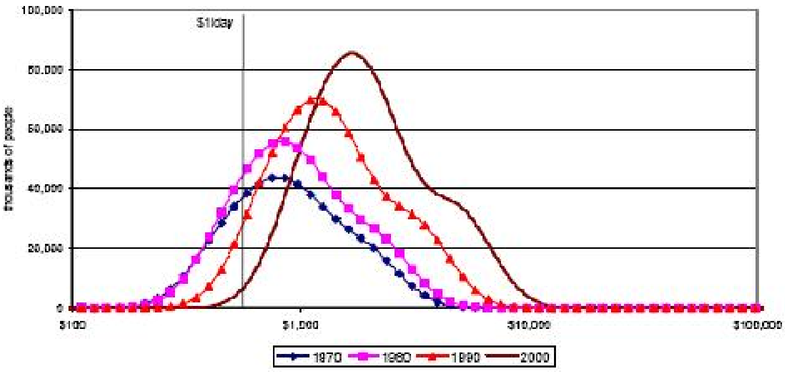

Figure 4: Distribution of Income in India, [13]

railways. Hence, railways are always at a disadvantage when it comes to the corporate sector of the consumers.

- Prices

  With the onset of low cost airlines with rates comparable or even lesser than the rail fares for the corresponding routes, railways have been hard hit. On most of the domestic routes, the airlines are actually offering prices lesser than AC 2 tier on express trains like Rajdhani.

This, coupled with the fact that the per capita income in the country has steadily been rising over the years (Figure 4), implying that the disposable income per person has been on the rise, has lessened the rail traffic even further.

Proposed Strategy

To counter these factors, the railways need to adopt the following strategy:

- Focus on grabbing the portion of the consumer segment that has time to spare i.e. is not averse to

Segment / Service	Lower class (< Rs. 3 lakh p.a.)	Middle Class (Rs. 3 – 10 lakh p.a.)	Upper Class (> 10 lakh p.a.)
Travel	YES	YES (intermediate distances)	NO
Tourism (Luxury trains)	NO	YES	YES

Figure 5: Services offered by Railways to various income Segments

spending 12-18 hours in travel. Additionally, since railways scores over airways in terms of penetration into the country, in large parts of the country it enjoys better reachability. In such areas, it needs to ensure that people prefer the railways for low distance travel over roadways.

- The price points should be significantly lesser than the low cost airlines. To achieve this, it has to adopt every avenue of cost reduction feasible.
- It should take steps to recover its market share through a combination of tariff re-balancing and quality enhancement measures.

Marketing based on Income based Segmentation

It would be beneficial if the Indian Railways (IR) follows an income based segmentation strategy and follows a separate promotion strategy for each. Broadly classifying the consumer segment into 3 categories on the basis of income:

1. The Lower Class (< Rs. 3 lakh p.a.)
2. The Middle Class (Rs. 3 - 10 lakh p.a.)
3. The Upper Class (> 10 lakh p.a.)

The broad categorization of services that the IR can offer to each segment is seen in Figure 5.The lower class would be more inclined to use railways as a medium of travel rather than for tourism purposes. The opposite holds true for the upper class which has significant amount of disposable income and might not want to compromise on the time factor for travel. Thus the only way to woo the upper class is through tourism. The middle class is the most potential profitable segment from the point of IR and hence it should focus on promoting Railways both as a means of cheap travel and enjoyable tourism.

Railways is banking a lot on the tourism factor which is also a good source of foreign revenue. Many luxury trains such as Palace on Wheel, The Deccan Odyssey, The Fairy Queen etc. These trains have packaged tours over many cities and such luxury packages are becoming very popular today among the rich and foreign tourists. Besides this, many measures have been taken by the IR to woo the other two classes. Some of these from the Railway Budget 2007 [7] are:

- Lower Class

  Unreserved compartments in newer trains will be increased from four to six. Simultaneously, efforts will be made to increase the number in existing trains as well. To provide a more comfortable journey, the wooden seats in ordinary class passenger trains will be replaced by cushioned ones. Eight new Garib Raths (subsidized Air Conditioned trains with enhanced passenger capacity) and 32 pairs of new trains to be introduced in the coming year.

- Middle Class
  - 200 trains to be made superfast
  - Dynamic pricing: Differential discounts in peak and off-peak seasons. AC first class rates slashed by 6% in the lean season and 3% in the peak season
  - Sleeper class fares slashed by four per cent
  - Reduction of super fast charge on second-class tickets by 20 per cent from Rs 10 to Rs eight
  - Rs 5,000 crore set apart for local trains
  - Women & senior citizens to get priority lower berth
  - Cyber cafes and ATMs to be opened at major stations
  - 6000 automatic ticket vending machines to be set up in next two years
  - E-tickets made cheaper and to be made available for all mail and express trains

Besides this, there are many other strategies (available in [8])which can enhance the passengers' train travel experience. These if implemented will add to the "delight" of customer and hence help positioning the railway brand higher in the minds of people.

Brand Image of Indian Railways, 2007

Every enterprise needs a brand ambassador to market itself. In Laloo Prasad Yadav, the present Indian railway minister, IR has a brand in place. The personality, aura and mode of speech of Mr Yadav gets him attention in whatever he does. Thus anything new step which he takes for Railways is highlighted so well by the media. In recent times, when students from Harvard Business School came to visit India to understand the turnaround of the railways, the event got so much hype [9] just because Mr. Yadav himself was escorting the students. Thus, as of now, to complement the great turnaround, the IR has also got an excellent brand ambassador for itself.

4 Privatization of Indian Railways

Over the years political interference and bureaucratic failure, leading to inefficiency and ineffectiveness of public sector activities began to be highlighted. The fourth quarter of the 20th century became "the age of privatization" , swearing by the securing of private sector participation in the form of disinvestment and denationalization. In this new age of disinvestment, the big question now is that if the largest government undertaking, the Indian Railways, be privatised and if yes, then based on what model.

Indian Railways is the biggest railway network in the world that is being managed by the state. One option is complete privatization of IR i.e. sell off IR to a company like Tatas or Ambanis. But that would not be a good idea either broadly because of the following reasons.

- Railways were built in India for national integration, economic development and exploitation of resources, and above all for military purposes. Railways have continued to be a highly visible national symbol, and the role played by them in times of crises like the Gujarat quake, Orissa cyclone and military operations like Kargil is something that cannot be replicated by any corporation. Nor can a corporate structure contribute to economic development and national integration as the Railways have done.

- Defence services have built up alternative arrangements in all fields including postal service and communications network, but are completely dependent on Railways for transport. All the strategic rail lines are owned and operated by the Railways. There is no comparison between other infrastructure facilities and railway facilities as far as transport by rail is concerned. This fact needs to be kept in view while coming to any conclusion on the suggestion about corporatisation of IR.

- Railway operations require constant co-ordination with state governments and other wings of the Centre. If only for these reasons, it is necessary that the government exercises direct control over their operations, which is possible only when they are run as a departmental undertaking.

Thus, the role of the railways is too critical for the Indian economy to handle it completely into the private hands. Also, due to the national importance it'll be never be actually be possible to pass on IR to complete private hands as govt intervention will be required for most of the decisions.

The other model of privatization is to break down the whole organization into various chunks where each chunk represents a very specific task. Also, for each task have multiple competing companies and all these companies coordinate with each other for the smooth functioning of Railways. This model was followed in case of British Railways and below we do a study on what were the effects.

4.1 A study of Privatization of British Railways

BR was formed in 1948 when the four private rail companies, which had been under a form of public control during the WWII, were nationalized. BR was vertically integrated meaning that it owned and maintained its own track and trains as well as being responsible for operations. At that time, BR also built trains, owned hotels and ships and ran a large fleet of lorries to deliver freight. Then the railway itself remained as a self-contained operation.

4.1.1 Privatization Strategy

Now BR has been split into almost 100 different companies. Instead of one organization operating with one Board of Directors and a single chain of command, there is now a contractual structure where relationships are determined by legal agreements. Each of the new companies depends on many others in order to provide service to the customer.

The dismemberment of BR created a large and complex jumble of interlocking firms. The engines and rolling stock operations were divided among three separate companies known as ROSCOs that leased the trains to 25 passenger train operating companies (TOCs). Four freight companies were sold off, as were technological service units, the businesses that dealt with Royal Mail traffic, and European passenger services. Ownership of the track, stations, and other infrastructure was assigned to a newly formed company called Railtrack, which would subsist by charging access fees from the train operators. And in a move that

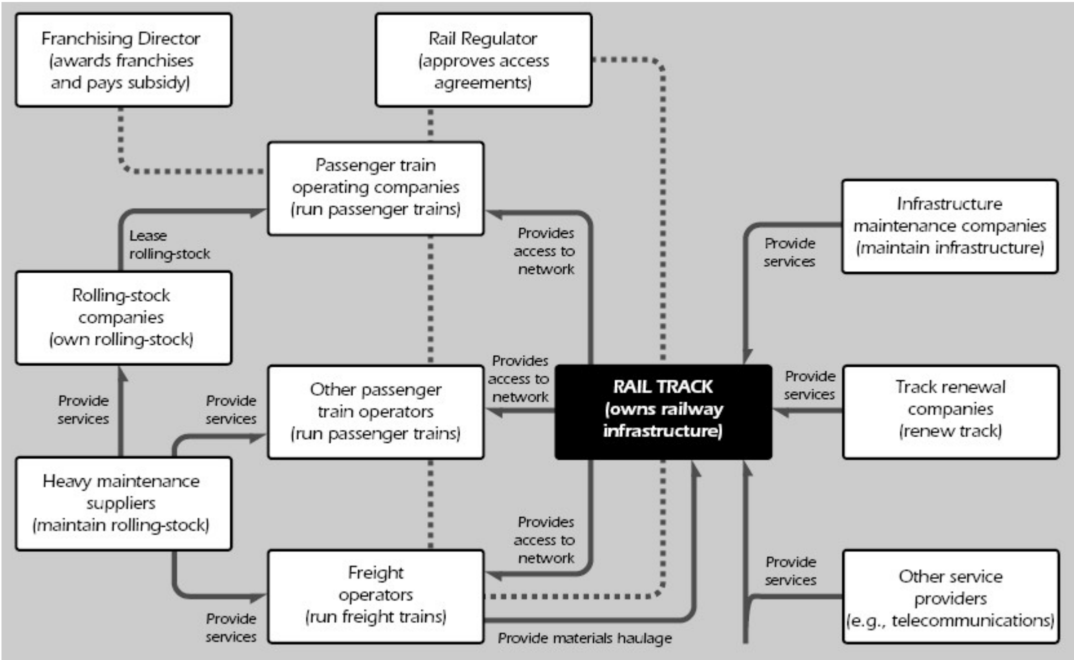

Figure 6: Current Structure of Privatized British Railways

was to have repercussions in the future, BRs engineering and maintenance divisions were broken up into thirteen separate companies that in turn contracted with Railtrack for their services. All of these pieces would now (theoretically) work together, not as part of a hierarchical command structure, but as a network of firms whose relationships would be governed by contracts and government regulation. The structure of the new railway is well illustrated in Figure 6. A detailed explanation of the structure of the privatized BR and mutual interactions can be found here [10].

4.1.2 Privatization - A Failure

But years after the reform, today it has been termed as a failure. For the government, coordinating a huge network of over 100 companies for a smooth functioning of the railways meant more maintenance cost. According to the Railway Forum, comparing the three years immediately before and immediately after privatization, net government expenditure increased by about 10%. Besides this, the passenger services haven't improved. Punctuality declined from 92.78 % in May 1997 to 91.57 % in August 2000. Overcrowding is a lot worse. The employees are unhappy as they are being offered different salaries for the same work in different companies. This has come as a byproduct of many small companies competing against each other to get a task done in best manner. We list out various reasons which mainly characterize this failure. [11]

- Atomization of BR

  The atomization of BR created administrative chaos. When BR was dismantled, a unified, military-style command structure was replaced by a heinously complex web of contractual relationships between almost a hundred pieces of the old BR plus numerous subcontractors. Because of the uncertainty of the relationships, contracts attempted to account for all possible future situations with an elaborate system of payments and penalties. This led to an adversarial system in which the parties were frequently sniping at each other, pointing fingers, and demanding compensation.

Functions that cried out for integration were separated. First, although Railtrack owned the track, it did not own the maintenance companies. And the maintenance companies did not own the companies that actually did the repair work. Without an effective in-house engineering department, Railtrack was in no position to supervise the contractors. Thus, despite Railtracks nominal control, the maintenance and repair companies actually called the shots.

- Role of Government

  The problems were not limited to the private side of the equation. The role the government played in the (mis)management of the railways was considerable. A confused tangle of organizations with overlapping responsibilities oversaw the railways, including the Office of Passenger Rail Franchising, the Office of the Rail Regulator, Her Majestys Railway Inspectorate, the British Railway Board, the Rail Passengers Council, and the Transport Secretary. Although these were supposed to complement each other, they produced duplication, paralysis, and turf battles.

- Employee Dissatisfaction

  In the opinion of many, the culture of the railways, carefully nurtured under BR, was destroyed. Employees had to cope with the dismemberment of their beloved paternal organization. Widespread staff cuts bred a climate of fear and the need for many to work excessive hours. A new emphasis on cost-cutting frustrated employees, who felt the economies were irrationally conceived and operationally damaging. A great intangible - pride in their jobs and pride in the railway - deteriorated, and there was considerable nostalgia for the old organization and the sense of belonging it fostered.

So, the two major reasons for the failure were - (1) BR was too big to be broken down into very small parts and (2) Privatization procedure was not well managed and maybe was a bit too quick and drastic.

4.2 Strategy for Indian Railways

Thus the above two models of privatization are not feasible for the Indian Railways. Keeping this is mind the Indian Railways Report - 2001 [12] recommended the following:

"The Expert Group has carefully examined the experience of European and other railways in their restructuring efforts. The focus should be on commercialization rather than privatization. This involves reorganizing the rail system into its component parts, spinning of non core activities, restructuring what remains along business lines and adopting commercial accounting performance management systems. IR's management needs to be allowed a degree of autonomy that is comparable to any other commercial organization"

Efforts have started to do such a partial restructuring and commercialization of certain activities. IR is already in talks with Oberoi group to set up hotels on the land acquired by IR. This is in stark contrast to the old method of setting up and running the hotels on its own. Under a recent policy, the catering contracts are now given through an annual open tendering system as compared to an application based system. With the new policy, as an example, an annual catering contract for an important train like Howrah-Kalka mail was awarded for Rs 83.6 lakhs, when earlier it fetched Rs 5 lakhs. After open competitive bidding, earnings have increased from Rs 13 crore to over Rs 100 crore due to mobile catering. On stationary catering, due to the open competitive bidding, as an example, the license fee at Bandra and Nagpur went up from Rs 78,000 and Rs 32,000 to Rs 16 lakhs and Rs 34 lakhs respectively (source: [4]).

Some of the recent initiatives by the IR on lines of this commercialization model are:

- IR has awarded licenses for container operations to 14 private sector companies ending the monopoly of Container Corporation of India (CCI) in this area.
- Recognizing the superiority of the private sector in providing and maintaining passenger amenities and services, the Railways is encouraging private players in the field of marketing and Operation & Maintenance (O&M) of luxury tourist trains.
- Handling of the catering, luggage, and parcel services by private sector parties significantly reduced the losses incurred by the Railways in this area while increasing operating efficiency and quality of service.

5 Conclusion

In this case study we looked at the growth achieved by the Indian railways in the past few years and major strategies responsible for them. These include capacity enhancement, better utilization of the current capacity and also schemes to increase the existing sources of revenue. Today, IR is facing serious threats from the low cost airlines which offer a much quicker journey at comparable costs. Thus there is a need to position the railways brand higher in the mind of the Indian passengers. We have done an income based market segmentation and analysed possible strategies that could be used to lure different segments and ultimately increase the volume of the passenger revenue. Another question that has been lingering around for quite a while now is regarding the privatization. We do a comparative study with the British railways and come to a conclusion that complete break up into smaller enterprises will not prove to be good. Due to the critical role played by the railways in India, total control of IR should not be transferred into private hands. Focus should be on commercialization rather than privatization where various smaller tasks are outsourced to private hands or are done in public-private partnerships. Steps are being taken to do such a restructuring of the operations today. Quoting from [4]:

The turnaround over the past two years has demonstrated that IR is indeed a sunrise sector. With the right moves, nothing can hold it back from being world class.

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