Price Discrimination used as pricing strategy by railways
THE INDIAN RAILWAYS

- The Indian Railways, as one of the pillars of India's infrastructure, has a symbiotic relationship with the country's industry and economy.

- Indian Railways is an Indian state-owned enterprise, owned and operated by the Government of India through the Ministry of Railways.

- Indian Railways is the world's ninth largest commercial or utility employer, by number of employees, with over 1.307 million employees.
Introduction to Indian Railways

• The Railways play a crucial role in the transport of coal, iron ore and raw materials for the manufacturing industry, fertilizers, cement and steel products and food-grain, and in the movement to and from the major ports, as well as the transportation of people

• It is one of the world's largest railway networks comprising 115,000 km (71,000 mi) of track over a route of 65,436 km (40,660 mi) and 7,172 stations. In 2013-14, IR carried 8,425 million passengers annually or more than 23 million passengers daily (roughly half of which were suburban passengers) and 1050.18 million tons of freight in the year
Indian Railways - A monopoly

Source of their market power can be attributed to following factors:

- **Capital Intensive venture**: It can be understood from the fact that Indian railways have a separate budget each year.

- **Economies of scale**: As Indian railways operate all over India and thus have sufficient operating domain to achieve economies of scale which a new entrant cannot easily replicate.
Government rules and regulations: Indian railways has a position, which is not possible in perfectly competitive markets, where it can charge different price to different group of consumers for an identical product, even though the cost of each such saleable unit remains same.
Peak Load Pricing

- It is a form of pricing technique that is applied to public goods and is a particular case of Lindahl equilibrium.
- Here instead of different demand for same public good, demand for a good in different periods of a day, month or a year is considered.
- Different prices are charged for the same facility which is used by the.
- For example, in the area of rail commuter traffic, the fare structure may be varied in order to modify demand in peak travel periods when the resources of the railway are under greatest pressure. This strategy, is called peak load pricing strategy. same consumer at different points in time.
- There also exists an alternative to a peak load pricing strategy is an off-peak pricing strategy whereby discounts are offered off the standard commuter fare for travel outside of designated peak periods.
Pricing Strategy and Price Discrimination

• Entrepreneurs continuously seek out economic profit through Pricing Strategies

• Some commonly used pricing strategies are
  ▫ Price Discrimination
  ▫ Odd Pricing
  ▫ Cost-Plus Pricing
  ▫ Two-Part Tariffs

• **Price Discrimination**
  ▫ Charging Different prices to different customers
  ▫ Price difference is not due to differences in cost
  ▫ Three major requirements
    1. Firm must possess Market Power
    2. Some consumers must have greater willingness to buy
       • Firms must know the price the consumer is willing to pay
    3. Firm must be able to segment the market
       • To mitigate any probability of Arbitration
Price Discrimination in Indian Railways

• Railways enjoy some part of the consumer surplus through Price Discrimination

• Enablers for Price Discrimination in Indian Railways
  ▫ **Market Power** – Monopoly due to complete Government Control
    ▸ Dictates Pricing Terms and Conditions
    ▸ Lack of competition enables it to deviate from market price
  ▫ **Extensive Railway Layout**
    ▸ Many remote areas are easily accessible only through railways
    ▸ Economical and faster option for goods transport
  ▫ Market segmentation based on age, sex, job type etc
  ▫ Non-resalable products and services
    ▸ Restricts Discount Customers to become Resellers
    ▸ Completely removes any possibility of Arbitrage
First Degree Price Discrimination

- Also known as Perfect Price Discrimination
- The firm should be aware of every consumer’s willingness to pay and restrict resale of the product
- Price variations will be based on
  - Customer Willingness to pay
  - Ability to pay for the goods and services
- Firms will charge every consumer a different price
- Complete transfer of Consumer Surplus to Producer
- Profits increase and economic efficiency is improved (Removal of DWL)
- Presently, Indian Railways does not engage this but future plans to do so
2nd Degree of price discrimination

• Price varies according to quantity sold

• A monopolist sets the block prices
  ▫ Prices are highest for first block of quantity bought
  ▫ Price reduced for each successive purchase by the same customer.
2\textsuperscript{nd} Degree of price discrimination

- Heavily employed by Indian Railways

- Indian railways charge for every kilometer which is reduced as one travels longer

<table>
<thead>
<tr>
<th></th>
<th>Bangalore to Delhi</th>
<th>Bangalore to Nagpur</th>
<th>Nagpur to Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajdhani’s 1\textsuperscript{st} class fare</td>
<td>6690</td>
<td>4600</td>
<td>3980</td>
</tr>
</tbody>
</table>
2nd Degree of price discrimination

- Indian railway provides special passes called ‘Indrail’ for foreign tourists and NRIs

<table>
<thead>
<tr>
<th>Period of validity</th>
<th>AC Class</th>
<th>First Class/AC 2/3 Tier/AC Chair Car</th>
<th>Sleeper Class/Second Class (Non-AC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adult</td>
<td>Child</td>
<td>Adult</td>
</tr>
<tr>
<td>½ day* (12 hrs.)</td>
<td>57</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>1 day* (24 hrs.)</td>
<td>95</td>
<td>47</td>
<td>43</td>
</tr>
<tr>
<td>2 day* (48 hrs.)</td>
<td>160</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>4 day*</td>
<td>220</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>7 day</td>
<td>270</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>15 day</td>
<td>370</td>
<td>185</td>
<td>185</td>
</tr>
<tr>
<td>21 day*</td>
<td>396</td>
<td>198</td>
<td>198</td>
</tr>
<tr>
<td>30 day*</td>
<td>495</td>
<td>248</td>
<td>248</td>
</tr>
<tr>
<td>60 day*</td>
<td>800</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>90 day*</td>
<td>1060</td>
<td>530</td>
<td>530</td>
</tr>
</tbody>
</table>
Third Degree Price Discrimination

- Variation in price based on location of purchase and customer segment
- Heavily Employed by the Indian Railways

- **Segmentation based on age**
  - Children aged above 5 years and below 12 years – 50% discount
  - Citizens aged between 12 and 60 years – At purchase price
  - Citizens aged above 60 years (Male) and 58 years (Female)
    - Male - 40% discount (Code – SRCTZN)
    - Female – 50% discount (Code – SRCTNW)

<table>
<thead>
<tr>
<th>Train</th>
<th>Child (5-12 years)</th>
<th>Citizen (12-60 years)</th>
<th>Senior Citizen (M,F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampark Kranti</td>
<td>2690</td>
<td>5240</td>
<td>3200, 2690</td>
</tr>
<tr>
<td>Rajdhani</td>
<td>3710</td>
<td>6675</td>
<td>4300, 3710</td>
</tr>
<tr>
<td>Karnataka Express</td>
<td>2760</td>
<td>5380</td>
<td>3285, 2760</td>
</tr>
</tbody>
</table>

*All discount codes applicable for 1ST AC from Bangalore to Delhi obtained from [http://www.indianrail.gov.in](http://www.indianrail.gov.in)*

**Note:** discounts is valid when the travel distance is more than minimum chargeable distance for the given class
Third Degree Price Discrimination

- Segmentation based on types of Passengers
  - Target customers that might choose other modes of transportation

<table>
<thead>
<tr>
<th>Discount Code</th>
<th>Description</th>
<th>Discount Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPORTN</td>
<td>Sports National Level</td>
<td>50% (First Class) 75% (2\textsuperscript{nd} and SL)</td>
</tr>
<tr>
<td>STDNT</td>
<td>Student Concession (General)</td>
<td>50%</td>
</tr>
<tr>
<td>TEACHER</td>
<td>Teacher</td>
<td>25%</td>
</tr>
<tr>
<td>TLSMIU</td>
<td>Thalassemia Patient plus one escort</td>
<td>50% (1AC and 2AC) 75% (3AC, AC Chair etc)</td>
</tr>
<tr>
<td>KIDNEU</td>
<td>Kidney Patient</td>
<td>50% (1AC and 2AC) 75% (3AC, AC Chair etc)</td>
</tr>
<tr>
<td>YTH2SR</td>
<td>Unemployed youth for interview</td>
<td>100% (2\textsuperscript{nd} Class) 50% (SL)</td>
</tr>
</tbody>
</table>

*All discount codes applicable obtained from [http://www.indianrail.gov.in](http://www.indianrail.gov.in)*
Third Degree Price Discrimination

- Segmentation based on travel purpose
  - Target customers intent for sightseeing or pilgrimage tour
  - Provide incentives for Round trips
  - Issued on all journeys and all classes – starting and ending on same station

<table>
<thead>
<tr>
<th>Route</th>
<th>Fare (2\textsuperscript{nd} AC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Delhi - Kanpur Central – Gaya – Howrah – Patna – Allahabad – Kanpur Central – New Delhi (3112 Km)</td>
<td>3214</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Route</th>
<th>Train</th>
<th>Fare (3\textsuperscript{rd} AC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Delhi – Kanpur Central</td>
<td>Sampark Kranti</td>
<td>735</td>
</tr>
<tr>
<td>Kanpur Central – Gaya</td>
<td>Purushottam Express</td>
<td>900</td>
</tr>
<tr>
<td>Gaya – Howrah</td>
<td>Kolkata Mail</td>
<td>760</td>
</tr>
<tr>
<td>Howrah – Patna</td>
<td>Akal Takht Express</td>
<td>880</td>
</tr>
<tr>
<td>Patna – Allahabad</td>
<td>North East Express</td>
<td>655</td>
</tr>
<tr>
<td>Allahabad – Kanpur Central</td>
<td>Magadh Express</td>
<td>535</td>
</tr>
<tr>
<td>Kanpur Central – New Delhi</td>
<td>Prayag Raj Express</td>
<td>735</td>
</tr>
</tbody>
</table>

| Total Fare | 5200 |

Source: [https://www.irctc.co.in](https://www.irctc.co.in)
Third Degree Price Discrimination

• **Segmentation based on Location**
  ▫ Convenience charge ranging between INR 10 – 20
  ▫ Commands premium from customers who are willing to pay extra to avoid queues

• **Segmentation based on destination**
  ▫ 6% freight Concession for traffic booked from other states for stations in North East
Inter-Temporal Price Discrimination

- Practice of separating consumers with different demand functions into different groups by charging different prices at different points in time.
- Indian railway employs this type of discrimination through their TatkalSeva.
- Additional Tatkal (emergency) charges is levied on passengers for booking on short notice.
- Tatkal Charges have been fixed as a percentage of fare at the rate of 10% of basic fare for second class and 30% of basic fare for all other classes subject to minimum and maximum as given in the table below.

<table>
<thead>
<tr>
<th>Class of Travel</th>
<th>Min. Tatkal Charges (in INR)</th>
<th>Max. Tatkal Charges (in INR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second (Sitting)</td>
<td>10.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Sleeper</td>
<td>90.00</td>
<td>175.00</td>
</tr>
<tr>
<td>AC Chair Car</td>
<td>100.00</td>
<td>200.00</td>
</tr>
<tr>
<td>AC 3 Tier</td>
<td>250.00</td>
<td>350.00</td>
</tr>
<tr>
<td>AC 2 Tier</td>
<td>300.00</td>
<td>400.00</td>
</tr>
<tr>
<td>Executive</td>
<td>300.00</td>
<td>400.00</td>
</tr>
</tbody>
</table>

Source: [http://www.indianrail.gov.in/tatkal_Scheme.html](http://www.indianrail.gov.in/tatkal_Scheme.html)
Dynamic pricing

• Consider the railway reservation system
  ▫ The train seats are a very perishable commodity
  ▫ After the train moves on from a particular station, all the unsold seats lose their value which can never be recovered
  ▫ At present Indian railways employs fixed prices for seats based on various degrees of price discrimination
Dynamic pricing

- Indian Railways now plans to price its seats as the airline industry does.

- The price shall be decided on the basis of quantity of product left.

- The producer is able to acquire consumer surplus as well.
Dynamic Pricing

Pricing under railways under current situation
Dynamic Pricing

Pricing under railways’ dynamic pricing strategy