Case Study of the Auto-Rickshaw Sector in Mumbai

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EMBARQ India
## Methodology: Thematic Areas

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<td>Drivers</td>
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<td>Passengers</td>
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<td></td>
<td>Government</td>
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</tbody>
</table>
Mumbai Profile

- **Population:**
  - Greater Mumbai is > 12.5 million total
  - Suburban Mumbai is 9.3 million

- **Area:**
  - Greater Mumbai Total is 437.71 sq. km
  - Suburban Mumbai is 370 sq km

- **Density:** over 20,000 per sq km
Auto-rickshaw Sector – Background

Market Size

Source: Regional Transport Offices (RTOs)
## Auto-rickshaw Sector – Background Mode Shares

<table>
<thead>
<tr>
<th>City</th>
<th>Population (million) (2010)</th>
<th>Auto-rickshaw Mode Share (among motorized road transport modes)</th>
<th>Auto-rickshaws (as % of total vehicles)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai</td>
<td>13.8</td>
<td>20%</td>
<td>11%</td>
<td>2005</td>
</tr>
<tr>
<td>Rajkot</td>
<td>1.5</td>
<td>16%</td>
<td>2%</td>
<td>2007</td>
</tr>
<tr>
<td>Bangalore</td>
<td>5.4</td>
<td>13%</td>
<td>3%</td>
<td>2005</td>
</tr>
<tr>
<td>Pune</td>
<td>3.5</td>
<td>11%</td>
<td>3%</td>
<td>2007</td>
</tr>
</tbody>
</table>

Source: Comprehensive Mobility Plans (CMPs) of cities
Methodology: Survey and Observation Locations
Current Policy Environment

Central
- Ministry of Road Transport and Highways (MORTH)
  - Central Motor Vehicle Rules, 1989

State
- Department of Motor Vehicles
- State Motor Vehicle Rules

City
- No direct policy focus on auto-rickshaws
Focus Areas

- Regulation
- Market Characteristics
- Driver and User Profile
- Operational Characteristics and Economics
Regulations: Permits

- Permits: 109,000 of which 9,762 are not in use
- Cap on new permits
- Legal Permit fee: Rs. 100
- Average Price: Rs. 68,000
- Drivers lease permits from permit-holders for a period of 5 to 10 years
- No Fleet auto-rickshaw scheme yet passed

Permit Price Paid by Drivers:

- Rs. 1 - 100: 24%
- Rs. 100 - 1,000: 32%
- Rs. 1,000 - 20,000: 11%
- Rs. 20,000 - 30,000: 11%
- Rs. 30,000 - 40,000: 2%
- Rs. 40,000 - 50,000: 16%
- Rs. 50,000 - 60,000: 1%
- Rs. 60,000 - 70,000: 0%
- Rs. 70,000 - 80,000: 0%
- Rs. 80,000 - 90,000: 0%
- Rs. 90,000 - 100,000: 0%
## Regulations: Fares

### Contribution of Different Factors to Average Fare

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest &amp; Depreciation</td>
<td>8.7%</td>
</tr>
<tr>
<td>Maintenance Cost</td>
<td>17.4%</td>
</tr>
<tr>
<td>Living &amp; Related Cost</td>
<td>19.6%</td>
</tr>
<tr>
<td>Petrol Cost</td>
<td>52.2%</td>
</tr>
<tr>
<td>Insurance &amp; Tax</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Hakim Committee
- First established in 1996 (only taxis)
- Reconstituted in 2012
- Recent fare increase for auto-rickshaws and taxis in Mumbai
Market Characteristics

**Vehicle Age**
- <1 year: 0%
- 1-5 years: 55%
- 6-10 years: 42%
- 11-15 years: 3%

**Fuel Type**
- CNG: 98%
- Petrol: 2%

**Engine Type**
- 2-stroke: 77%
- 4-stroke: 23%
## Operational Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average hours of operation</td>
<td>10</td>
</tr>
<tr>
<td>Average daily kilometers traveled</td>
<td>105</td>
</tr>
<tr>
<td>Average share of empty kilometers traveled</td>
<td>10.2%</td>
</tr>
<tr>
<td>Average trip length</td>
<td>5.8 kms</td>
</tr>
<tr>
<td>Average daily trips</td>
<td>18</td>
</tr>
</tbody>
</table>
High Demand Locations

- Andheri: 23%
- Band Stand: 11%
- Bandra Kurla Complex: 20%
- Chakala: 7%
- Chembur: 5%
- Juhu: 5%
- Kurla: 5%
- Maharashtra Industrial Development Corporation (MIDC): 9%
- Sakinaka: 5%
- Santacruz: 6%
- Kurla: 7%
Profile of Auto-rickshaw Drivers

Driver Age

- <20 years: 0%
- 20-30 years: 16%
- 30-40 years: 52%
- 40-50 years: 28%
- 50-60 years: 4%

Renter vs Owner

- Renter-Driver: 80%
- Owner-Driver: 20%
## Driver Economics

<table>
<thead>
<tr>
<th></th>
<th>Renter-Driver</th>
<th>Owner-Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital Costs (Rs):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permit</td>
<td>-</td>
<td>67,900</td>
</tr>
<tr>
<td>Vehicle incl. taxes &amp; fees</td>
<td>-</td>
<td>165,730</td>
</tr>
<tr>
<td>Equated daily installment (EDI) for permit and vehicle</td>
<td></td>
<td>95</td>
</tr>
<tr>
<td><strong>Daily Costs (Rs.):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Rent</td>
<td>160</td>
<td>-</td>
</tr>
<tr>
<td>Other Costs (Rs.):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance (monthly average divided by 26 days)</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td><strong>TOTAL DAILY COSTS:</strong></td>
<td>290</td>
<td>265</td>
</tr>
<tr>
<td><strong>Daily Revenue (Rs.):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fares</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td><strong>TOTAL DAILY REVENUE:</strong></td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td><strong>Total Daily Earnings (Rs.)</strong></td>
<td>360</td>
<td>385</td>
</tr>
</tbody>
</table>
Profile of Auto-rickshaw Users

**Passenger Age**
- <20 years: 11%
- 20-30 years: 24%
- 30-40 years: 37%
- 40-50 years: 23%
- 50-60 years: 3%
- >70 years: 2%

**Passenger Gender**
- Male: 61%
- Female: 39%

**Passenger Income**
- < Rs. 5,000: 3%
- Rs. 5,000-10,000: 0%
- Rs. 10,000-20,000: 13%
- Rs. 20,000-30,000: 22%
- Rs. 30,000-40,000: 58%
- Rs. 40,000-50,000: 3%
- > Rs. 50,000: 3%
Trip Characteristics

Number of Trips per Week

- 15-20 trips: 2%
- 20-25 trips: 2%
- 25-30 trips: 0%
- 1-5 trips: 23%
- 5-10 trips: 15%
- 10-15 trips: 58%
- 20-25 trips: 2%

Trip Purpose

- Work: 76%
- Shopping: 10%
- Recreation: 0%
- Health Care: 7%
- School: 7%

Trip Timing

- Morning: 83%
- Midday: 1%
- Afternoon: 21.50%
- Evening: 66.70%
- Late Night: 11.20%
Auto-rickshaw Impacts on Pedestrian Safety

Mumbai

- Car (0.003)
- MTW (0.004)
- Bus (0.001)
- Auto-rickshaw (0.002)

Bangalore

- Car (0.009)
- MTW (0.003)
- Bus (0.001)
- Auto-rickshaw (0.002)
Infrastructure

Bandra W

Bandra E
Driver Challenges

Key Issues Facing Auto-Rickshaw Drivers

- Police and Traffic Police charging fines: 35%
- Passengers: 14%
- Traffic: 4%
- Disagreements over fares: 4%
- Other: 11%

Union Perspective:
- Lack of driver education and healthcare
- Lack of permits
User Advantages

- Fast, saves time: 43%
- Faster than the bus: 29%
- Good when have luggage: 6%
- Safe: 5%
- Same price or cheaper than bus: 5%
- Comfortable: 4%
- Availability: 5%
- Provides access where bus doesn’t: 2%
- Other: 1%
User Challenges

Key Issues Facing Auto-Rickshaw Users

- Refusals: 38%
- Lack of Availability: 26%
- Overcharging/price disagreements: 11%
- Inaccurate meter: 4%
- Traffic: 3%
- Fare increases: 2%
- Drivers are rude: 11%
- Other: 2%

Consumer Group Perspective:

- Lack of availability, refusals
- Overcharging
- Rude behavior
- Condition of auto (lacking headlights and meter lights, torn seats)
- Minimum distance should be 1 km not 1.6 km
- Rent drivers pay is too high which affects overall fare
- Want lower fare
Government Challenges

- Stakeholders:
  - Traffic Police of Mumbai
  - Regional Transport Office (RTO)
  - Mumbai Transportation Support Unit (MTSU)

- Common Concerns:
  1. Highway safety
  2. Space availability: competition for space amongst different modes causing congestion and affecting accessibility
  3. Perverse incentives: minimum fare is too low and it encourages riders to use rickshaws instead of public transport
  4. Driver behavior is lacking and better training is needed
  5. Infrastructure
Entrepreneur Initiatives

- Smartphone applications
  - M-Indicator
  - Smart Mumbaikar
- Advertising: MeterDown
- Fleet Auto-rickshaw service: Rickshawale
Reforms and Future Work

- Fleet Services
- Infrastructure Improvements
- Permit and Fare Policy Reforms
- Occupant safety
- Technology
Thank you