1.253
Transportation Policy & Environmental Limits
Lecture 5
Pricing for Change:
Is Pricing a Policy Alternative or Political Suicide?
Regulating the Driver

- Fuel prices
- Transportation demand management measures, HOV lanes, restricted use, etc.
- Employer incentives and disincentives
- Land use reforms
Pricing

• What is the underlying rational for pricing as an alternative?

• Behavioral policy tool: (1) network sends congestion/pricing signals to users; (2) users may react as they choose.
Definitions
Congestion Pricing & Value Pricing

• A transportation control measure (TCM), that offers a “disincentive” to driving highly used roads by imposing a fee based upon time, vehicle occupancy, location or offers a premium “alternative” to congested roadways that enables the driver to reach their destination more quickly.
### Congestion Pricing Justifications

- Levy true cost of mobility on drivers.
- Divert drivers to reduce system demand and optimize system capacity (level of service).
- Reduce congestion costs on urban land and streetscape.
- Optimize other modes, e.g., transit, walking, bicycle.

### Levels of Service for Freeways

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Flow Conditions</th>
<th>Operating Speed (mph)</th>
<th>Technical Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td></td>
<td>70</td>
<td>Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. <strong>No delays</strong></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td></td>
<td>70</td>
<td>Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. <strong>No delays</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
<td></td>
<td>67</td>
<td>Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. <strong>Minimal delays</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
<td></td>
<td>62</td>
<td>Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. <strong>Minimal delays</strong></td>
</tr>
<tr>
<td><strong>E</strong></td>
<td></td>
<td>53</td>
<td>Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. <strong>Significant delays</strong></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td>&lt;53</td>
<td>Very congested traffic with traffic jams, especially in areas where vehicles have to merge. <strong>Considerable delays</strong></td>
</tr>
</tbody>
</table>
Congestion Pricing Justifications

**Environmental & Financial**

- Reduce emissions by incenting drivers to use mass transit.
- Reduce oil and fuel consumption.
- Savings of productive time lost in congestion.
- Optimal use of transit investment.
- Revenue generation.
Pricing Options

• **Facility Pricing** – pricing is imposed on one or more roadways (new & existing) that link residential areas to commercial areas or central business districts. Tolls are placed at entrance and exit points of facility.

• **Regional Network Pricing** – fees are imposed on a variety of road going different directions, includes more of the total trip than facility pricing. Tolls are installed on various road nodes.

• **Cordon Pricing** – charges vehicle for entry and use of high-activity or demand areas, e.g, central business districts, such as London. Fees are usually varied by time of day, such as peak congestion periods. Tolls encircle high-demand district.
Pricing and Implementation

• **Single facility pricing** – may be easier to implement. Politically most acceptable on new roadways.

• **Cordon Pricing** – relieves central business district or other high traffic area, may not relieve congestion on outer belts or major facilities.

• **Network pricing** – less acceptable because the ‘policy signal’ is no matter where you drive, you must pay. Implementation costly.
Pricing and the Tale of Three Cities
Trondheim, Singapore & San Diego

• Trondheim, Norway, 140,000 people cordon pricing scheme since 1991. 10% decrease in inbound cars/7% increase in bus travel.

• Singapore, 1975 limiting central business car access, reduced peak trip congestion from 56 to 23%.

• San Diego, incents drivers to buy their way onto HOV 3+ lanes, $50 per month premium saving average driver 10-20 minutes and reducing congestion emissions.
If congestion or value pricing is such a good idea, why isn’t it more widely used?
Congestion Pricing Challenges

- Question of equity – low to middle income workers with child care and fixed schedules.
- Question of access and business – access to downtown may be more costly driving people from city to suburbs for work and shopping.
- Question of revenue diversion – where are the revenues being directed, to transport or general welfare.
- Question of capacity – can transit or other modes accommodate the diverted demand.
- Question of implementation – is the technology and practice in place to fairly and effectively enforce pricing behavior.
- Question of traffic diversion – are the costs of congestion simply being diverted to other communities.
- Question of scope – does urban area size matter