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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 rationale 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 a premium “*alternative*” to congested roadways that enables the driver to reach their destination more quickly.

Congestion Pricing Justifications

LEVELS OF SERVICE

for Freeways

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

Transport & Mobility

- 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.

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

