

Congestion Pricing: Myths and Realities

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Resources for the Future

Smart Growth @10
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Congestion Pricing in Practice

- Singapore (70s), Norway(80s)
- London (February 2003)
- US: value pricing program
- HOT lanes: California, Texas, Minneapolis (2005), Denver (2006)
- Stockholm (Referendum – September 2006)
- London: expansion of pricing area Feb 2007

Obstacles to Congestion Pricing

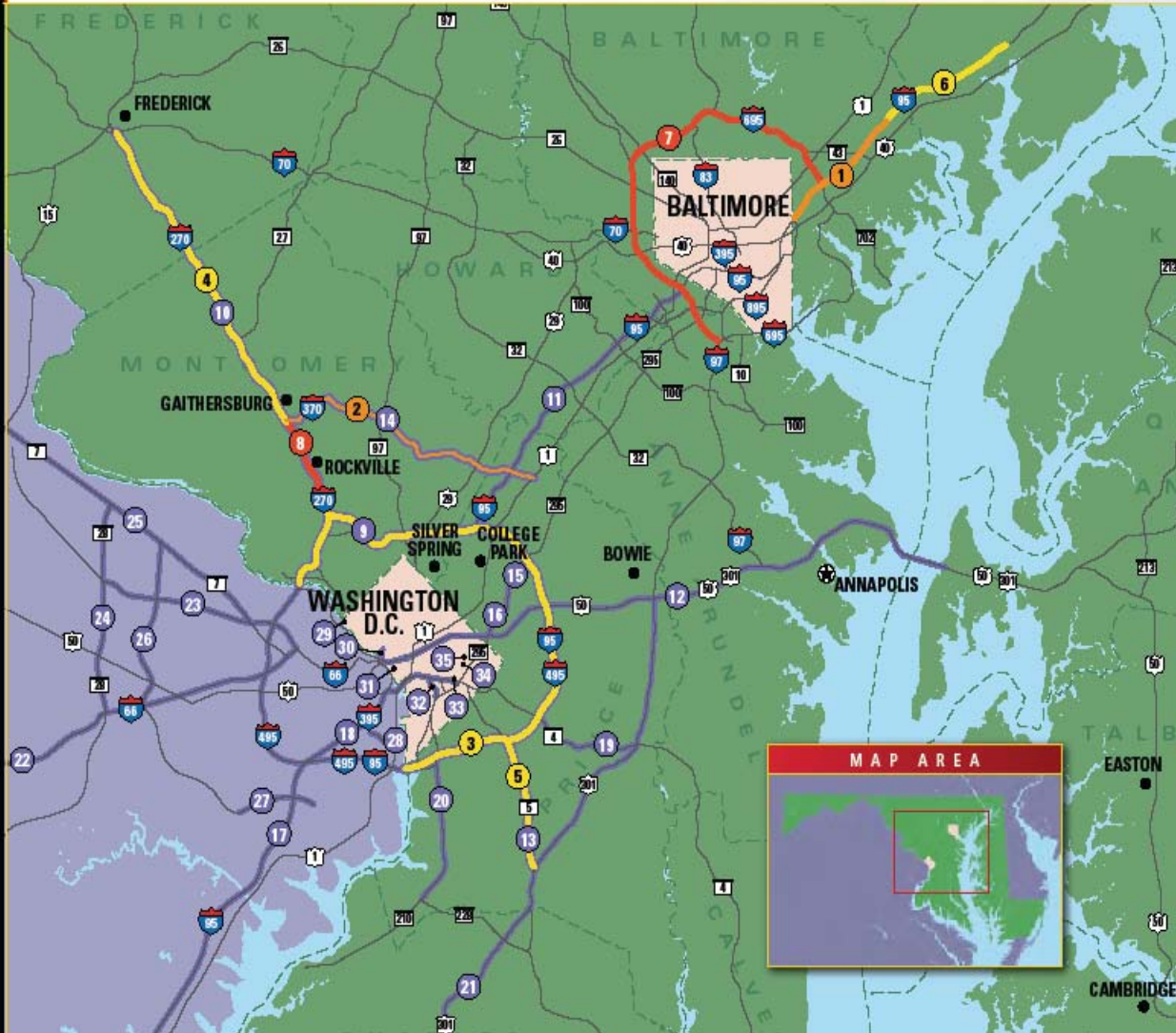
- Implementation Costs and Technical Challenges
- Distributional Concerns (Lexus Lane Issues)
- Uncertain long-term impact on the local economy and land use

Congestion Pricing and Smart Growth?

- Todd Litman (Victoria Transportation Institute)
 - CP and CP-like measures (e.g. pricing parking) should be in the arsenal of Smart Growth measures
- Wendell Cox (Demographia)
 - Instead of Smart Growth there should be congestion pricing

Statewide Express Toll Lanes Network

Spring 2007



LEGEND

Express Toll Lane Facilities/Corridors in Design and/or Construction

- 1 I-95 from I-895 to north of MD 43 - Estimated construction completion - 2011 (10 miles)
- 2 Intercounty Connector (ICC) from I-270/ I-370 to I-95/ US 1 (18 miles)

Express Toll Lane Facilities/Corridors in Project Planning

- 3 I-95/ I-495 (Capital Beltway) - Entire Maryland portion (42.2 miles)
- 4 I-270 from I-370 to I-70 (23 mile section)
- 5 MD 5 from I-495 to US 301 (9.4 miles)
- 6 I-95 from north of MD 43 to MD 543 (10 miles)

Express Toll Lane Facilities/Corridors Under Feasibility Study

- 7 I-895 from I-85N to I-97
- 8 I-270 from I-495 to I-270

Proposed Regional Variable Priced Lanes Scenario, 2030 for the TPB Regional Mobility and Accessibility Study

- 9 The entire Capital Beltway (I-495/I-95)
- 10 I-270 from I-70 to the Capital Beltway (I-495)
- 11 I-95 from the Capital Beltway (I-495) to the Baltimore Beltway (I-895)
- 12 US 50 from the Chesapeake Bay Bridge to I-395
- 13 MD 5 from I-495 to US 301
- 14 Intercounty Connector (Entire Length)
- 15 I-295 from Capital Beltway to Anacostia Freeway
- 16 Anacostia Freeway/Kenilworth Avenue from I-295 to Route 50
- 17 I-95 from Caroline/Spotsylvania County Line to Capital Beltway (I-495/I-95)
- 18 I-395 from the Capital Beltway (I-495/I-95) to I-295
- 19 MD 4 from US 301 to I-495
- 20 MD 210 from MD 228 to I-495
- 21 US 301 from the Nice Bridge to US 50 (Includes the proposed Waldorf Bypass)
- 22 I-66 from Warren/Fauquier County Line, over the Theodore Roosevelt Bridge, to Rock Creek Parkway to Independence Avenue, to Maine Avenue, SW to SE/SW Freeway
- 23 Dulles Toll Road (VA 267) from VA 28 to I-66
- 24 VA 28 from I-66 to VA 7
- 25 VA 7 from US Route 15 to the Dulles Toll Road
- 26 Fairfax County Parkway from I-66 to VA 7
- 27 Franconia-Springfield Parkway from Sydenstricker road to Frontier Drive
- 28 Braddock Road from Burke Lake Road to I-95
- 29 Chain Bridge
- 30 Key Bridge
- 31 Memorial Bridge
- 32 South Capitol Street Bridge (Frederick Douglass Bridge)
- 33 Pennsylvania Avenue Bridge (John Phillip Sousa Bridge)
- 34 East Capitol Street Bridge (Whitney Young Memorial Bridge)
- 35 Benning Road Bridge

Myth 1:

Costs of Urban Congestion are Astronomical

- In 2003, Americans were delayed about 3.7 billion hours and used 2.3 billion extra gallons of fuel (47 hours and 29 gallons per rush hour commuter) in stop-and-go traffic.
- In 2003, each traveler in Washington, DC metro area wasted 69 hours stuck in traffic.

Texas Transportation Institute's
"Urban Mobility Report", 2005

On Further Consideration...

- The astronomical figures come from comparing existing conditions with the ideal case when congestion on all roads is completely eliminated
- Economically desirable congestion level is much higher than zero, and congestion pricing under the best circumstances aims at achieving that level

Myth 2:

It Is Sufficient to Introduce Pricing in the Pockets of High Congestion

- Cordon tolls
- Pricing on an individual highway
- Bridge pricing

On Further Consideration...

- Urban transportation networks are good “conductors” of congestion
- Congestion proliferation effect can be quite significant
- The congestion proliferation effect should be taken into account when designing a localized road pricing strategy

Myth 3:

Revenue from Congestion Tolls Can Finance New Roads

- Impetus for many HOT lanes projects
- Intercounty Connector
- “HOT networks” by Reason Public Policy Institute

On Further Consideration...

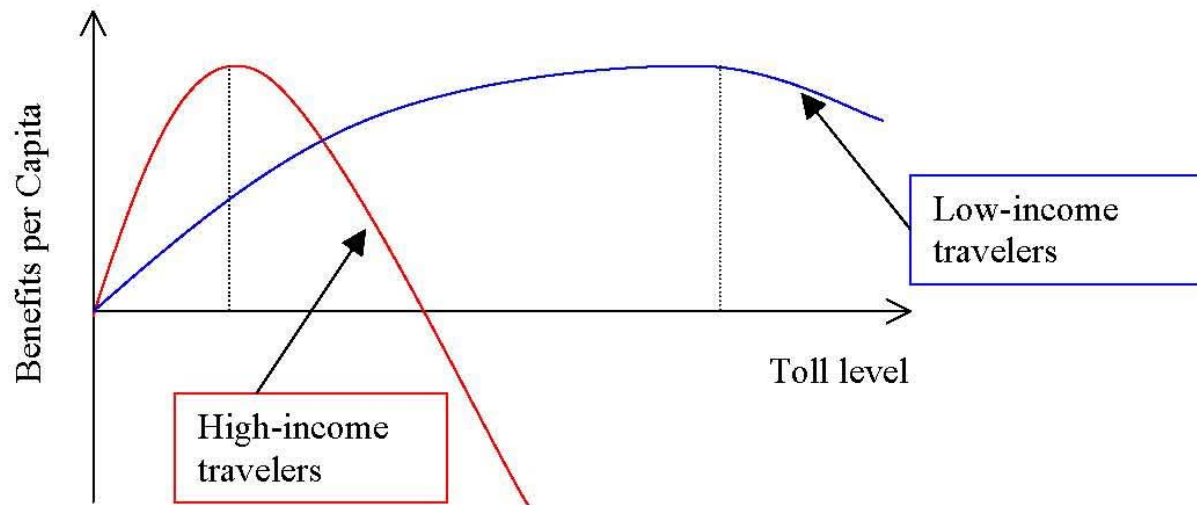
- Revenue may not be sufficient
 - Hypothetical cordon tolls in Washington, DC metro area: toll collection ranges between \$91 and \$111 million annually
 - Converting all HOV lanes into HOT lanes: toll collection ~\$65 million annually
- Spending revenue on new road construction could aggravate equity impact of pricing

Myth 4:

Low Income Travelers Prefer Low Toll Levels

- Lexus Lane argument: high-income travelers can afford tolls and low-income travelers can not
- Counter argument: many low income travelers have fixed schedules and may have higher incentives to be on time

On Further Consideration...



Myth 5:

Congestion Pricing Always Improves Efficiency

- In a highly abstract setting, when “correct” congestion tolls are imposed, efficiency is always improved

On Further Consideration...

- In real life, there are other complicating factors, such as taxes, agglomeration effects, etc.
- Under certain conditions, interactions between congestion and other factors may make congestion tolls strictly inefficient
- Parry & Bento: tax interaction effect between labor taxes and “correct” congestion tolls

Myth 6:

Congestion Pricing and Public Transit Expansion are Complementary

- Ken Small (2004) Simple Abstract
Theoretical Model with Economies of Scale
in Public Transit
- Happy “Virtuous Circle”
- Transit Expansion in London in 2003

On Further Consideration...

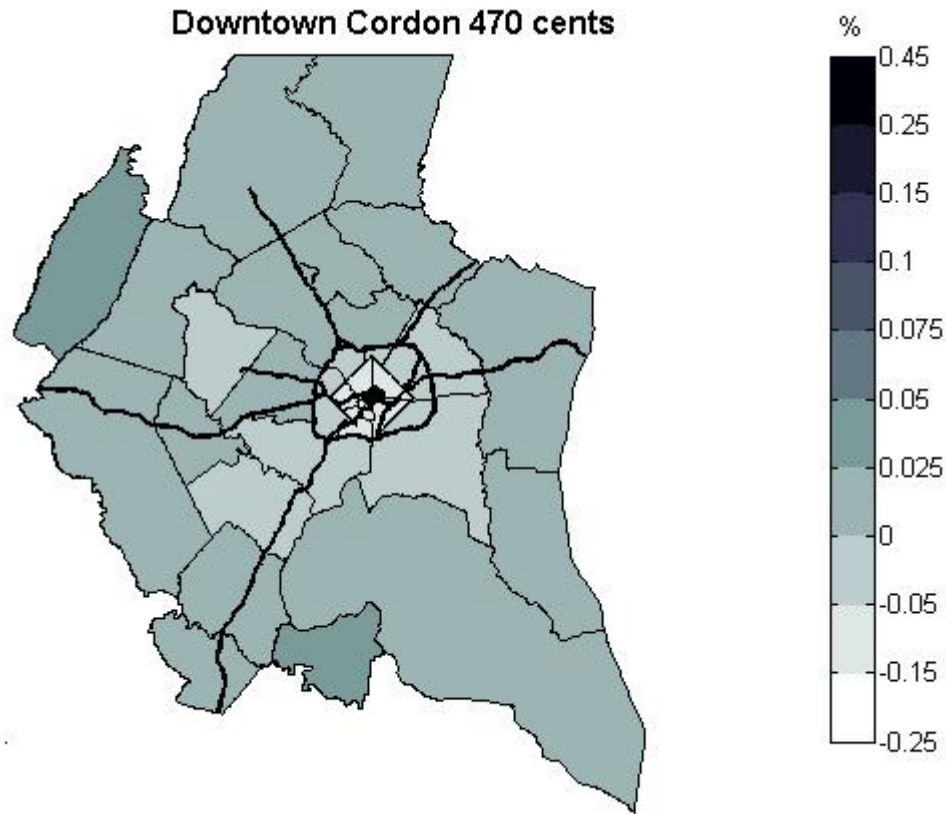
- In real life, there are other complicating factors, such as a variety of modes, time period choice, traveler heterogeneity and spatial distribution of demand
- RFF study: virtuous and vicious circles depending on degree of expansion
- Stockholm experience: transit expansion did not help

Myth 7:

Congestion Pricing Makes Cities More Compact

- Monocentric City Models: congestion tolls (both flat per mile tolls on radial transportation networks and cordon tolls) force residents move closer to the city center

Changes in Population (Residents), LUSTRE Relative to Baseline, Downtown Cordon (470 cents)



Myth 8:

HOT Lanes are a Form of Congestion Pricing

- Dominant for in the US
- Relatively politically acceptable

On Further Consideration...

- When converted from HOV lanes, major gains come from underutilized capacity
- Often used as a road financing tool
- Simulations exercises: SOV mode share increases at the expense of other modes

Myth 9:

Congestion Pricing is the Same as Road Pricing

- Congestion pricing
- Road pricing
- Value pricing

On Further Consideration...

- Congestion pricing is supposed to be a policy that increases efficiency
- Road pricing is a broad term that includes any priced transportation opportunity
- Value pricing is a “marketing term”

Myth 10:

Congestion Pricing is a Strictly Local Matter

- Traffic Congestion is a Local Phenomenon

On Further Consideration...

- Network effects can be substantial (Myth #2)
- Choices of neighboring jurisdictions/states should be taken into account
- Arguments of Global Regional Competitiveness
- National and International Experience (London, Stockholm, NY City)

Concluding Remarks

- Counterintuitive results are not just brain teasers, but a sign of a complicated phenomenon
- Congestion pricing is not a panacea and we should not expect miracles to happen. However, modest to moderate improvements in the quality of life can be achieved
- Cities should experiment with different pricing schemes to find those that are both efficient and politically palatable
- Although the incidence of congestion is localized, the problem is global and cities around the globe rely on each others' experience in both implementation and research