

PPP and Sustainability: Convergence?

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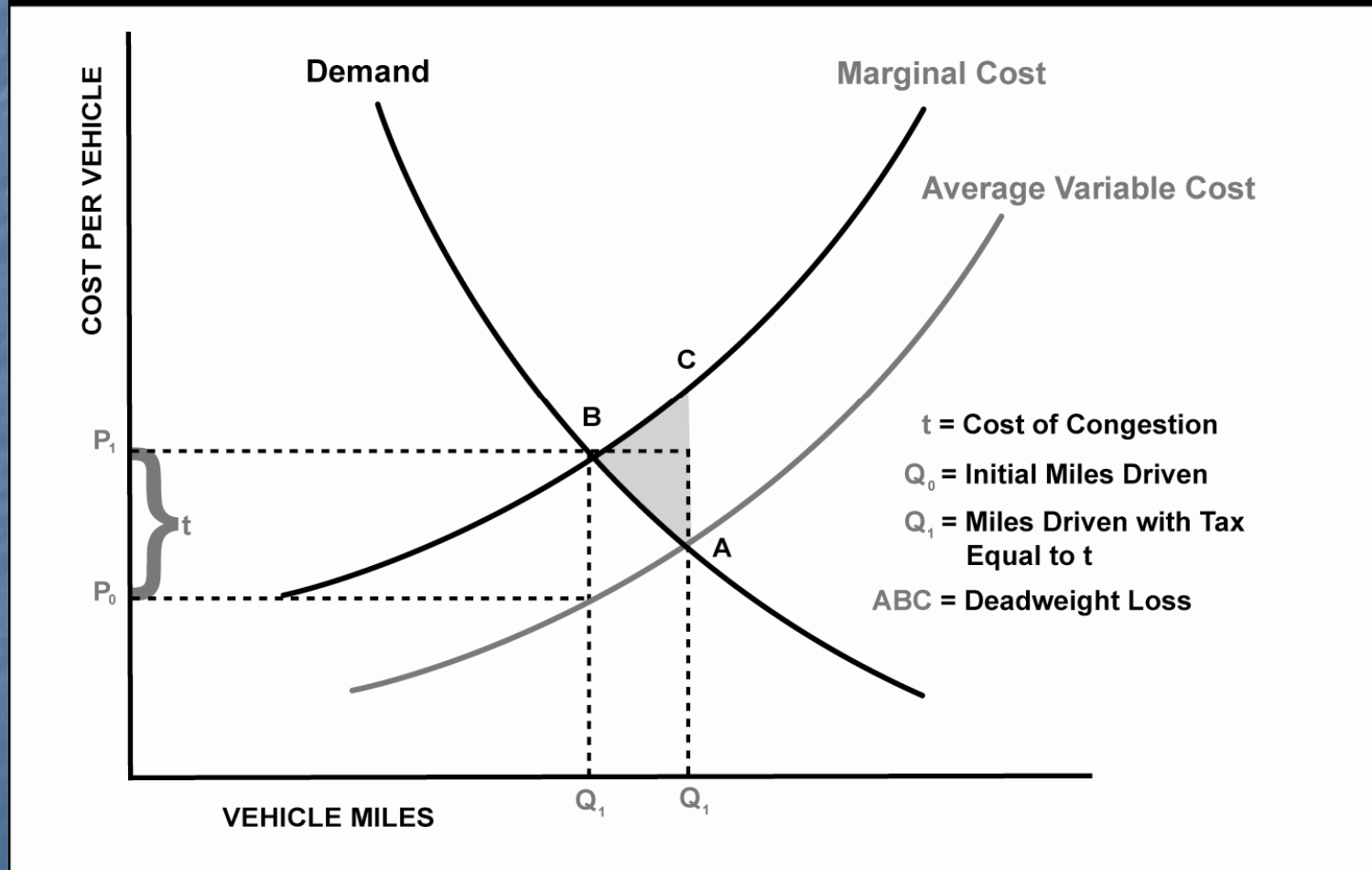
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Introduction

- Benefits of Public-Private Partnerships (PPP) usually seen as including *financial* efficiency
- Little discussed in wider concept of efficiency – *economic* efficiency
- Economic inefficiency includes unpriced congestion and environmental costs
- Particularly in dense areas unpriced costs of transportation are significant
- Can PPP be a mechanism to reduce this inefficiency?

Transportation, Externalities and Efficiency

Unpriced Congestion and Deadweight Loss in Transportation



Estimates of US Congestion and Pollution Costs

- *Texas Transportation Institute Mobility Report*: In 2005 cost of congestion over \$78 billion for time and fuel
- In large metropolitan areas costs per traveler over \$1,000 a year – 54 hours and 38 gallons of fuel
- Health costs of emissions also significant but very location specific: PANYNJ estimates over 2 cents per mile for cancer-related costs only in New York City CBD
- Small and Kazimi: 2000 per-mile health costs for LA of 1.6 cents (cars), 4.6 cents (light trucks) and 35 cents (heavy trucks)

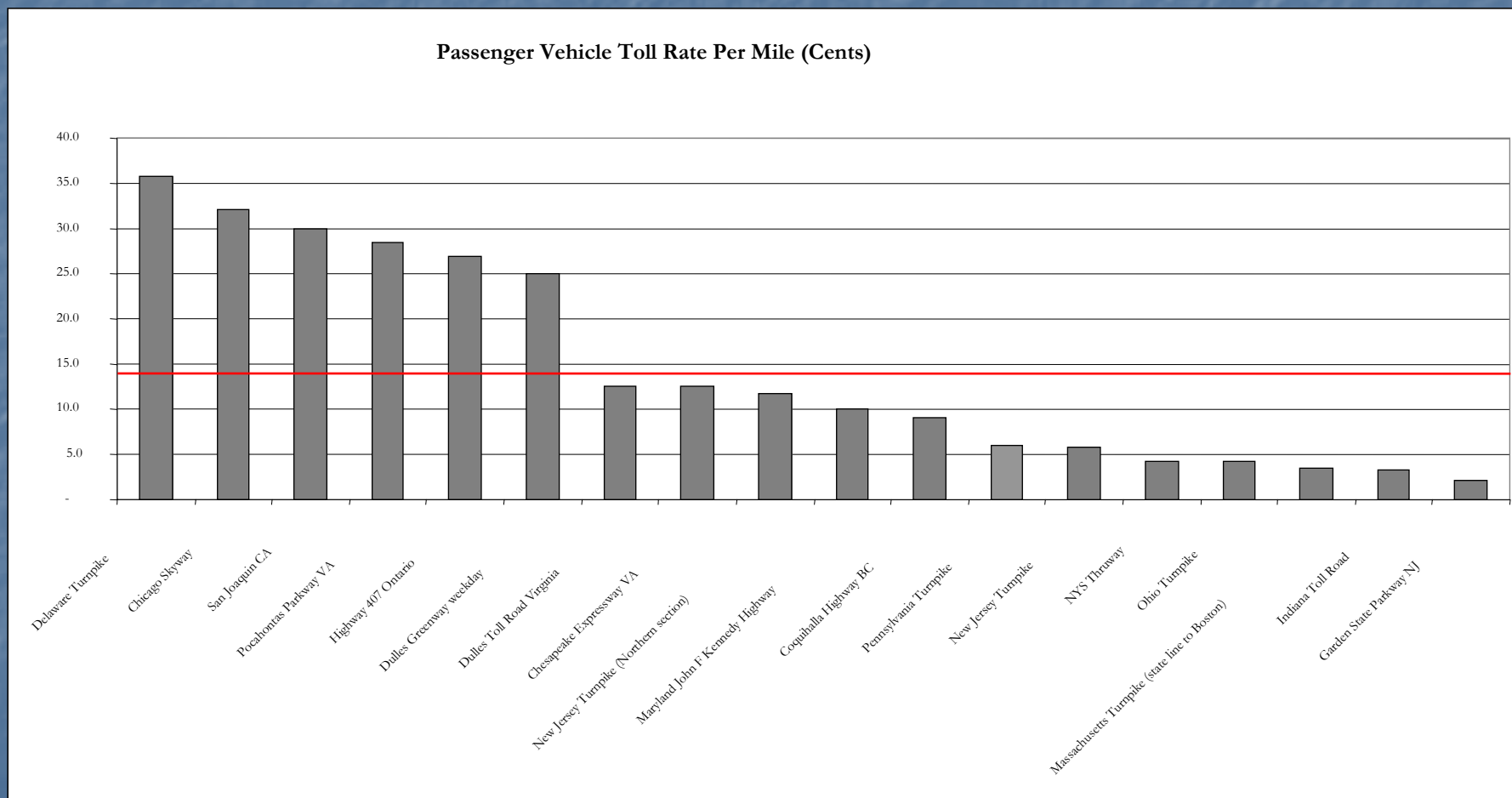
Estimates of US Congestion and Pollution Costs

- Not all costs are inefficient in economic sense – only those that are unpriced (or external)
- Resources for the Future: External congestion costs in US 3.5 – 6.5 cents per mile, pollution/climate change 2.3 and accidents 2.6
- Vilain et al. estimate for Pennsylvania of deadweight loss of emissions-related health costs of \$70 million (total costs of \$1.8 billion)

Policy Response

- Few public bodies/agencies pushing to internalize external costs – but changing?
- The more independence from electoral pressure, the easier to promote (PANYNJ, Bloomberg administration)
- So far proposals mostly about congestion relief, with emissions reductions added benefit (ie, PlaNYC)

Existing Toll Rates in North America



Existing Road Pricing

Congestion charging is an attempt to address external costs – and existing programs show significant impacts

- Singapore Area Licensing Scheme (ALS)
- State Road 91 Express Lanes
- London Congestion Charge (vehicles in the charging zone reduced by 12% (cars 34%))

Existing Road Pricing

PANYNJ: CP instituted at the six New Jersey to New York crossings

- For Eastbound E-ZPass autos, \$4 toll in off-peak compared to \$5 in peak (\$6 for cash users)
- PANYNJ CP program affects crossings that carry roughly 300,000 users daily
- Wolff and Vilain estimate 8.7% reduction in morning peak traffic, 2.5% reduction in evening peak traffic

Problem: Beneficiaries mostly atomized – organized lobby in favor smaller in clout than lobby opposed

PPP as a Partial Solution?

- PPP for roads has involved long-term leases of greenfields and mature facilities
- Concession agreements have allowed tolls to be set at rates that attract private investors, above typical existing rates
- Indiana Toll Roads: no toll increase since 1985 until this year, one year into PPP concession

PPP as a Partial Solution?

PPP role in sustainability still more theoretical than actual but potential harmonizing of interests

- User (not too) inelastic response
 - Toll increases increase revenue
 - Congestion and emissions improve

| Crossing Facility | Morning Peak Toll Coefficient | Evening Peak Toll Coefficient | Off-Peak Toll Coefficient |
|--------------------------|-------------------------------|-------------------------------|---------------------------|
| Bayonne Bridge | 0.37 ^{***} | -0.25 ^{***} | 0.07 ^{***} |
| Goethals Bridge | 0.22 ^{***} | -0.48 ^{***} | 0.12 ^{***} |
| Holland Tunnel | -0.11 | 0.23 ^{***} | 0.01 |
| Lincoln Tunnel | -0.34 ^{**} | -0.27 ^{***} | 0.11 ^{**} |
| Outerbridge Crossing | -0.07 | -0.18 ^{***} | 0.04 |
| George Washington Bridge | -0.40 ^{***} | -0.06 ^{***} | 0.10 ^{***} |

PPP as a Partial Solution?

- Concessions more insulated from political process (once implemented)
- PPP concessions have introduced various technological improvements that have increased efficiency while charging tolls – narrowing the externality
- PPP involve up-front payments that can be used to fund alternative modes, reduce other taxes, and increase public support

PPP as a Partial Solution?

Challenges and Issues:

- New capacity versus pricing
- Equity concerns
- Perceptions of profiteering
- Developing mechanisms to fund road alternative through PPPs

Conclusions

- PPPs offer a potential for congestion and emissions cost relief
- Private sector may be more effective agent to promote a limited environmental objective: PPPs usually involve real tolls
- Most effective when real tolling structure on dense urban highways
- Pricing agreements will need to evolve to include funding for non-road transportation – but risk should not be borne by private sector