URBAN VEHICLE RESTRICTIONS: PROSPECTS FOR CONGESTION PRICING IN LATIN AMERICA

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Presentation Outline

1. Introduction

2. TDM and the Role of Congestion Pricing

3. Case Studies in Traffic Restriction
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Introduction

• Many have recognised the need to promote travel demand management (TDM) strategies
  ◦ Decentralisation of activities away from centres
  ◦ Negative impacts of car use on urban areas
  ◦ Environmental concern among local residents

• Some authorities and planners embrace TDM
  ◦ Viable link for strengthening regional transport
  ◦ Low-cost solutions for curbing car use
  ◦ Tool for managing congestion, emissions
• In a number of cities, efforts have focused on introducing strategies that
  ◦ Provide alternatives to the car (e.g., bicycle, bus)
  ◦ Aggressively discourage use of the car

• This paper explores demand management efforts in Latin America
  ◦ Traditional traffic restraint measures (e.g., area-wide, corridor programs)
  ◦ Proposals to implement congestion pricing schemes in the region.
• It reviews congestion pricing in the case cities, identifying potential benefits
  ◦ Better management of traffic congestion
  ◦ Generation of new revenues for transport
  ◦ Emphasis on effecting mode shift (from cars)
TDM and Congestion Pricing

• In general, TDM promotes the effective, efficient and equitable use of resources

• TDM strategies have historically sought to
  ◦ Produce modifications in travel behaviour
  ◦ Improve access to multiple travel modes

• TDM has also focused on discouraging car use
  ◦ Restrictions/fees on private vehicle use
  ◦ Complemented by better public transport
• In the past, many transport policies in LA linked to supply-side measures
  ◦ Costly investments in road infrastructure and limited alternative mode enhancements

• TDM measures re-focus priorities
  ◦ Improvements in transport organisation
  ◦ Promotion of alternative modes (pt, bicycle)
  ◦ Better information and awareness campaigns
  ◦ Transport that complements the local system
  ◦ Efforts to curb car use: restrictions and pricing
• Congestion pricing derives from economic theory of efficiency and externalities
  ◦ People make socially efficient decisions if they consider social costs and benefits
  ◦ Optimal congestion tax = marginal external cost where marg. social cost = marg. social benefit

• Various types of congestion pricing have been implemented, including
  ◦ Area schemes: core city, metro. area, perimeter
  ◦ Facility schemes: bridges, toll roads
Congestion Pricing: Economic Theory

Congestion charging employs marginal cost pricing
Principal objectives of congestion pricing:

- Produce a shift in routes and modes
- Reduce travel times
- Generate revenues for admin., other modes
- Mitigate environmental impacts
- Improve quality of life

Congestion pricing is controversial...

- Widely opposed by auto industry, public
- Requires start-up capital, parallel services
- Congestion prices must be appropriately set
• Some cities have alleviated congestion by prohibiting vehicle use on a given day
  ◦ Bogotá, Santiago, La Paz, São Paulo, Mexico City
  ◦ Prohibit car use based on license plate number
  ◦ Dependent upon on-going enforcement
  ◦ Over time, programs have become less effective with rising motorisation

• While congestion pricing may provide options, to date, no programme has been implemented
  ◦ What are the overriding reasons?
Case Studies in Traffic Restriction

• Case cities
  ◦ Greater São Paulo (Brazil)
  ◦ Greater Santiago (Chile)

• Profile of each case city
  ◦ Urban transport network
  ◦ Past attempts to restrict traffic
  ◦ Recent congestion pricing proposals
Greater São Paulo
Public Transport in São Paulo
• Urban Characteristics
  ◦ *State capital, major commercial center*
  ◦ *Population: 19 million*
  ◦ *Daily trips per capita: 1.91*
  ◦ *Public transport is most common mode*
    - about 33% of all urban trips
    - consists of bus (75%) and rail (25%)
  ◦ *Car use is growing rapidly*
    - private transport now 32% of all trips
    - about 230 cars per 1,000 people
• “Rodizio” Programme
  ◦ Restrictions implemented in response to rising congestion and poor air quality
  ◦ Prohibited 20% of cars from circulating
  ◦ Managed by State, but opposed by central city agencies influenced by the auto industry
  ◦ Initially successful – compliance, changes in traveller behaviour, 20% drop in CO₂
  ◦ Programme terminated in mid-1990s and less stringent programme adopted by city
  ◦ High motorisation has inhibited effectiveness
• Opportunities favouring congestion pricing
  ° Since 2000, ineffectiveness of Rodizio has prompted need for other alternatives
  ° São Paulo authorities established task force to evaluate a set of pricing proposals
    - included local planners and other experts
  ° One concept proposed was a three-ring pricing scheme focused on central São Paulo
    - motorists not charged to travel in depressed inner ring
    - charged in one or more outer rings
• Many issues have not been resolved
  ◦ Method of payment used
  ◦ Types of vehicles that should be exempt
  ◦ Method of enforcement in outer rings

• Still, some support for congestion pricing
  ◦ Federal urban mobility law (Jan. 2012)
    - contains legal basis for creating road charging schemes in any major city
    - gap between written law and reality
  ◦ Secretary of the Environment favours pricing
Greater Santiago
Public Transport in Santiago
• Urban Characteristics
  ◦ National capital, commercial center
  ◦ Population: 6 million
  ◦ Trips per capita: 2.95
  ◦ Public transport is most common mode
    - over 36% of all urban trips
    - bus (58%), rail (35%), and shared taxi (7%)
  ◦ Car use rapidly growing
    - private transport almost 30% of all trips
    - about 165 cars per 1,000 people
• “Restricción Vehicular “
  ◦ One of the first programmes in Latin America
  ◦ Implemented in response to failing air quality
  ◦ Licence-based programme prohibited 20% of vehicles from circulating
  ◦ On heavy days, 40% of vehicles prohibited
  ◦ Results were mixed -- some initial congestion relief, but a gradual worsening of conditions
  ◦ Many middle/high-income residents bought new vehicle(s) → worsened congestion, air quality
  ◦ Authorities seek alternatives for improvement
Opportunities favouring congestion pricing

- Sectra’s Development Plan (1995) proposed system improvements thru limited car use
- Plan was multi-modal, coordinating both public transport and roadway enhancements
  - construction, operation of a comprehensive network of roadways
  - improved connectivity throughout the area (e.g., public transport hubs)
  - many facilities financed through electronic tolls, providing congestion pricing tools
• Development Plan: market-oriented mechanisms for electronically charging
  ° Vehicles, except buses and other essential fleets would pay variable charge of $US 0.12-4.00/km.
  ° Could charge based on time, level of congestion
  ° Could charge for parking, based on trip purpose and duration of stay

• Despite gains, barriers to adoption remain
  ° Supporting legislation still stalled in Congress
  ° Hesitation to educate public on merits of cp
Conclusions

• Latin America has seen significant growth in motorisation, resulting in negative impacts
  ◦ Traffic congestion, road fatalities and pollution
  ◦ Especially evident in major cities
  ◦ Need to seek low-cost, demand strategies

• Many TDM measures are incentive-based, but congestion pricing discourages car use
  ◦ Works best in coordination with supporting measures (e.g., public transport enhancements)
While some cities in LA have studied congestion pricing, not one has adopted it.

- **Growing interest, but a lack of political will**
  - political pressures from car industry
  - absence of efforts to develop public support

- **In addition, issues need to be resolved, such as**
  - geographic areas and trip types targeted
    - method of electronic pricing
    - strategy for gaining public acceptance
    - strategy for applying revenues to projects
    - reliability of existing registration data
• Even if congestion pricing is viable, some form of support is essential.
  ◦ *Strong political backing essential*
    - unwavering support from a political champion
    - long-term political commitment
  ◦ *Without it, congestion pricing will face formidable opposition and likely defeat*

• Prog. adoption does not guarantee success
  ◦ *Planners need to seek public input on issues*
  ◦ *Important to analyse impacts of pricing on transport system – estimate costs, benefits*
• However, there are signs of a gradual shift
  ◦ A few politicians have come out in support
  ◦ In-depth studies have been commissioned

• Both case cities have attracted widespread interest in congestion pricing
  ◦ As middle-income cities they are positioned to introduce a programme
  ◦ Each has created a regional network of roads for testing strategies, as well as parallel services
• Pricing schemes require full commitment
  ◦ Easier to secure commitment when pricing is part of a larger transport plan process
  ◦ Stand alone programmes discourage driving, but are not supported by related measures

• Congestion pricing should be carefully planned and carried out in phases
  ◦ Staged programmes can reduce risk of failure
  ◦ Public and businesses must be kept informed of progress and reminded of benefits
Thank You!

Sao Paulo

Santiago