

URBAN TRANSPORTATION SYSTEM IN CHINA: SOME OBSERVATIONS AND SUGGESTIONS

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Overview

- **Issues & Options**
- **A Planning Model**
- **Policy Impact Assessment**
- **Conclusions**

Paradox



- Demand, income, auto ownership, national economy
- Land, infrastructure, resource

Source: China Today, June 19, 2009

Planning, Management, Policies

- Land ownership
- Development: denser, mixed
- ITS
- Traffic regulations

Control- supply

Implementation difficulty

Inefficiency

Service Provision & Finance

- Improve & Expand Infrastructure
- Allow Private Transit Services

Supply-based approach

- Under-priced auto usage

Disconnect

Overuse

Expand urban space

Hinder the effectiveness of other modes

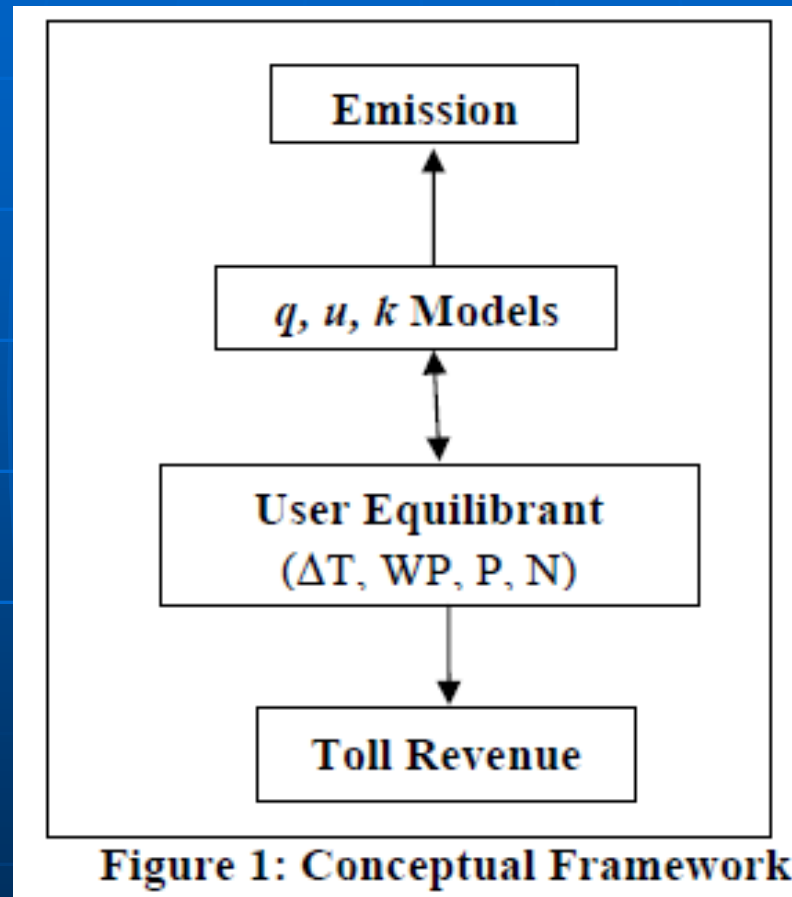
Financial burden

Sustainable Transportation

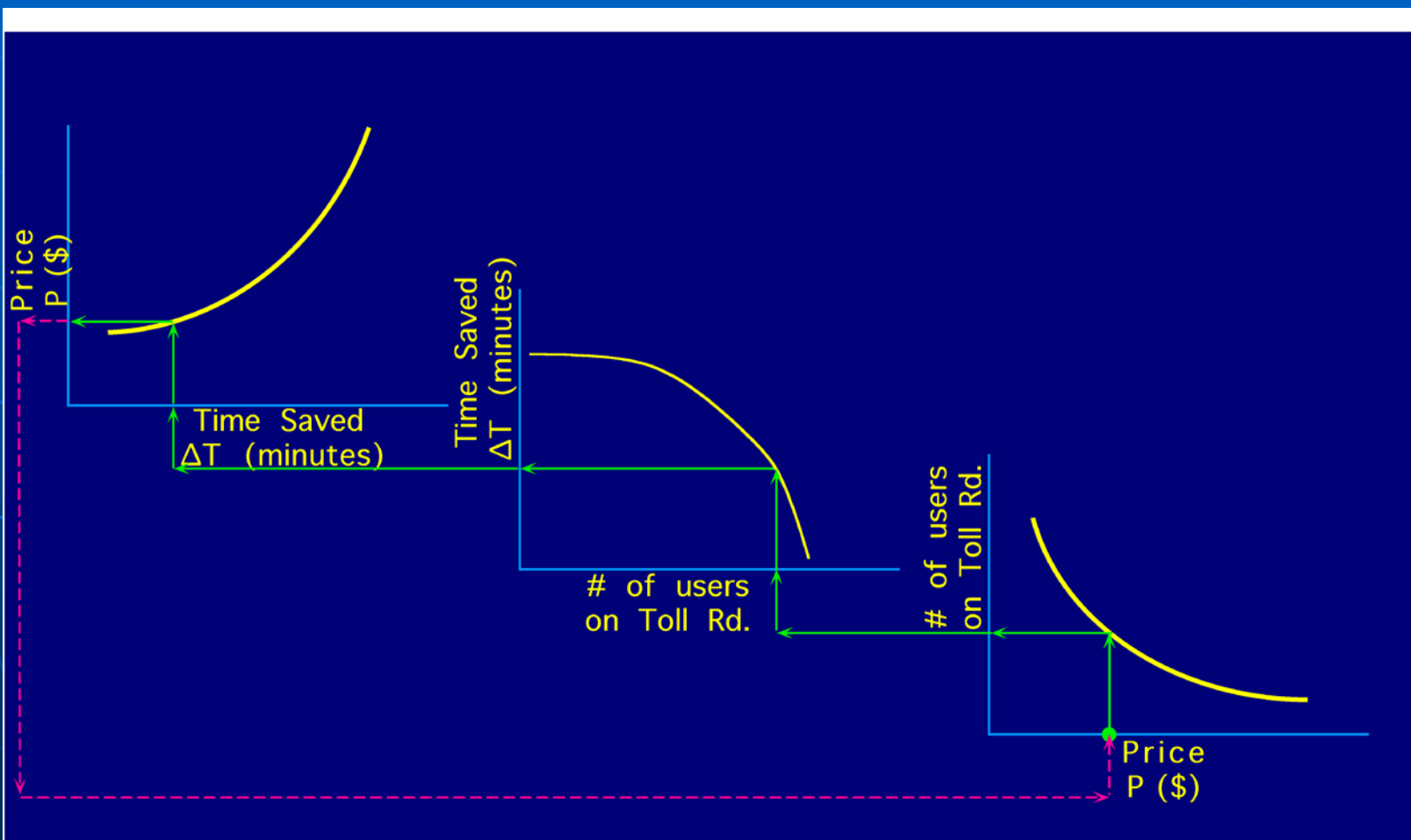
- Strength demand management
 - Congestion pricing in cities
 - Parking management
 - Development management

Tools for policy impact
assessment

TOLL EVALUATION MODEL



User Equilibrium



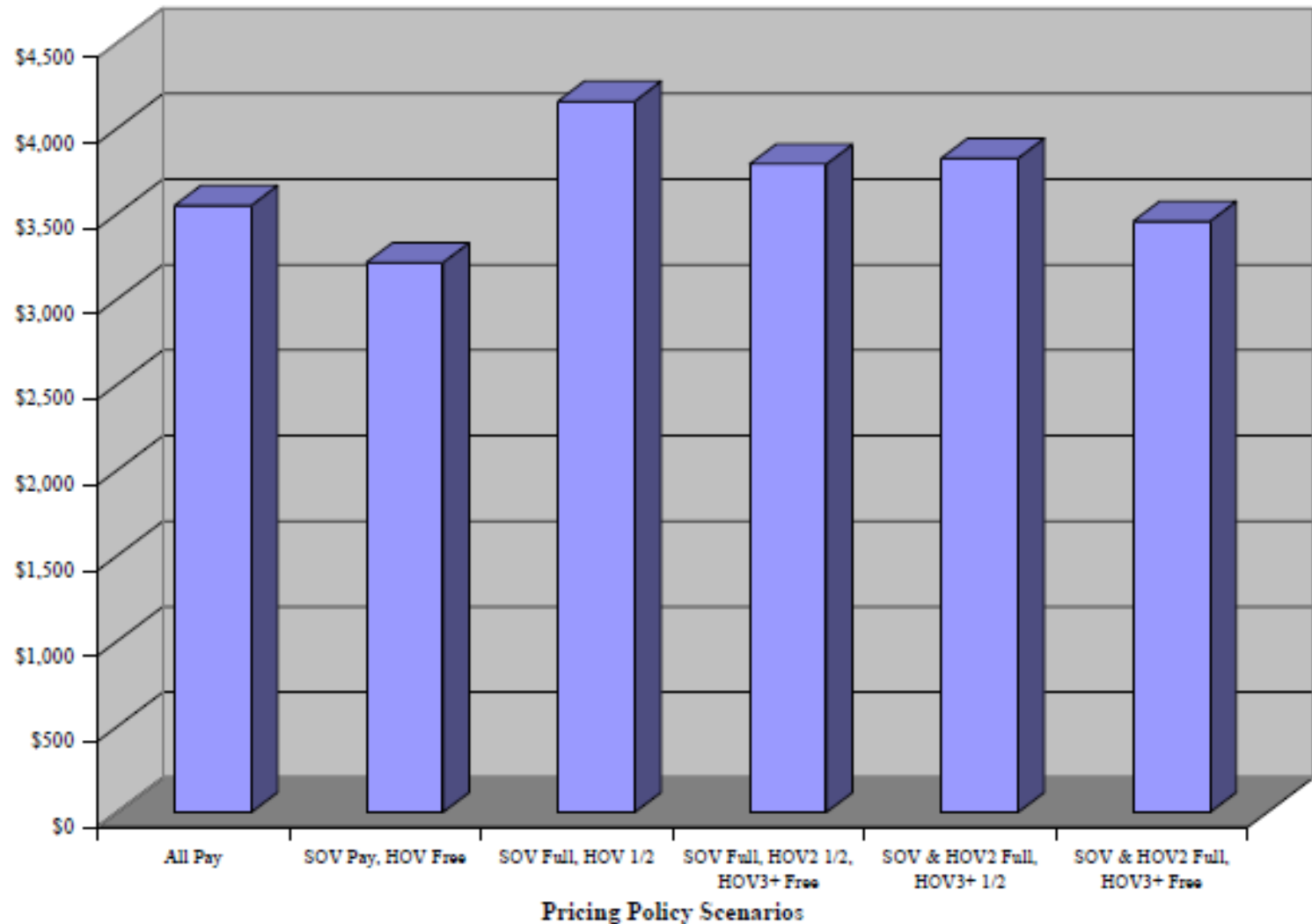
Application

- Impacts of policies
 - Impact of pricing levels
 - Preferential treatments
- Optimal solutions
- Transferable

Impacts of Toll Level

- Price level at and below \$0.25/m won't have significant effects on system performance and air quality
- Price level at \$0.25/m and above would generate significantly higher toll revenues
- Price at \$0.40/m would generate the most toll revenue

Figure 11. Pricing Preferential Treatment Impacts on Corridor Revenue (\$/Peak Hr)



Optimal Solutions

Table 2. Pricing Options for Maintaining A Service Level on Managed Lanes

Policy Scenario	Toll Amount (\$/mile)			Peak Hour Volume (vph)		Peak Hour Avg Speed (mph)		Peak Hour Emissions (Kilograms/mile)				
	SOV	HOV2	HOV3+	ML	GL	ML	GL	CO	VOC	NOx	CO ₂	SO ₂
1	\$0.37	SOV	SOV	3258	7742	60	47	49.24	0.94	4.94	2124.	0.083
2	\$0.45	Free	Free	3231	7769	60	47	49.23	0.94	4.94	2124.	0.083
3	\$0.38	0.5xSOV	0.5xSOV	3251	7749	60	47	49.23	0.94	4.94	2124.	0.083
4	\$0.40	0.5xSOV	Free	3233	7767	60	47	49.24	0.94	4.94	2124.	0.083
5	\$0.37	SOV	0.5xSOV	3247	7753	60	47	49.23	0.94	4.94	2124.	0.083
6	\$0.39	SOV	Free	3233	7767	60	47	49.23	0.94	4.94	2124.	0.083

Conclusion

- Need demand management solutions for sustainable transportation
 - Congestion pricing in cities
 - Parking management
 - Transit improvement
 - Other changes: planning, political
- Planning tools
- Objective tradeoffs
- Future research

Thank You!