

Transportation Finance in Developing Cities: A View of the Mexican Mega-City

Christopher Zegras
Massachusetts Institute of Technology/
Institute for Transportation & Development Policy

Urban Road and Public Transit: Who Must Pay?
Symposium as part of XVIIth *Entretiens Jacques Cartier*
7 October, 2004

Outline

- Transportation Finance: The Ideal v/s the Real
- Mexico: Institutional and Planning Context
- The Setting: the Mexico City Metropolitan Area
- The MCMA Transport Finance System: How well is it working?
- The MCMA Transport Finance System: How can it be moved towards the ideal?

Transportation Finance: Ideal World

Mechanism	Purpose
Fuel Price	Resource costs & environmental costs of carbon dioxide emissions
Highly differentiated tolls	Road maintenance and congestion costs
Emission fees	Local environmental problems

3
© P. Christopher Zegras

Transportation Finance: Real World

- Few accurate, direct user charges exist
- A variety of indirect mechanisms (fuel taxes, vehicle license fees, etc.)
- Fuel taxes often used for general revenues and income redistribution
- Multiple infrastructure supplying “agents” – maintenance v/s construction; local v/s regional v/s national
- Formally, budgeting processes unclear, users rarely recognize fees as “prices”, governments scramble for revenues from any available sources.

4
© P. Christopher Zegras

Mexico: Institutional & Planning Context

- Federal System: Three Levels of Government
 - Federal - *Estados Unidos de México*
 - 31 States + Federal District (*Distrito Federal* or DF)
 - Municipalities (*municipios*, *delegaciones* in DF)
- Historically, strong central government control
 - nearly 70 years of *PRI*
 - Including over transportation decision-making & relevant public finances
- More recently, increasing decentralization and political competition
 - a break in single party dominance
 - some degree of financial and administrative decentralization
- The “Fiscal Federalism”

5
© P. Christopher Zegras

Transport Relevant Finances: Federal

Revenues: Fuel Taxes

- Excise Tax (IEPS): ranges 130% (diesel) to 180% (gasoline) of refinery price
 - Automatic adjustment to minimize sales price variation
- VAT: 15% (except in border areas)
- Overall: taxes comprise 50-65% of pump price
- Gasoline and Diesel IEPS account for **US\$ 10 billion** (2004), about 9% of Federal revenues

Expenditures

- Federal Secretary of Communications & Transport (2004)
 - US\$ 2.064 billion; US \$1.4 billion for infrastructure

6
© P. Christopher Zegras

Relevant Finances: Federal Inter-city Road System

- 1950s-1960s: public toll roads
- 1970s (oil boom): tax-financing
- 1980s (financial crises): toll road rebirth
 - Explicit government-private sector partnerships
- Early 1990s: full blown private concession program
 - 50 concessions, 5,000 kms within 4 years
 - Currency crisis, program design problems produce government bailout
- Today: moderated, approximately 11% of national road investments (in 2002)

7
© P. Christopher Zegras

Relevant Revenues: Sub-National

State-Level

- New Vehicle Sales Taxes (*ISAN*): US\$ 445 million (2004)
- Vehicle Ownership *or* Use Tax (*impuesto sobre tenencia o uso de vehiculos*): US\$ 1.2 billion (2004)
- In theory, these should be local
- Actually collected by Federal Government
 - “Ownership” of these taxes unclear: returned based on origination
 - Different states treat them differently (in name) in budget

Municipal

- Property tax (ad valorem), real estate purchase tax, valorization tax, special improvement levies
- Nation-wide, property tax accounts for Municipal 74% own-source revenue (13% of total)

8
© P. Christopher Zegras

The Setting: the Mexico City Metropolitan Area (MCMA)



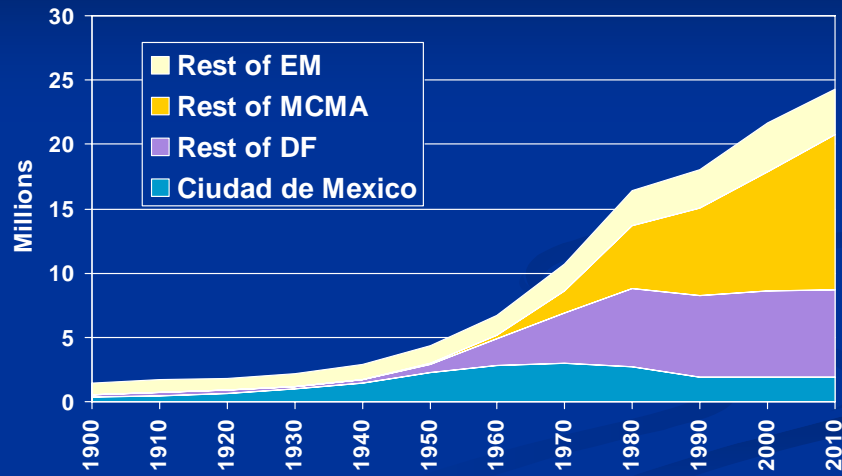
9
© P. Christopher Zegras

MCMA: The Megapolis

- Population
 - From 3 million in 1950 to >18 million in 2000
- Urban Area
 - From 118 km² in 1940 to 1,500 km² 1995
- Jurisdictions in the MCMA
 - Distrito Federal (DF): 16 *delegaciones*
 - State of Mexico (EM): 38 urbanized *municipios*
- The “Megalopolis” and the Región Centro
 - “Crown of cities” – Puebla, Tlaxcala, Cuernavaca, Cuautla, Pachuca, Toluca (75-150 kms from city center)
 - States of Hidalgo, Morelos, Puebla, Querétaro, Tlaxcala

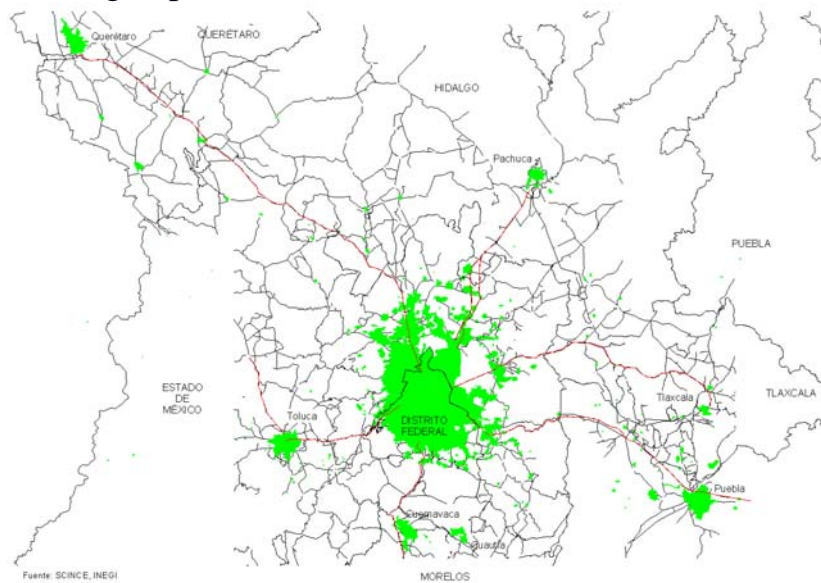
10
© P. Christopher Zegras

Population Dynamic

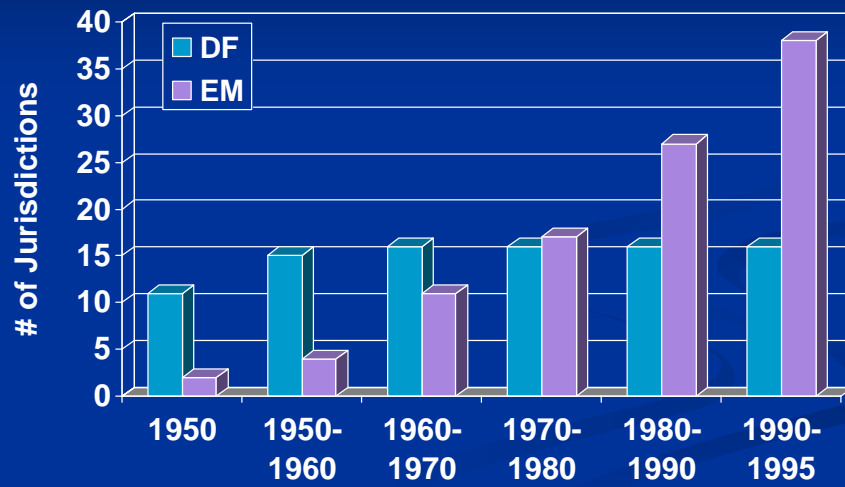


11
© P. Christopher Zegras

The “Megalopolis”

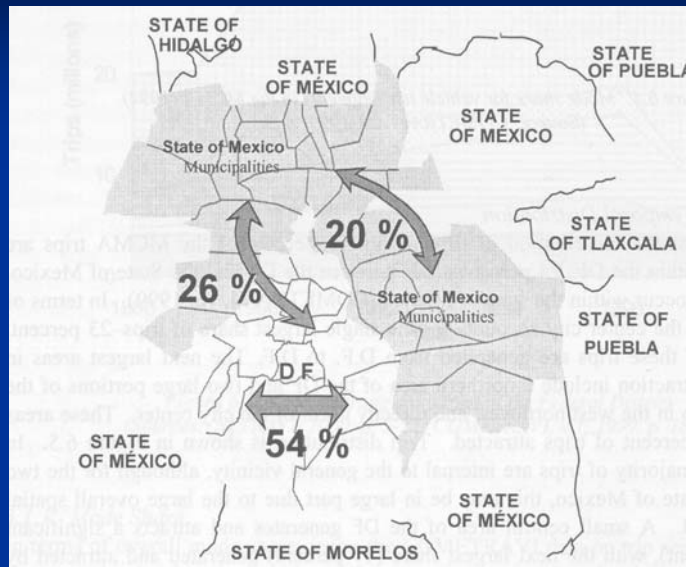


Jurisdictional “Expansion”



13
© P. Christopher Zegras

MCMA Macro Travel Patterns



14
© P. Christopher Zegras

Transport's “Institutional Stew” in the MCMA

	Entity	Area of Intervention
Federal	SCT	Transportation
	Banobras	Public Works Financing
	SEMARNAT	Environment
	SEDESOL	Land Use and Infrastructure
DF	SETRAVI	Transportation Regulation and Planning
	SOS	Infrastructure
	SSP	Traffic Control
	SEDUVI	Land Use/Housing
	SMA	Environment
EM	SC	Transport Infrastructure
	ST	Transportation
	SE	Environment
	SEDEMET	Metropolitan Development
	SEDUOP	Land Use and Public Works
Metro-politan	COMETRAVI	Transportation
	COMETAH	Land Use
	CAM	Environment

15
© P. Christopher Zegras

Relevant State Finances: MCMA

State	Road User Payments US\$ mns			Expenditure Range - US\$ mns (% of state expenditures)
	<i>ISAN & Tenencia</i>	IEPS	Total	
DF	520	510	1,030	720-810 (11%-12%)
EM	260	280	540	90-400 (1.5%-6.5%)

- DF expenditures include estimated net costs of Metro (US\$310 million), light rail/trolley (US\$51 million), bus (US\$26 million)

16
© P. Christopher Zegras

How well is the System Functioning?

Still strongly centralized finance system

- IEPS fuel excise much more than a road user fee
 - Not explicitly returned to States as such
 - Clearly serving some (probably defensible) implicit redistribution goals (US\$10 billion annually) via *participaciones/aportaciones*
 - Buoyant (due to ongoing motorization), perhaps somewhat hidden to consumer: recipe for government “addiction”
- Macroeconomic stabilization goals
 - Relatively strict rules regarding sub-national debt

17
© P. Christopher Zegras

How well is the System Functioning?

Allocation and Efficiency

- In the MCMA, allocation of responsibilities marginally (at best) reflects the principles of externalities so common to infrastructure networks
- Virtually no “carrots” nor “sticks” to encourage cooperation and coordination
 - Among DF and EM: Metro, *Segundos Pisos*
 - Within the DF, earmarked transportation expenditures to *Delegaciones*
 - In EM, little cooperation among Municipalities, nor even between Municipalities and EM

18
© P. Christopher Zegras

How well is the System Functioning?

Allocation and Efficiency (continued)

- Some room for satisfying Tiebout-type sorting
 - Municipalities have extremely limited revenue-raising possibilities: property tax, principle source, suffers from outdated assessments, non-compliance, unclear tenure
 - Local politics-driven “ribbon-cutting” competition on the rise: DF Mayor’s (with Presidential aspirations) *Segundos Pisos* being followed by Mayors in EM
- Externalities are likely high
 - Ignored in explicit prices/fees

19
© P. Christopher Zegras

How well is the System Functioning?

Accountability

- Lack of transparency
 - Federalist system “blame game”: neglecting maintenance with possibility to pass the blame up and eventual wait for capital replacement
- Dispersed and isolated planning capacity/ technocracy
 - Project evaluation requirements unclear (non-existent?)
 - Who truly holds data collection, modeling and planning responsibilities?

20
© P. Christopher Zegras

How well is the System Functioning?

Equity

- Clear Intra-Metropolitan Gulf
 - DF transportation-related expenditures *per capita* 3-6 times greater than EM
- Is transportation being used for income redistribution?
 - IEPS – almost definitely
 - Vehicle ownership fees – slightly progressive
 - Metro – likely

21
© P. Christopher Zegras

How to Move Towards the “Ideal”?

“Easy” Steps (in theory)

- IEPS fuel excise tax
 - Despite imperfections, should (at least partly) be recognized as explicit road user fee and disbursed appropriately (e.g., Bogotá)
- *Tenencia*
 - Restructure to better reflect costs implied in vehicle ownership
- Municipalities
 - property tax update, more aggressive use of betterment levies

22
© P. Christopher Zegras

How to Move Towards the “Ideal”?

More challenging steps

- Developing metropolitan cooperation
 - Including capacity-building and technical development in relevant authority(ies)
 - With some degree of direct link to finance sources: matching grant-type approach of the federal government (US style), via, e.g., *participaciones* or *aportaciones*
- Urban infrastructure concessions
 - Caution likely warranted due to Federal-level experience
 - Several precedents in the region (Buenos Aires, Santiago)
 - Potentially innovative use for busway infrastructure (e.g., São Paulo)
 - First step towards road pricing...
- Reduce the use of transport for direct provision of social service
 - Increase cost recovery in Metro
 - Create targeted subsidies for low income users

23
© P. Christopher Zegras

How to Move Towards the “Ideal”?

The most difficult steps

- Metropolitan Authority
 - With financial autonomy (revenue-raising and expenditure responsibilities)
 - Dedicated revenues from efficient pricing: road pricing

How to chart the path of metropolitanization
within a broader context of decentralization?

24
© P. Christopher Zegras

Supported by:
Hewlett Foundation
through a grant to ITDP for the
Access Americas project