MCMA as important, but declining, force in national economy

- 38% of GDP in 1970; 33% of GDP in 1998
- Most significant decline in Manufacturing
  - 47% to 29%
- Relatively constant contribution of Financial Services (33%); Social Services (40-45%) and Construction (30-35%)

In general, as goes the country, so goes the MCMA, but …
Intra-Municipal Economy

- EM expected to have higher economic growth rates in future
  - But, also, higher population growth
  - DF will, thus, likely maintain higher GDP/Capita

- As of 1993, Relative contribution to GRP:
General Characteristics

- Concentration of suburban and interurban bus terminals (and main subway stations) in northern and eastern DF/EM boundaries
- Northern and Eastern roads primary means of access from suburban/exurban areas
- Existing airport on Eastern edge of DF (on Periferico) ~ 50,000 passenger trips/day
Passenger Travel Demand

- **Data**
  - Origin-destination surveys reportedly conducted in 1977/78, 1983 and 1994
  - 1994 survey done by the national statistics institute (INEGI) in cooperation with DF
  - Reportedly 29,700 households (~1%), using 135 traffic analysis zones (TAZs)

- **29.1 vehicle trip segments**
  - 82% by public transport; 18% private transport

- **Roughly 21 million vehicle trips**
  - 75% public transport, 25% private transport
  - 1.2 per person or 5.4 per HH; Santiago 1.7/person 6.4/HH

- **Does not include walking trips (10% in Buenos Aires, 20% in Santiago, 30% in Sao Paulo)**
  - Conservatively (15%) adds 3.6 million trips – 1.4 per person or 6.4 per HH (Santiago – 2.12 per person or 8 per HH)

- **Other estimates, significantly different**
  - 19 million (1.35/person) in 1983 to 31 million (2/person) in 1994
Passenger Travel Demand – What Future?

- DF Transport authority (2000) predicts Region-wide change
  - 21 million trips 1994 (1.2 per capita)
    - 14 million in DF (1.6/capita); 7 million in EM (.8/capita)
  - 28 million in 2020 (1.08 per capita)
    - 17 million in DF (1.9/capita); 11 million in EM (.63/cap)

- How Realistic??
  - Data from Santiago 1977-1991
    - Elasticity of per capita trips to income: 1.87
    - Elasticity of auto trips to income: 1.69
    - Elasticity of public transport trips to income: -0.46

- What will the future really bring?
Passenger Travel Demand – What Future?
Freight Demand

- Rail freight enters at two terminals in Northwest
- Truck through traffic major influence (lack of bypass)
- Major freight terminal on southeastern boundary of DF; trucks heavier than 3.5 tonnes unload farm and agricultural products for delivery via lighter vehicles throughout the MCMA
- 29% of freight transported in MCMA originates in DF; 12% in EM; 59% outside MCMA
Major Freight Generators
Passenger Supply

- Private Autos
  - 2.3-3 million
  - 78 per 1000 pop. in 1976 to 135-166 per 1000 in 1996
  - 1.2 - 1.76 persons per vehicle

- Taxis
  - 69,000 – primarily in DF; no DF-EM inter-operation

- Hoy No Circula

- Buses, major decline since mid-1970s
  - 15,000 in 1976; today roughly 4,000 in DF
    - 1000 operated by state-owned RTP
    - Roughly 1,200 operated by private owned companies (former R-100 and more recent concession winners)
    - Estimated 1,800 introduced by colectivo organizations
  - “Suburban Services” in EM, uncertain number of vehicles
    - Some Metropolitan Routes, but generally “border transfer”
  - Marginal trolleybus service
Passenger Supply

The rise of the *Colectivo*

- Originated as shared taxi sedans in 1950s
- Tolerated “informally” until some formalization in the late 1960s
- By early 1980s with government takeover of the bus system, *colectivos* thrived
  - Unregulated, “licensed” service
  - Owner-operator, in route association structure
- DF: 103 *colectivo* organizations
  - ~27,000 vehicles
- EM: 172 organizations, 94 companies
  - Probably similar, if not greater, number of vehicles
Passenger Supply – Metro & Light Rail

- First lines built in late 1960s
- 11 lines, 200 kms, 167 stations
- Original 3 lines carry 64% of passengers
- “Lowest Fares in the World”
- Fares cover approximately 40-50% of operating costs
- Service confined to DF
- Ability to “keep up” with urban expansion?
  - Exacerbating expansion?
- Realistic expansion plans?
- Light rail of 13 kms.
Metro Indicators

- Ninth Line Operational
- Tenth Line Operational

Graph showing:
- Length of Lines in Service (Kms)
- Trains in Service (Units)
- Avg. Daily VKT (Thousand Kms)
- Avg. Daily Ridership (Thousands)
Public Transport Fares

![Graph showing fare conversion to USD based on trip distance in kilometers. Different lines represent various public transport options: Colectivo FD 1998, Bus State Mexico 1998, FD Metro LRT, Trolley & Bus 1998, and FD Taxi Cab 1998.]
Motor Vehicle Contribution to MCMA Pollutants

<table>
<thead>
<tr>
<th></th>
<th>PM$_{10}^1$</th>
<th>SO2</th>
<th>CO</th>
<th>NOx</th>
<th>VOC$_2$</th>
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</thead>
<tbody>
<tr>
<td>Light Duty Private Vehicles$^3$</td>
<td>5.2%</td>
<td>11.6%</td>
<td>62.2%</td>
<td>32.4%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Colectivos</td>
<td>0.3%</td>
<td>0.9%</td>
<td>13.4%</td>
<td>5.1%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Taxis</td>
<td>1.0%</td>
<td>2.5%</td>
<td>7.4%</td>
<td>5.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Buses</td>
<td>5.9%</td>
<td>1.0%</td>
<td>0.5%</td>
<td>5.7%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Trucks</td>
<td>23.4%</td>
<td>4.8%</td>
<td>14.4%</td>
<td>32.0%</td>
<td>7.5%</td>
</tr>
<tr>
<td>All Vehicles</td>
<td><strong>35.9%</strong></td>
<td><strong>20.8%</strong></td>
<td><strong>98.0%</strong></td>
<td><strong>80.5%</strong></td>
<td><strong>39.5%</strong></td>
</tr>
</tbody>
</table>

1. Does not include Road dust. 2. Does not include refueling. 3. Includes pick ups, motorcycles, diesel vehicles under 3 tonnes.

Next Time

- Regional Architecture
- Some Responses
- Looking to the Future