PUBLIC TRANSPORT ORGANIZATIONAL MODELS:
ROLES FOR THE PUBLIC and PRIVATE SECTORS

Outline

- Organizational Models
- UK Bus Experience
- US Transit Industry
- Rail Examples
- Prospects for the future
Organizational Models

• Unregulated/Deregulated
• Regulated Competition
• Threatened Competition
• Private Monopoly
• Public Monopoly
• Contracting Out
## Six Organizational Models

<table>
<thead>
<tr>
<th>Functions</th>
<th>MODELS</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Unregulated</td>
<td>Regulated Competition</td>
<td>Threatened Competition</td>
<td>Private Monopoly</td>
<td>Public Monopoly</td>
<td>Contracting Out</td>
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<td>Regulation</td>
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<td>Yes</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes*</td>
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<td>Financing</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PU</td>
<td>PR</td>
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<tr>
<td>Planning</td>
<td>PR</td>
<td>PU &amp; PR</td>
<td>PU &amp; PR</td>
<td>PR &amp; PU</td>
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<td>PU</td>
</tr>
<tr>
<td>Ownership</td>
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<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PU</td>
<td>PR (or PU)</td>
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<td>Operation</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PU</td>
<td>PR</td>
</tr>
<tr>
<td>Maintenance</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PR</td>
<td>PU</td>
<td>PR</td>
</tr>
</tbody>
</table>

* The model is regulated in the form of contracts.

PU: Public Sector; PR: Private Sector
UK Experience with Bus Restructuring

- Background
- Bus Deregulation outside London
- London strategy
- Results to date
Prior to mid-1980s, UK local bus industry broadly comparable to US transit industry:

- public ownership at local level
- heavily subsidized
- slowly declining ridership
- little innovation in technology, service, or management
- little responsiveness to public needs or concerns

Buses played a larger role than in US because of lower car ownership levels and higher operating costs
Bus Deregulation Outside London (1986)

Basic premises behind bus deregulation:
• deregulation would produce a competitive market
• competition would substantially reduce costs
• a competitive market would improve resource allocation
• there would be no significant negative side effects
Basic Elements of UK Bus Deregulation

• Bus markets were divided between commercial and non-commercial, with the following definitions and rules for each:

**Commercial**

• Defined as any service that an operator is prepared to offer with the only government support being:
  -- concessionary fares reimbursement
  -- fuel taxes rebate
Basic Elements of UK Bus Deregulation

Commercial (cont’d)
- Services are registered including the route and timetable, and changes become effective after 6 weeks notice
- Fares can be changed with no prior notice
- Unrestricted entry and exit from the market
- Known as “Competition In the Market”

Non-Commercial
- Services which are not registered as commercial, but needed for social reasons as identified by local authorities
- Awarded to a private sector operator after a competitive bidding process for a period of (typically) three years
Public Transport Authority Reorganization

• As a transitional strategy, public transport authorities were to be "corporatized," i.e., held at arm's length from government

• Could receive subsidy only as a result of success in a competitive bidding process

• Eventually they were expected to be privatized
London Strategy

- Deregulation not introduced in London because of concerns about:
  - the effects of free entry on congestion
  - rail system effects
- London Transport (now Transport for London) opted to retain control over all planning functions but to move to privatization through competition for incremental pieces of the London bus network
- Known as "Competition For the Market"
London Buses Reorganization

• Decentralization of London Buses Limited (LBL) operations, giving progressively more independence to LBL depots

• Awarding approximately 50% of competitive tenders to LBL subsidiaries with the remainder to independent private bus operators

• Used competitive pressure to induce LBL subsidiaries to restructure labor contracts and management strategy

• In 1994 all LBL subsidiaries were privatized
### Table 1: Key bus operating statistics, GB and London, 1985/86 to 1999/2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Bus km (000)</th>
<th>Pax trip (000)</th>
<th>Subsidy</th>
<th>Operating costs per bus-km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total £m</td>
<td>Per bus km</td>
</tr>
<tr>
<td><strong>London</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85/86</td>
<td>273</td>
<td>1152</td>
<td>335</td>
<td>£1.23</td>
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<tr>
<td>89/90</td>
<td>292</td>
<td>1188</td>
<td>238</td>
<td>£0.82</td>
</tr>
<tr>
<td>94/95</td>
<td>356</td>
<td>1167</td>
<td>177</td>
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<td>99/00</td>
<td>365</td>
<td>1307</td>
<td>124</td>
<td>£0.34</td>
</tr>
<tr>
<td><strong>GB outside London</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85/86</td>
<td>1804</td>
<td>4489</td>
<td>904</td>
<td>£0.50</td>
</tr>
<tr>
<td>89/90</td>
<td>2150</td>
<td>3886</td>
<td>682</td>
<td>£0.32</td>
</tr>
<tr>
<td>94/95</td>
<td>2293</td>
<td>3253</td>
<td>620</td>
<td>£0.27</td>
</tr>
<tr>
<td>99/00</td>
<td>2234</td>
<td>2972</td>
<td>613</td>
<td>£0.27</td>
</tr>
</tbody>
</table>

*Source - Transport Statistics GB 2001 and earlier editions*

*Notes:*
- Subsidy includes concessionary fares payments.
- Operating costs and subsidies are in constant 1999/2000 prices.
Table 2: Percentage change in key bus operating statistics with 1985/86 as base

<table>
<thead>
<tr>
<th></th>
<th>Bus km (000)</th>
<th>Pax trip (000)</th>
<th>Subsidy</th>
<th>Operating costs per bus-km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total £m</td>
<td>Per bus km</td>
</tr>
<tr>
<td><strong>London</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89/90</td>
<td>+7%</td>
<td>-3%</td>
<td>-29%</td>
<td>-33%</td>
</tr>
<tr>
<td>94/95</td>
<td>+30%</td>
<td>-1%</td>
<td>-47%</td>
<td>-59%</td>
</tr>
<tr>
<td>99/00</td>
<td>+34%</td>
<td>+13%</td>
<td>-63%</td>
<td>-72%</td>
</tr>
<tr>
<td><strong>GB outside London</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89/90</td>
<td>+19%</td>
<td>-13%</td>
<td>-25%</td>
<td>-36%</td>
</tr>
<tr>
<td>94/95</td>
<td>+27%</td>
<td>-28%</td>
<td>-31%</td>
<td>-46%</td>
</tr>
<tr>
<td>99/00</td>
<td>+24%</td>
<td>-34%</td>
<td>-32%</td>
<td>-46%</td>
</tr>
</tbody>
</table>

Source - Transport Statistics GB 2001 and earlier editions
Results of Bus Deregulation (1)

• Operating costs dropped significantly -- by about 50%, most of impact immediately after deregulation

• Bus kilometers of service increased substantially immediately after deregulation, but now is in modest decline again

• Fares rose significantly, particularly in major metropolitan areas

• Relatively little sustained on-the-street competition
Results of Bus Deregulation (2)

- Great majority of services (80-85%) are operated in commercial regime
- Subsidies have declined by about 30% since deregulation
- Ridership has declined significantly since deregulation
- Subsidy per passenger has remained approximately constant despite major decline in subsidy per vehicle kilometer
- Perceptions of service instability
Typical Trajectory Following Deregulation

- Incumbent operator registered most of pre-existing network as commercial
- Reduced costs and raised entry cost by converting to minibuses
- Establishing a foothold for a new entrant via competitive bidding proved difficult
- Price competition proved to be ineffective relative to frequency competition
- Large bus holding companies emerged through mergers and acquisitions
- The urban bus market as it developed in the UK proved not to be truly contestable
- Local bus planning staff largely disappeared
London Results

• **Similarities:**
  • Unit cost reductions in London are close to those attained outside London
  • Service provided has increased by a similar amount to outside London

• **Differences:**
  • Ridership in London has experienced modest growth
  • Subsidy has declined much more substantially in London than elsewhere
US Transit Industry

• Organizational Models in the US
  • Traditional regional public transport authority
  • Enhanced public transportation authority
  • Split policy and planning/operations entities

• Industry Structure
A. "Classical" Regional Transit Authority (RTA)

Characteristics:

• integrated policy and operations responsibilities
• single service provider (or equivalent)
• limited/non-existent role beyond transit
• limited range of services: fixed route ops, paratransit

Example: RIPTA (Rhode Island); many others
A. "Classical" Regional Transit Authority (RTA)

Pros: • strong coordination and control; clear accountability
• coherent image: strong public identification
• low conflict potential
• known, familiar option
• low overhead for smaller cities

Cons: • little long-range planning, except "monument building"
• little incentive for efficiency
• vulnerable to labor and political pressures
• narrow mandate
• isolated/remote from customers
• entrenched/resistant to change
B. Expanded RTA Model

Characteristics:

- integrated policy and operations responsibilities
- single service provider (or equivalent)
- expanded range of services: carpools, etc.
- expanded role re: land use planning

Example: King County Metro
B. Expanded RTA Model

Pros:
- intervention in land use -- transit demand cycle
- potential to match service with needs
- increased market share --> increased public support
- strong market orientation
- many "pros" from Alternative "A"

Cons:
- complex to manage efficiently
- hard to measure performance
- priorities may be hard to set
- vulnerable to labor and political pressures
C. Split Policy/Operations Responsibilities: Single Service Providers

Characteristics:

- policy board responsible for:
  service area definition, capital planning, farebox recovery/revenue goals, performance measures

- single service provider responsible for:
  service provision, marketing, route planning, maintenance, workforce management

Example: Minneapolis/St. Paul (1980s)
C. Split Policy/Operations Responsibilities: Single Service Providers

Pros:  
- limits political influence on operations  
- allows operations staff to focus on service  
- encourage longer-range perspective  
- clear objectives for service provider  
- many "pros" from Alternative "A"

Cons:  
- difficult to define clear separation of roles  
- hard to transition into from "A"  
- some "cons" from Alternative "A"
D. Split Policy/Operations Responsibilities: Multiple Service Providers

Characteristics:

- competitive bidding for service contracts
- policy board role also includes:
  funding allocation to providers, contracting, and oversight centralized customer information system

Example: San Diego (1990s)
D. Split Policy/Operations Responsibilities: Multiple Service Providers

Pros:  
- encourages efficient operations
- makes clear distinction between policy and operations role
- all "pros" of Alternative "C"

Cons:  
- difficulty of contracting and monitoring
- accountability unclear
- duplication of roles
- transition difficulties between operators
- weakened system image
Transit Industry Structure

- Remarkably little change since the early 1970s:
  - regional transit authorities regulating, planning and directly operating most services
  - principal use of private sector is in providing purchased services to transit authorities
# Purchased Transit Service in US Transit Industry (2004): Operating Expense

<table>
<thead>
<tr>
<th>Mode</th>
<th>Directly Operated</th>
<th>Purchased</th>
<th>Total</th>
<th>% Purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>14,219.0</td>
<td>1,987.4</td>
<td>16,206.5</td>
<td>12.3%</td>
</tr>
<tr>
<td>Heavy Rail</td>
<td>4,734.2</td>
<td>0.0</td>
<td>4,734.2</td>
<td>0.0%</td>
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<tr>
<td>Commuter Rail</td>
<td>3,235.3</td>
<td>207.1</td>
<td>3,442.4</td>
<td>6.0%</td>
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<tr>
<td>Light Rail</td>
<td>851.5</td>
<td>35.9</td>
<td>887.4</td>
<td>4.0%</td>
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<tr>
<td>Demand Response</td>
<td>927.3</td>
<td>1,596.7</td>
<td>2,523.9</td>
<td>63.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23,967.2</strong></td>
<td><strong>3,827.1</strong></td>
<td><strong>27,794.3</strong></td>
<td><strong>17.1%</strong></td>
</tr>
</tbody>
</table>

*Source: American Public Transit Administration Fact Book 2006 (for 2004)*
Use of Purchased Transit Services

- Dominant for demand-responsive service
- Little or none for urban rail services
- Modest for fixed route bus services
Percent of Transit Systems that Contract for Bus Services

- System with No Contracts for Bus Services: 70%
- Systems with Contracts for Some Bus Services: 18%
- Systems with Contracts for All Bus Services: 12%

Percent of Transit Systems that Contract for Demand-Responsive Transit Services

![Pie Chart]

- 70% System with No Contracts for Bus Services
- 18% Systems with Contracts for All Bus Services
- 12% Systems with Contracts for Some Bus Services

Figure by MIT OCW.

Percent of Transit Systems that Contract for All, Some, and No Bus and Demand-Responsive Transit Services

- Systems with Contracts for All Bus and Demand-Responsive Services: 21%
- Systems with Contracts for Some Bus and/or Demand-Responsive Services: 39%
- Systems with No Contracts for Bus and Demand-Responsive Services: 40%

Source: Transportation Research Board Special Report 258 (2001)
Contracting for Bus and Demand-Responsive Transit Services: A Survey of US Practice and Experience.

Nigel H.M. Wilson  1.201, Lecture 20  Fall 2006
Fixed Route Bus Services

- Represents more than 50% of all services in the US
- Could clearly be operated efficiently and effectively by the private sector under contract
- The real potential for significant expansion for the private sector in transit
## BUSES OPERATING EXPENSE
### (2004: $ million)
### (All agencies with Operating Cost > $100 million)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Total Bus Expense</th>
<th>Purchased Service</th>
<th>Percent Purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City Transit</td>
<td>1,678.9</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Los Angeles MTA</td>
<td>715.6</td>
<td>31.4</td>
<td>4%</td>
</tr>
<tr>
<td>Chicago (CTA)</td>
<td>669.8</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>New Jersey Transit</td>
<td>587.4</td>
<td>44.0</td>
<td>8%</td>
</tr>
<tr>
<td>Philadelphia (SEPTA)</td>
<td>400.7</td>
<td>0.3</td>
<td>0%</td>
</tr>
<tr>
<td>Washington DC</td>
<td>395.7</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>New York City (DOT)</td>
<td>358.0</td>
<td>358.0</td>
<td>100%</td>
</tr>
<tr>
<td>Seattle</td>
<td>309.4</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Houston</td>
<td>244.6</td>
<td>37.7</td>
<td>15%</td>
</tr>
<tr>
<td>Oakland (AC Transit)</td>
<td>225.5</td>
<td>1.3</td>
<td>1%</td>
</tr>
<tr>
<td>Boston (MBTA)</td>
<td>248.2</td>
<td>5.6</td>
<td>2%</td>
</tr>
<tr>
<td>Denver (RTD)</td>
<td>221.1</td>
<td>60.9</td>
<td>28%</td>
</tr>
<tr>
<td>Miami (MDTA)</td>
<td>229.4</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>184.7</td>
<td>2.3</td>
<td>1%</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>219.1</td>
<td>0.0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: National Transit Database Transit Profiles, 2004  
http://www.ntdprogram.com

Figure by MIT OCW.
## BUSES OPERATING EXPENSE
### (2004: $ million)
### (All agencies with Operating Cost > $100 million)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Total Bus Expense</th>
<th>Purchased Service</th>
<th>Percent Purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore (MTA)</td>
<td>202.6</td>
<td>25.3</td>
<td>13%</td>
</tr>
<tr>
<td>Dallas (DART)</td>
<td>187.6</td>
<td>0.4</td>
<td>0%</td>
</tr>
<tr>
<td>Minneapolis/St Paul</td>
<td>186.1</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Atlanta (MARTA)</td>
<td>169.4</td>
<td>4.0</td>
<td>2%</td>
</tr>
<tr>
<td>Detroit (DDOT)</td>
<td>182.8</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Portland (Tri-Met)</td>
<td>183.6</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>San Francisco (MUNI)</td>
<td>166.3</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Cleveland</td>
<td>160.0</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Orange Country (OCTA)</td>
<td>167.9</td>
<td>4.9</td>
<td>3%</td>
</tr>
<tr>
<td>Honolulu</td>
<td>118.9</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Milwaukee</td>
<td>121.3</td>
<td>2.1</td>
<td>2%</td>
</tr>
<tr>
<td>Chicago (PACE)</td>
<td>114.8</td>
<td>14.6</td>
<td>13%</td>
</tr>
<tr>
<td>St Louis</td>
<td>110.3</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,759.7</strong></td>
<td><strong>592.7</strong></td>
<td><strong>7%</strong></td>
</tr>
</tbody>
</table>

Source: National Transit Database Transit Profiles, 2004  
http://www.ntdprogram.com
Largest 28 Bus Operators

- Less than 7% of bus service is currently provided under purchase of service arrangements
- 13 of 28 agencies do not provide any purchased bus service
- Only 5 agencies provide more than 10% of bus services under contract: New York City (Department of Transportation), Houston, Denver, Baltimore (MTA), and Chicago (PACE)
Agencies Using Purchased Services Extensively Fall Into Three Groups

- Agencies which took over financial responsibility for franchise operators: New York City Department of Transportation

- Agencies taking over franchised services and/or expanding services through purchase agreements: Baltimore (MTA), and Chicago (PACE)

- Agencies required to transfer core services to purchased service arrangements: Denver
Rail Experiences

- Japan (late 1980s)
- Argentina (mid 1990s)
- British Rail (late 1990s)
Japan

- JNR was privatized in 5 geographical units with vertical integration - internal restructuring approach
- Surplus labor was not transferred
- Government takes the lead in new high-speed rail infrastructure
- JRIs (East, Central, etc.) have to operate at a profit
- Government controls fare levels
- Viewed as a successful model
Argentina

• National, regional rail and subway system serving Buenos Aires with
  – massive fare evasion
  – excess labor and many "no show" employees
  – inadequate maintenance
  – no investment
  – strong labor unions
• Restructured as 7 separate bid packages with vertical integration
• Public sector owns facilities and sets fares, schedules, investment requirements
• Contractor keeps fare revenue
• Ten-year concessions agreements
• Subsidy to be continued with awards based on minimum subsidy bid
Argentina (cont'd)

• Required at least 2 operators so competition threat remained
• World Bank funded buyout of excess labor
• Broad outreach to solicit interested bidders
• Lengthy bidding and transition process harmed the system

Immediate (1-year) results:
• Improved quality, fare collection and ridership up by 30%

Longer-term (5-year) results:
• At least one of four concessionaires performing poorly
• Non-cooperation on unified fare system
• Lobbying to change contract terms and duration
• Quantity and Quality of public monitoring function eroded
• Government late on payments
British Rail

• British Rail restructured into ~100 separate companies (vertical sequestation) including:
  • Train Operating Companies (TOCs)
  • Rolling Stock Leasing Companies
  • Infrastructure company
    • oversight from the Office of the Rail Regulator
• TOC concessions awarded for seven-year terms with subsidy built in
• Infrastructure company, originally Railtrack, was a shareholder-owned company with assets transferred from the government and income from TOC access charges
• Railtrack did an inadequate job on maintenance and ended up going out of business
• Replaced Network Rail as a public entity
London Underground PPP

- Operation of Underground remains responsibility of LUL - a public sector entity
- Infrastructure companies awarded long-term concessions to finance, improve, and maintain the rolling stock and infrastructure
Puerto Rico - Tren Urbano

- New heavy rail/metro system for San Juan metropolitan area
- Design-Build-Operate-Maintain approach taken
- Public sector controls schedules and fares and retains fare revenue, but with operator revenue incentive
- Aggressive outreach for consortia to bid on RFP

Results - short-term:
- Successful in getting construction underway quickly compared with traditional approach
- Operator's perspective influenced the design
- Many interfaces created major problems
- Inadequate public sector oversight of construction process
- Major contractor problems resulted in significant delays and cost overruns
Prospects for the Future

Key ingredients for private sector participation:
• service is new and different
• external intervention
• incomplete assimilation of private operators

Direct transit authority operation is highly stable in North America:
• small leverage for central government
• at state/local levels of government organized labor is a powerful force
  likely to resist change
• confrontational/ideological nature of the debate
Possible Strategies

• Development of non-confrontational, incremental change proposals

• Contingency plans

• Replacement of marginally performing routes by contracted van or minibus service

• Develop a database on results of initiatives by credible agency

• Split policy board from operating functions

• Corporatization and privatization of bus depots in large metropolitan areas