Performance-based Transit Funding? Experiences Across States

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Outline

- This research is part of an ongoing study funded by MnDOT
- Performance-based budgeting (PBB)
- Greater Minnesota transit funding
- Case studies of practices in other states
- Simulations of performance-based allocation in Greater Minnesota
Background

- As transit ridership has increased, so have budget challenges
  - Estimated $114 million gap for Greater MN transit between 2021 and 2025
- Transportation agencies have been transitioning toward performance-based funding
  - Performance-based vs. performance-informed
- There are debates regarding the use of performance budgeting for funding allocation
Transit Funding Allocation Approaches

Transit Program

Other types of allocation

Allocation through formula

Non-performance-based

Performance-related indicators

Direct performance measures

Internal

Input

Output

Outcome

Efficiency

Effectiveness

External
Performance-based Budgeting

- **Advantages:**
  - Incentivizes efficiency
  - Accountability and transparency
  - Removes individual bias
  - Improved investment decision-making

- **Challenges:**
  - Selecting appropriate performance measures
  - Timely, quality data
  - Equity
  - Funding predictability and consistency
  - Missing context
Interviews with MnDOT Project Managers

- Discretionary allocation
  - Project managers (PMs) work closely with systems
  - Budget requests are reviewed by PMs and a small panel

- Performance Measures
  - Performance-informed allocation is important, but wouldn’t give up the discretionary approach
  - Concerns: equity, needs, context
Case Studies of Transit Funding Allocation

- Review of 34 transit programs in Iowa (4), Nebraska (2), North Carolina (12), Ohio (3), Pennsylvania (6), Wisconsin (7).
  - 10 programs use formula-based funding
  - 5 programs have performance-based formulas

- Which programs use performance-based formulas?
- What formulas/measures are used?
- What is the context for each program?
## Case Studies: Performance Indicators

<table>
<thead>
<tr>
<th>State</th>
<th>Indicators</th>
<th>Type of Indicator</th>
<th>Formula Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa</td>
<td>Revenue miles</td>
<td>Output</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Locally determined income</td>
<td>Input</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Passengers/operating expense</td>
<td>Efficiency</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Revenue miles/operating expense</td>
<td>Efficiency</td>
<td>25%</td>
</tr>
<tr>
<td>Ohio</td>
<td>System Size</td>
<td>Output</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Passengers</td>
<td>Output</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Revenue service miles</td>
<td>Output</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Farebox revenue</td>
<td>Output</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Cost/hour</td>
<td>Efficiency (-)</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Passenger miles</td>
<td>Effectiveness</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Farebox recovery rate</td>
<td>Efficiency</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Passengers</td>
<td>Output</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Local revenues</td>
<td>Input</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Revenue vehicle miles</td>
<td>Output</td>
<td>25%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Passengers per hour</td>
<td>Effectiveness (-)</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Net cost per trip</td>
<td>Efficiency (-)</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Locally derived revenue</td>
<td>Input</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Equal share to all urban transit systems</td>
<td>External</td>
<td>10%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Passengers</td>
<td>Output</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Senior passengers premium</td>
<td>Output</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Revenue vehicle hours</td>
<td>Output</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Revenue Miles</td>
<td>Output</td>
<td>30%</td>
</tr>
</tbody>
</table>
Simulations with Minnesota Data

Simulated Greater MN funding using formulas from four states

Conducted one simulation using a custom formula

- Similar to Pennsylvania’s formula
- Historical share + inflation
- New funding awarded using performance measures

Designed to minimize variation between simulated and actual allocations, and year-to-year variation for each agency

- Ridership, revenue miles, passengers per operating expense, revenue miles per operating expense
Simulation Tool

Stage 1 Allocation
Select the total amount of funding to be allocated and how it's divided between system categories.

Adjust the amount of funds that the simulation will distribute. By default, actual 2016 state operating funding is used.

63636710

☐ Select to assign each system a base allocation.

Please select how systems are categorized.
- Urbanized, Small Urban, Rural
- Urbanized Class 1, Urbanized Class 2, Small Urban, Rural Class 1, Rural Class 2

Please select how state funding is divided between the system categories.
- Actual Distribution
- 100% by Passenger Trips
- 100% by Revenue Miles
- 50% by Passengers, 50% by Miles

0% of available funding has been allocated

Run Simulation

Stage 2 Allocation
Select the relative importance of each measure to create a formula to allocate funds to individual systems. Leave all measures you don't wish to use at 0.

Input/Output Measures
- Passenger Trips
- Revenue Miles
- Revenue Hours
- Locally Generated Income
- Farebox Revenue

Efficiency Measures
- Cost per Hour
- Passengers per Mile
- Passengers per Hour
- Passengers per Operating Expense
- Revenue Miles per Operating Expense
- Farebox Recovery Ratio
## Funding Simulation Results

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Actual 2016 Funding</th>
<th>Simulated 2016 Funding</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duluth Transit Authority</td>
<td>Urbanized</td>
<td>$10,400,000</td>
<td>$12,035,675</td>
<td>15.7%</td>
</tr>
<tr>
<td>East Grand Forks Transit</td>
<td>Urbanized</td>
<td>$263,200</td>
<td>$220,266</td>
<td>-16.3%</td>
</tr>
<tr>
<td>Greater Mankato Transit System</td>
<td>Urbanized</td>
<td>$1,840,000</td>
<td>$2,138,912</td>
<td>16.2%</td>
</tr>
<tr>
<td>La Crescent Apple Transit</td>
<td>Urbanized</td>
<td>$258,400</td>
<td>$208,263</td>
<td>-19.4%</td>
</tr>
<tr>
<td>Moorhead Metropolitan Area Transit</td>
<td>Urbanized</td>
<td>$1,724,800</td>
<td>$1,853,399</td>
<td>7.5%</td>
</tr>
<tr>
<td>Rochester Public Transit</td>
<td>Urbanized</td>
<td>$4,000,000</td>
<td>$4,707,904</td>
<td>17.7%</td>
</tr>
<tr>
<td>St. Cloud Metro Bus</td>
<td>Urbanized</td>
<td>$6,402,000</td>
<td>$7,135,444</td>
<td>11.5%</td>
</tr>
<tr>
<td>Granite Falls Heartland Express</td>
<td>Small Urban</td>
<td>$100,800</td>
<td>$80,011</td>
<td>-20.6%</td>
</tr>
<tr>
<td>Hibbing Area Transit</td>
<td>Small Urban</td>
<td>$257,600</td>
<td>$190,187</td>
<td>-26.2%</td>
</tr>
</tbody>
</table>

Use the download buttons to export the data you created in a format of your choice

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- **Available Online**

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Fonseca, Bean, Zeerak, Zhao (UMN )  
PBB for Transit?  
November 7, 2019 11/12
Conclusions

- Performance-based allocation should be supplemented with other allocation methods
  - Historical share
  - Negative performance measures
  - Discretionary programs

- Implementation challenges
  - Preserve existing systems while rewarding performance improvements
  - Minimize annual variation

- Must balance performance with need and equity