The “Science” of Seat Miles Estimation

TSDAC Presentation

June 13, 2013

Source Data for Estimation

- Seating capacity of vehicles in the fleet
- Vehicle miles operated

Precision of Estimates Will Vary Depending On

- Source data for vehicle miles
  - Scheduling software or manual recording
  - Accuracy of scheduling software
- Variability of the fleet in terms of seating capacity
- The estimation methodology
  - Simplest
    - (Average seating capacity of vehicle in the fleet) x (Vehicle miles in the aggregate)
  - Intermediate
    - ∑{(Average seating capacity of vehicle by service type) x (Vehicle miles by service type)}
  - Completely disaggregated (finest)
    - ∑{(Seating capacity of each vehicle) x (Vehicle miles of each vehicle)}

FY 2012 Seat Miles – Three Case Studies

<u>Bay Area Transit</u>

- Estimate
  - 22,682,227 (using simplest method)
- Uniform fleet (13-14 seats on each vehicle)
- Source data for vehicle miles
  - Manually recorded (scheduling software installed but not fully operational)

FY 2012 Seat Miles – Three Case Studies

<u>JAUNT</u>

- Two estimates
  - 35,871,205 (using simplest method)
  - 34,108,422 (using intermediate method)
  - Range of variation – 5.2%
- Moderately variable fleet (12-24 seats on each vehicle
- Source data for vehicle miles
  - Scheduling software with odometer / hub-based adjustments

FY 2012 Seat Miles – Three Case Studies

<u>PRTC</u>

- Three estimates
  - 157,318,849 (using simplest method)
  - 149,623,874 (using intermediate method)
  - 151,883,952 (using completely disaggregated [finest] method)
  - Range of variation – 5.1%
- Highly variable fleet (29-57 seats on each vehicle)
- Source data for vehicle miles
  - Scheduling software

Lessons Learned

- If seat miles is ultimately used as a measure, the estimation methodology needs to be prescribed
- Estimation methodology needs to mesh with the capabilities of the providers
- Providers need to be surveyed to glean:
  - What each relies on as source data for vehicle miles
  - How revenue miles and deadhead miles are differentiated
- While seat miles is seen as a more precise measure of service than vehicle miles, seat miles is not a good measure of capacity for systems (or vehicles) designed to transport standees