

# Transit Fare Policy, Structure, and Technology

by Nigel Wilson

*Acknowledgement to Dan Fleishman (TranSystems)  
for much of this material*

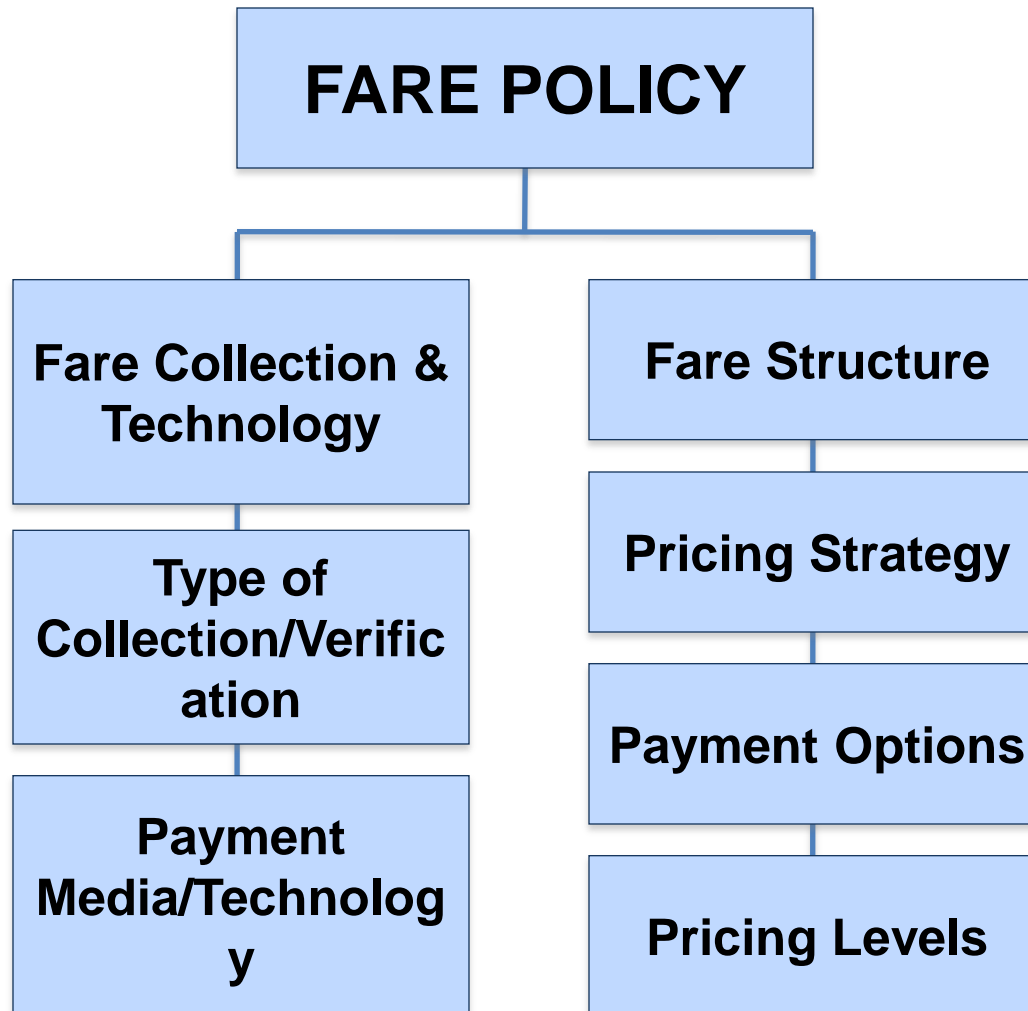
# Public transport is suffering from inadequate financial support

- **The world economic slowdown has reduced both fare revenues and tax revenues**
- **The cost of producing public transportation continues to grow faster than the rate of inflation (fuel, labor, capital renewal)**
- **The long lead time needed before benefits of capital renewal or new investments materialize make it difficult to marshal the political will to attract financial support today for benefits 5-10 years into the future**
- **Credibility of transit organizations is damaged by sub-par performance caused by inadequate finance, and makes it all the more difficult to build political will**

# **Yet there is continued high expectation for more and better public transportation**

- **to support density and economic growth**
- **to improve environmental benefits**
- **to moderate or provide alternatives to auto congestion**

# Fare System Parameters



# Fare Policy Goals

- **Customer-related (e.g., ridership, ease of use, complexity, range of options, equity)**
- **Financial (e.g., revenue, fare abuse, revenue control, collection costs)**
- **Management-related (e.g., data collection, modal integration, flexibility, operations)**
- **Political (e.g., political acceptability, cost recovery)**

# Fare Structure

- **Elements include:**
  - **Base (single-ride) fare**
  - **Level(s) of any differentials**
  - **Transfer policy/pricing**
  - **Pass pricing and multi-ride discount/bonus**
  - **Reduced fare levels (e.g., seniors/disabled, students)**

# Pricing Strategy

- **Flat vs. differentiated fares**
- **Most US agencies (except commuter rail) have flat fares**
- **Use of differentiation declining; agencies increasingly deciding that disadvantages outweigh advantages**

# Decision-Making Scenarios

- **Policy-driven:** agency makes fare structure changes to address specific goals (e.g., simplify, insure equity, increase ridership or revenue)
- **Technology-driven:** agency makes fare structure changes to take advantage of new technology (e.g., smart card)
- **Service-driven:** agency makes fare structure changes to accommodate new mode or service (e.g., LRT, express bus)






# Electronic Payment Options

- **Stored value -- various forms of bonus/discount**
  - purchase bonus
  - add-value bonus
  - discounted single ride with use of smart card
- **Rolling passes**
  - 7-day, 14-day, 30/31-day
    - activate on first use
  - 1-day or partial day
    - sold on board buses

## 31-DAY PASS


Good for unlimited travel on all city routes for 31 consecutive days beginning the first day it is used.

Date of activation and expiration date are printed on the back of your ticket on the first day you use it.



• Can also be used as the first \$1.25 on any Park & Ride or suburban route.


• Cost - \$56.00



• Can also be used as the first \$.60 on any Park & Ride or suburban route.

• Valid from 9:00 am - 3:30 pm and after 6:30 pm, Monday through Friday and all day Saturday, Sunday and holidays.

• Cost - \$28.00




• Good for children ages 6-11.

• Can also be used as the first \$.60 on any Park & Ride or suburban route.

• Cost - \$28.00

## STORED VALUE PASS



• Good for travel on any RTS route at any time.

• Eliminates the need to carry cash.

• Remaining balance is printed on the back of your ticket after each use.

• Cost - \$20.00


**Check This Out!**

## TRANSFERS

• Transfers enable you to take more than one bus to complete your trip. Let the driver know if you need a transfer.

• Transfers are issued from the farebox. The date and time of issue and the expiration time are printed on the back of the ticket.

• Cost - \$.15



## All Day City Pass


• Purchase right on the bus.


• Good for unlimited city zone travel. No transfers needed!

• Valid from the time it is purchased until 2:00 a.m. that same day.

• Please deposit exact fare.

• Cost - \$4.00



 **BUS RAPID TRANSIT**  
ACROSS LATITUDES AND CULTURES

Santiago Fares Discussion  
Nigel Wilson  
October 2011

9

# Electronic Media Pricing/Reload Options

- **Fare policy/pricing options**
  - **Guaranteed lowest fare (“best fare”)**
  - **Guaranteed last ride/negative balance**
  - **Frequency-based bonus/discount**
- **Autoload arrangements**
  - **Individual account-based programs (e.g., CTA)**
  - **Employer programs (e.g., MBTA, WMATA)**



# Multi-application/ Open Payment Programs

- **Transit and other transportation modes**
  - Parking (e.g., WMATA)
  - Toll, parking (e.g., Orlando, Singapore)
- **Transit and non-transportation applications**
  - Banks (e.g., London/Barclay, LA Metro/Visa)
  - Retail (e.g., Hong Kong)
  - ID, access, security (e.g., WMATA/GSA)



# Multi-application/ Open Payment Programs

- **Use of bank cards for fare payment/open payments**
  - **Contactless credit/debit cards at faregates/fareboxes (UTA, NYMTA and PATH/NJT pilots); RFPs for open payment (CTA, SEPTA, WMATA, TTC)**
- **Use of cell phones for fare payment (NFC)**
  - **Chip-based or smart card-enabled phones (San Francisco, London, Tokyo, S. Korea)**



# Example: Oyster (London)

- Smart card-based regional fare payment program
- Privately financed and operated (DBOM contract); 30 banks involved
- “Best fare” arrangement (i.e., daily “capping”)
- Transit application added to credit cards (Barclaycard “One Pulse” card)
- NFC (cell phone) use has been tested
- 80% of trips paid for with Oyster card; over 34 million cards have been issued
- **15 million Oyster transactions daily**



# Recent MIT Fare-related Transit Research

- 1. Policy-sensitive fare model development**
- 2. Self-enforcing options for zonal or distance-based fares**
- 3. Measuring value to the customer of pass or period ticket programs**
- 4. Group purchase programs**

# Policy-Sensitive Fare Model Development for London

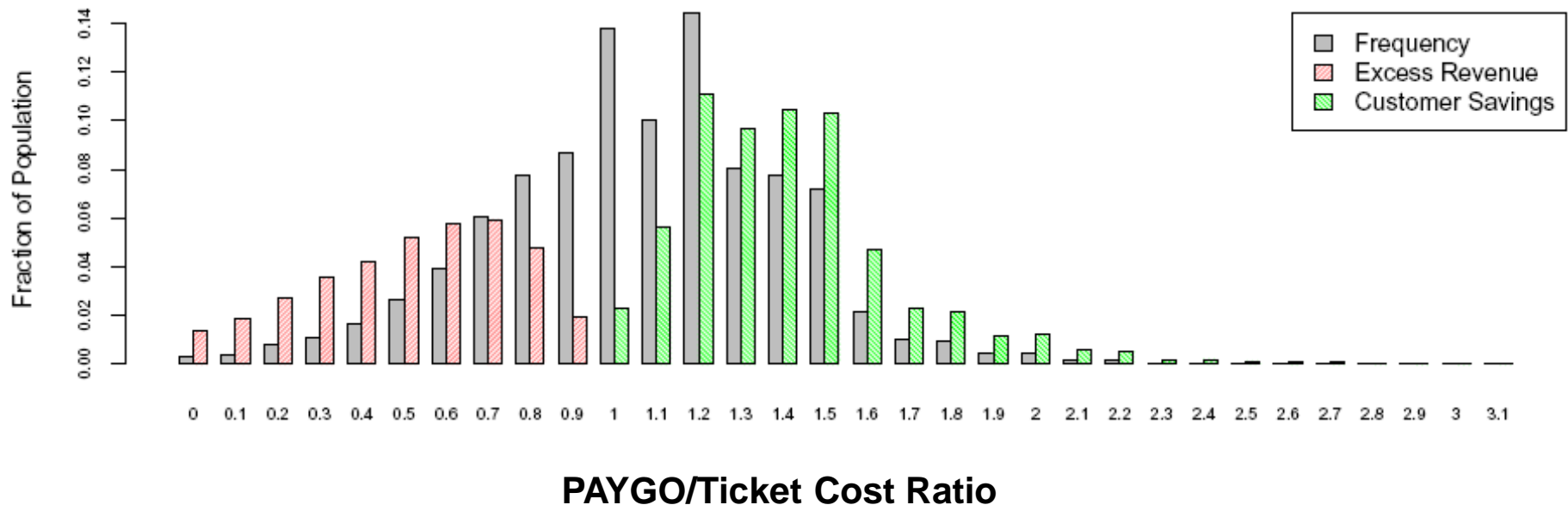
- **First large-scale attempt to use smart card data to assess fare policy (100K+ users)**
- **"Panel" of users over 2+ years, of all ticket types except NR**
- **Model designed to track and predict 3 choices of users:**
  - 1) **ticket choice**
  - 2) **mode choice (Underground, Bus, No Transit)**
  - 3) **time-of-day choice**
- **Smart card "panels" can track usage more accurately and demand elasticities can be more easily developed**
- **Time-of-day precision --> improved peak pricing proposals**
- **Improve through obtaining card #s from traditional surveys**

# Zonal or Distance-Based Fares

- Traditionally hard to enforce without exit control (gates)
- London instituted "Max Fare" policy
- Assuming control at one end of trip (gates or operator) -- largely self-enforcing at other end
- Can reduce fare evasion: in London, "incomplete Journeys" declined from 8% to 2% with Max Fare policy



# Excess Revenue vs Ticket Savings



- 33% of passes do not "break even" for customers purchasing them
- £36.2M in customer savings from tickets
- £14.7M more than "excess" revenue from under-utilized tickets

# Implications?

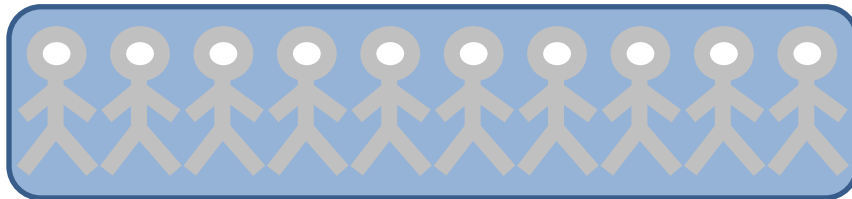
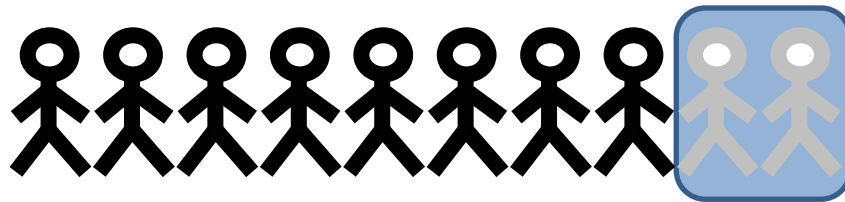
- **Clear willingness to pay for period pre-payment convenience**
- **Subsidies (from employers or others) enhance revenue further**
- **MIT case study indicates that if its 50% subsidy of the MBTA pass were eliminated, many fewer employees and students would purchase passes, and up to 15% of current revenue would be lost**

# More Efficient use of Discounts and "Excess" Revenue?

- **If smart cards are account-based, many options are available:**
  - **Frequency discounts no longer need be strictly period-based**
  - **Can be easily modified once software is in place**
- **Affinity groups can be a substitute for individual accounts:**
  - **Seniors**
  - **Low-income**
  - **Employees**
  - **Students**
  - **Resident parking programs**
  - **Higher density housing developments (TOD)**
  - **Drivers in congested areas**

# What is a Group Transit Purchase Program?

- Employer (or any group) purchase fares in bulk
- Employer distributes cost to employees
- Transit agency remunerated for all fares



- Take transit regularly
- Have transit passes
- Pay 100% of pass cost

- Have transit passes
- Pay 20%+ of pass cost
- Transit agency: more revenue from eight new holders who take more trips

# **Group Purchase Programs Make Sense for Transit Agencies**

- **Increases revenue and ridership (10-20%)**
- **With Smart Cards, no need to discount regular fares or offer special pricing**
- **New employer or auto user subsidies to ensure revenue growth**
- **Revenue to agency is up front and predictable**
- **Cards can be provided and maintained by group: decreased transaction costs**
- **Valuable planning data**

# But Can Employers Afford Them?

- **Parking supply and subsidies are key**
- **"Green" reputation enhanced**
- **Enhanced benefit attracts labor force**
- **Boston cases (MIT and hospitals) say yes!**