The Science of Smart Commuting is Pooling and Telework

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Overview

- Changing market trends
- Telecommuting
- Societal Value of carpooling
- Role of incentives and disincentives
- Gamification
- Challenges to research
- Emerging questions

Changing Market Trends

- Dispersion of employees and worksites
- Changing workforce and growth of post-industrial jobs more conducive to flexible schedules and telework
- Growing number of telecommuters
- Changing travel behavior
- Aging workforce
- Desire to become more productive during the commute time (make phone calls, send emails, etc.)

More Market Trends

- In some markets, park-and-ride lots are at capacity and paid parking may be limiting carpooling
- Technology is changing both traveler expectations and carpooling
- On-demand carpooling has potential to create a value proposition for travelers
- High occupancy vehicle (HOV) lanes are increasingly being converted into toll lanes in a number of markets
- Conversions may be reducing carpooling; however, more research needed

Telecommuting

As of 2017 …

- **Telecommuting in U.S. increased 91%** between 2007 and 2017
- 4.7M U.S. workers telecommuted in 2017 (up from 3.9M in 2015)
- 3.4% of the U.S. workforce are remote workers (up from 2.9% in in 2015)

Societal Value of Carpooling

Opportunities

- Fuel/Cost Savings
- GHG Reductions
- Increased Mobility
- Time Savings
- Convenience
- Social Networking

Challenges

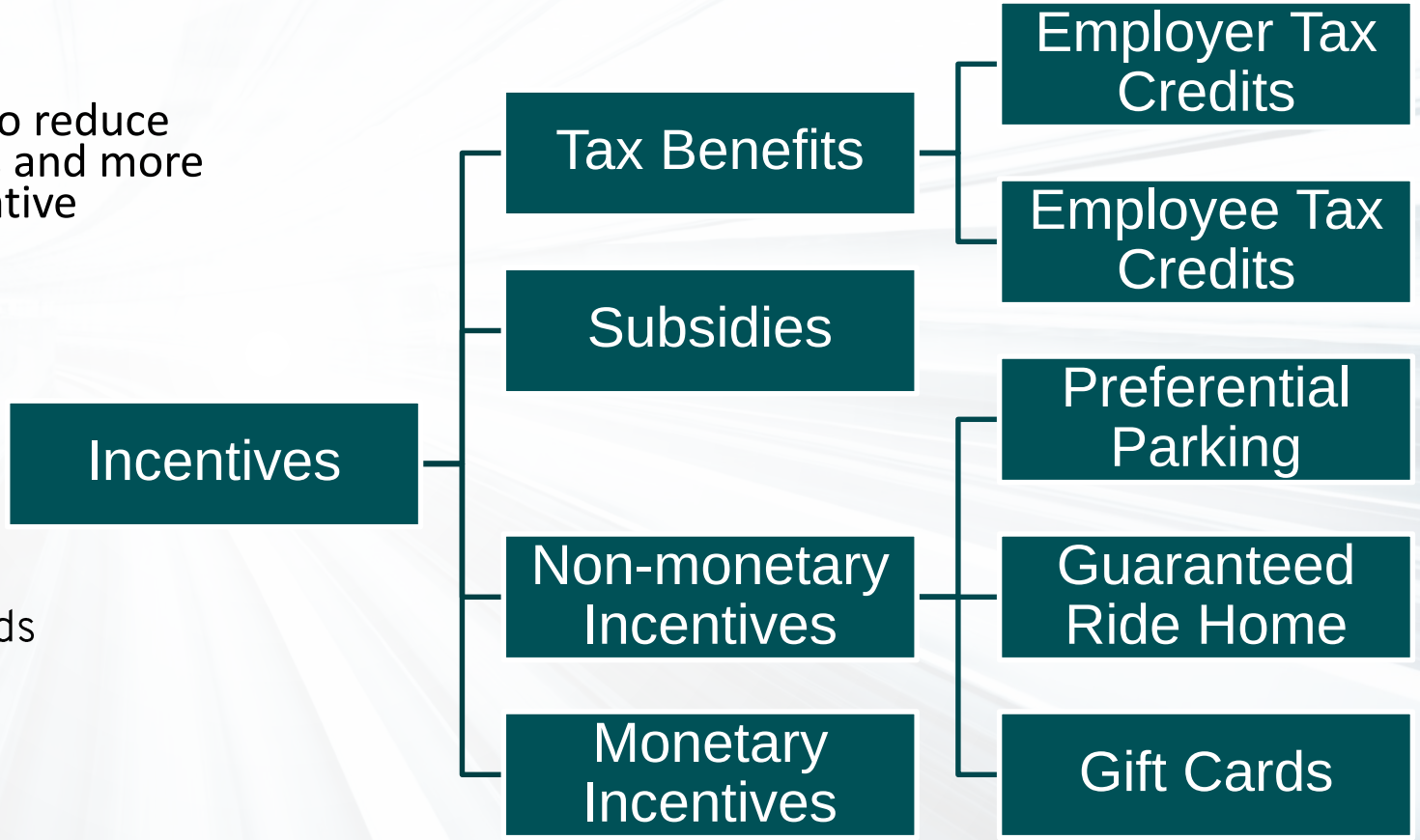
- Flexibility
- Personal Security
- Increased Time/Inconvenience (from route deviation/waiting)
- May compete with public transportation
- Induced Demand

Role of Disincentives and Incentives

Studies have found drivers less willing to reduce SOV trips due to increased driving costs and more likely to carpool in response to an incentive

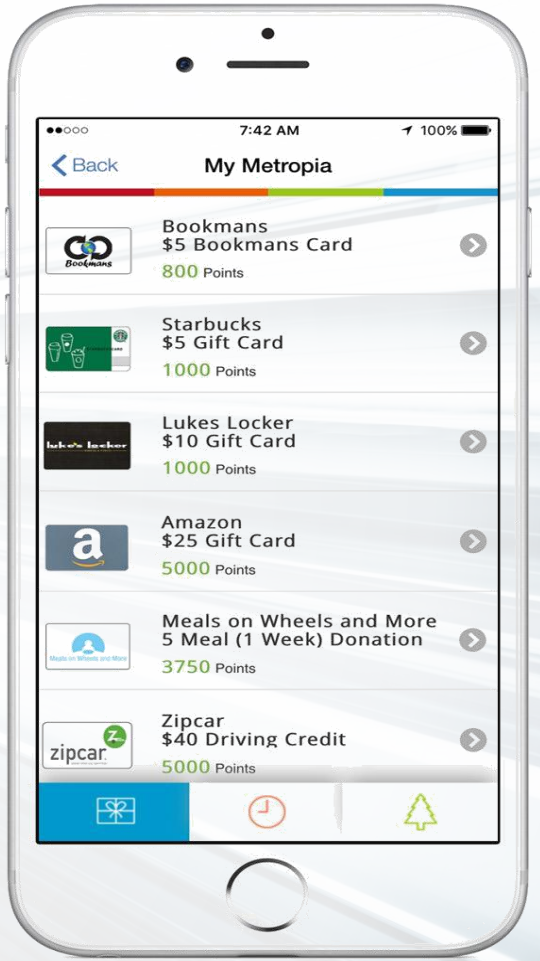
Key Findings

- **Common Incentives**
  - Pre-tax commuter benefits
  - Direct subsidies
  - Guaranteed Ride Home
  - Preferential Parking
  - Lotteries & Drawings
  - Gamification & Rewards/Gift Cards
  - Monetary Incentives
- **Uncommon Incentives**
  - State-level employer tax credits
  - State-level employee tax credits



Incentives and Gamification

- Metropia predicts traffic flows using real-time data and predictive algorithms to provide travelers with information and incentives for choosing less congested travel times, public transportation or carpooling
- A study of Georgia's Cash for Commuters program found that 57% continued to carpool 18 to 21 months after an initial incentive period of $3 USD per a day for 90-days



Challenges of Carpooling Research

- Carpools are difficult for researchers to observe and record
- Lack of systematic analyses makes it difficult to quantify the impacts
- Risks associated with induced demand
- Many types of carpooling and users
  - Families
  - Commuters
  - Non-commuters
  - Pre-arranged carpooling
  - On-demand carpooling
  - Casual carpooling

Emerging Questions

Could COVID-19 change long-term traveler behavior?

- More telecommuters after pandemic
- Increase in virtual activities (webinars, telehealth, etc.)
- Flexible work schedules
- Reduction in unnecessary trips
- Reduction of average vehicle occupancies (people get used to lower occupancy modes)

Barriers to Behavioral Change

- Lifestyle Factors
- Habitual Experience
- Convenience
- Travel Time and Cost
- Density and Built Environment

Thank you

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