Impact of 9/11 on Intercity Travel Behavior: Who are Affected?

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1. Introduction and Objective

Hypothesized impacts of 9/11 on intercity travel behavior
• Short-term impacts:
  - Reductions of trip frequencies by air: ridership in the months following 9/11 was 78% of the same level prior to 9/11
  - Mode shifts: Amtrak gained 10-20% increase in ridership in the subsequent weeks after 9/11
• Long-term adjustment:
  - People may change residence or jobs
  - People may resume their trips to the prior-9/11 level because of the fading fear effect

Objective
• Evaluate impacts of 9/11 on intercity travel behavior
• Identify characteristics of people who are susceptible

2. Survey Procedure

• Two datasets, randomly drawn from staff members in City College of New York
  - Wave 1: six months after 9/11
  - Wave 2: two and half years after 9/11
• Questionnaire
  - Socio-economics and demographics related information
    - gender, age, income, education, etc.
  - Personality related
    - Stress and perception changes
  - Past travel experiences
    - trip frequency, trip purpose, travel mode, etc.
  - Quality rating for various modes
    - Auto, Air, Amtrak and other

3. Sample Description

• Sample size: 200 (wave 1) and 125 (wave 2)
• About 60% males and 40% females
• Majority between 26 and 55 years old
• Average household size: 2.8 (wave 1) and 3.5 (wave 2)
• Most had some undergraduate education
• Median income between $25,000/year and $50,000/year
• Stress level (PSS4 Score): 1.39 (wave 1) and 1.60 (wave 2, slightly more stressed), between “almost never” and “sometimes”

4. Descriptive Results

4.1 Descriptive Results -- Travel Mode of Last Trip

4.2 Descriptive Results -- Trip Frequency Change

4.3 Descriptive Results -- Trip Purpose

4.4 Descriptive Results -- Reason for Mode Choice

4.5 Descriptive Results -- Perception Changes

5. Modeling Analysis of Change in Intercity Trip Frequency

5.1 Preferences
  - Preferences toward making the intercity trip to the destination
  - Preferences for the mode

5.2 Constraints
  - Income
  - Time
  - Family, social or professional obligations
  - Mode constraints
  - Security concerns

6. Conclusion

Impacts of 9/11 on intercity travel
• Mode share by air decreased initially, but recovered after 2.5 years
• Mode share by other modes increased initially, but dropped to prior-9/11 level after 2.5 years
• Security became a major decision factor after 9/11
• 14% in wave 1 and 7% in wave 2 were severely affected by 9/11

Who are more affected?
• Married people, females, older people, individuals with lower education and income, larger household size, are more affected than others
• Individuals who are more sensitive to surrounding environment are more affected than others.
• Non-work related trips are more affected than work related trips