

Needs, Activities and Desires: Where to Go From Here?

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Overview

- Noticeable research progress, 2008-2010
- Missing elements in travel model innovations
- Two recommendations for “new” research focuses

Research progress since the 2008 ITM conference (1 of 3)

- DTA is gaining “street cred”
 - Implementation and testing of DTA for urban planning applications
- First steps towards large-scale integration of DTA and activity-based demand models
- Implementation of large-scale activity-based models in several large MPOs
 - less about model structure and parameters
 - more about sensitivity testing and computational challenges

Research progress since the 2008 ITM conference (2 of 3)

- Addressing greenhouse gas/emissions
 - Activity-based models, strategic modeling
- Disaggregated freight modeling
- Demystification of mixed logit, latent class, and multiple discrete-continuous GEV models
- Consideration of uncertainty--risk and reliability

Research progress since the 2008 ITM conference (3 of 3)

- Finer spatial resolution in activity location, non-motorized path finding, and land use modeling
- Practical use of GPS data for route choice
- Fuller consideration of “sub-markets”
 - Non-motorized modes: bike and walk routes
 - Parking: lot choices, supply constraints, costs
 - Transit access: choices of access modes, stop/station choices

Where to go from here?

- Continue working on the problems highlighted in this conference
- There is still much to learn in each of these areas
- But we may need to think a bit more broadly to be able to respond to the complex questions of tomorrow

What is still missing?

- Missing elements of the household decision maker response set
- Missing elements of the commercial sector decision maker response set
- Sensitivity to conditions not captured in our households surveys

Household response set to increase in travel costs

- Choose lower-cost routes, times of day
- Change to lower-cost modes
- Choose nearer destinations
- Suppress certain activities
- Shift household tasks to unaffected members
- **Change consumption of non-transportation goods and services**

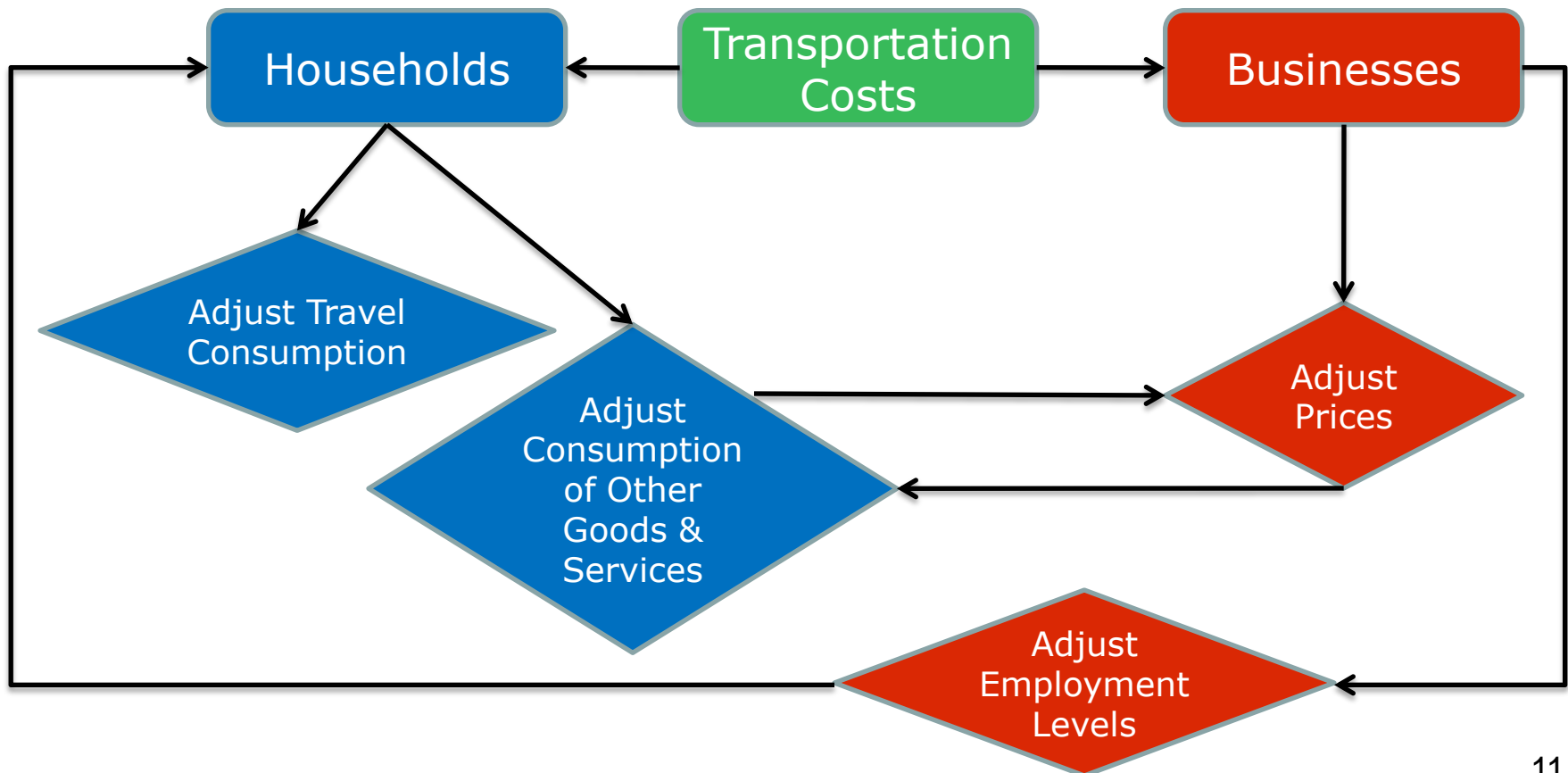
Need to consider trade-offs in household budgets

1. Short-term as it effects trip making vs. consumption of other goods and services
2. Longer-term mobility-related decisions vs. housing quantity/quality vs. work
 - Residential location
 - Vehicle purchases
 - Labor-force participation vs. cost of travel

Need to consider the commercial sector's response set

1. How do transport costs affect productivity and employment?
 2. How are transportation costs passed onto consumers?
 3. How do businesses respond when consumers reduce consumption?
- Very challenging
 - Heterogeneity of business practices and transport needs
 - Lack of establishment data for model development
 - Need to understand supply chains
 - Links to forces outside of the focus region

Local economic linkages between households and businesses



Research recommendation #1

- We already study and, to varying degrees, try to model local travel markets, land development markets, housing markets, and labor markets
- We should probably be modeling household consumption and local retail and service markets

Current travel models are not sensitive to conditions not captured in our household surveys

- Insensitive to fuel prices and other travel costs outside of the observed range
- Elasticities tend to....
 - Be non-linear (we observe “flatter” part of curve)
 - Have different short- and long-term impacts (we only observe short-term)
 - Interact with long-term mobility decisions and housing budgets
 - Change as technology provides alternatives

Implications of lack of data on unobserved conditions

- Unobserved attribute value ranges are an additional source of “error” in our models that show up when we produce forecasts
- We might need to accurately portray responses to scenarios that are very different from what we have today
 - Economic restructuring
 - Peak oil conditions, high fuel costs
 - Large influx of new immigrant populations
 - Post-disaster recovery and resettlement

Research recommendation #2

- Focus how people meet their needs in adapting to change
 - Conduct strategic case studies (e.g. post-Katrina)
 - Study elasticities in other areas of consumption and in other regions
 - Consider both new, longitudinal surveys and older, retrospectives, or meta-surveys
 - Study activity-resource networks—economic and social networks—how they form and grow, critical and weak links
 - Better understand linkages between public and private sector economic actors at the local level

Thank you!

