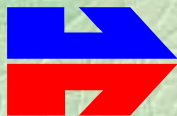


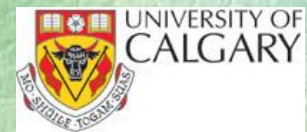
# ILUTE Modeling Research in Canada: Conclusions to Date

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Presented at the  
Third Oregon Symposium on Integrated  
Land Use and Transport Models  
Portland, July 25, 2002



Joint Program in  
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# Still a work in progress

- Straining practicality along some dimensions
  - RAM/computational requirements
  - data/theory to support micro models
- Feasibility demonstrated in several cases
  - microsimulating 100% populations in large cities
  - activity-based travel modeling
  - population synthesis
  - demographic updating

# Parallel Approaches

Combination of practical model development (e.g., TLUMIP) and “basic” research (e.g., ILUTE) works very well and is mutually reinforcing

- identification of research issues
- “off-line” search for solutions
- data availability
- schedule discipline

# Object Orientation

Object-oriented design and related software critical to the successful development of large-scale microsimulation models

- extremely compatible with microsimulation
- “natural” view of the system being modeled
- less synthetic, easier to understand, easier to explain
- more supportive of behavioral modeling
- provides a rigorous “language” for model development

# Microsimulation

Microsimulation approach lies at the “heart” of the ILUTE effort, but it is a technique for exercising models, not a theoretical construct

Many expected benefits are starting to be realized:

- “unimposed” emergent behavior
- flexibility in aggregation
- more explicit representation
  - non-linearities
  - rules
  - budget constraints
  - however, raises questions/challenges as well

Reduced computational burden?

# Theoretical Foundations

Optimistic that we are moving towards a more integrated, comprehensive theory underlying our models:

- household behavior
- firm behavior
- market processes

This is our primary yardstick for measuring progress within ILUTE.

# Network Modeling

- Key computational burden is still full-knowledge, transport, zone and network modeling:
  - “assignment” modeling
  - travel time/cost by mode calculations & storage
- The “interface” between the transportation system and location choice / activity scheduling behavior not well defined

# The Learning Curve

There is still much to learn:

- treatment of time & space
- time-driven vs. event-driven simulation
- replication / statistical properties
- adaptive behavior
- how “micro” do we need to go?

ILUTE is a framework for investigating these and similar issues

# Model Development

- Estimation vs. calibration vs. validation
- Very challenging
  - data needs
  - complexity and interconnectivity
  - dealing with dynamic systems
  - paucity of theory re. model estimation/calibration

# Final Word

These are exciting times for integrated modelers.

- Much more comprehensive models based on microsimulation are being developed world-wide
- Considerable caution still required -- still a “hypothesis” which is being tested
- Many questions remain, but much potential as well