TransCAD 9.0

Some Recent Caliper Project Work
New Features in TransCAD 9.0

• Flowchart Menus, Toolboxes, and Organization
• Web Diagrams
• Dashboards
• Destination Choice Estimation
• Population Synthesis
• Modeling API
• Support for R and Python
New Features in TransCAD 9.0

- Flowchart Innovations
New Features in TransCAD 9.0

- Web Diagrams
New Features in TransCAD 9.0

- Dashboards
New Features in TransCAD 9.0

- Destination Choice Model Parameter Estimation

![Destination Choice Model Estimation - hbw.dcm]

Starting Model Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Scale</th>
<th>Fixed</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta_IZ</td>
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<td>1.0000</td>
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<tr>
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<td>9.8031</td>
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</tbody>
</table>

Maximum likelihood converged after 10 iterations.

Estimation results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>t Test</th>
<th>Global Corr</th>
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<tbody>
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<td>Beta_IZ</td>
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</tbody>
</table>

Log-Likelihood at Zero: -4381.8129
Log Likelihood at Start: -4381.8129
Log-Likelihood at End: -3266.9062
-2 (LL(Zero) - LL(End)): 2228.8133
-2 (LL(Start) - LL(End)): 2228.8133
Asymptotic rho squared: 0.2544
Adjusted rho squared: 0.2535
More Effective and Rapid Population Synthesis

- Support for matching both household and population marginals as well as multiple geographies.

- Create synthetic populations in minutes rather than hours. Update synthetic populations for scenarios.
Python and R Integration

- Updated API for programming procedures and common TransCAD operations in Python and R
- Integration into Batch Mode evolving
Python and R Integration

• caliperR
  - An R package for running Caliper software
  - Access to any GISDK function or Macro (including your own)
  - Convert caliper views into data frames (and back again)
  - Bring matrices into the R working environment (e.g. skims)
  - Control GISDK classes
  - Fully documented including vignettes

• CaliperPy Module
  - Lets you access not only TransCAD, but also the .NET framework via any program written in 3.x
  - Access to GISDK macro calls, binary and other tables, logging, debugging, vectors, matrices and procedures
Updated and New Datasets

• ACS 2015-2019
• 2020 Census Block geography
• New Caliper national road layer designed for representing external networks for MPOs and use in statewide models and national models
• Up-to-date HERE data for CA and nationwide available for license with all streets, travel speeds, and points of interest
• Lane level networks for U.S. Interstates and major roads of many cities (for TransModeler).
Some Recent & Current Caliper Project Work

- NPMRDS
- Virginia DOT Accessibility Calculator
- Activity Based Modeling
- Dynamic Traffic Assignment
- FHWA Freight Analysis Framework
VDOT Accessibility Calculator

• Performs SmartScale Project Analysis
• Covers all of Virginia plus 30 mile radius
  - Over 2 million HERE streets, 260,000 blocks, 150,000 points of interest
  - Auto, Transit, Walk and Bike accessibilities
  - Compares project vs no project accessibilities to employment and points of interests
New Native TransCAD ABM Software

- High performance model components
- Can flexibly model all types of ABMs
- A uniquely capable and easy to use UI
- Many types of data visualization
- First implementation is for the three Central CA Coast MPOs
Central Coast ABM

- A more realistic choice structure
- Achieves model consistency w/o iteration
- Model components successively estimated from survey data rather than asserted.
Dynamic Traffic Assignment & Simulation

- Many successful and unprecedented wide-area DTA deployments with TransModeler
- Microscopic and Mesoscopic Models with Dynamic Pricing for Managed Lanes
- Support for Connected and Automated Vehicle Alternatives
- TransDNA for the largest meso DTAs
- ABM-DTA Integration now supported
FHWA Freight Analysis Framework

- Disaggregates FAF 5 OD Tonnages into truck trips by counties, subcounties, and ports
- Assignment using logit multi-path assignment method
- Visualizer displays flows and paths by commodities at county, FAF, and state level
FHWA Freight Analysis Framework
For More Information

- See our publications
  https://www.caliper.com/press/transportationlibrary.htm

- Our most recent newsletter

- Email Jim Lam (jimlam@caliper.com) or Howard Slavin (howard@caliper.com)