

Housing Price Model

From the literature:

- Distance to public access (Orr and Pickens 2003)
- Travel time to lake (Yoo et al. 2014)
- Annual agricultural sedimentation / dredging (Bejranonda et al. 1999)
- Water clarity (Poor et al. 2007, Zhang and Boyle 2010)
- 10-year avg minimum water clarity (Michael et al. 2000)
- Total N & P (Dodds et al. 2008)
- Lakefront (Lansford and Jones 1995, Gibbs et al. 2002, Boyle et al. 1999, Kashian et al. 2006)
- Lake view (Loomis and Feldman 2003)

Data Development:

- Property Parameters
 - VT Dept of Taxes: Assessed value, lot size
 - Derived: presence and type of garage
- Location Parameters
 - Derived: Proximity to Lake Champlain, travel cost to services, retail, industrial, highway interchange, conserved land
- Demographic Parameters
 - ACS 2013: Median household income, vacant housing
 - Derived: residential density (from E911)
- Landscape & Environmental Parameters
 - Long-term monitoring data: Secchi depth
 - Derived: Lake visibility

$$\text{Equation 1: } y = \beta_0 + \beta_1(\text{structural}) + \beta_2(\text{locational}) + \beta_3(\text{environmental}) + \varepsilon$$

Housing Price Model Results

Baseline

- 1-m increase in water clarity
 - 3% increase in transaction value for Single family dwelling
 - 37% increase in transaction value for Seasonal dwelling
- Proximity to Lake Champlain ($\leq 100\text{m}$)
 - 30% increase in transaction value for single family dwelling
 - 49% increase in transaction value for seasonal dwelling
- Lake visibility
 - 44% increase in transaction value for single family dwelling

Scenario Analysis

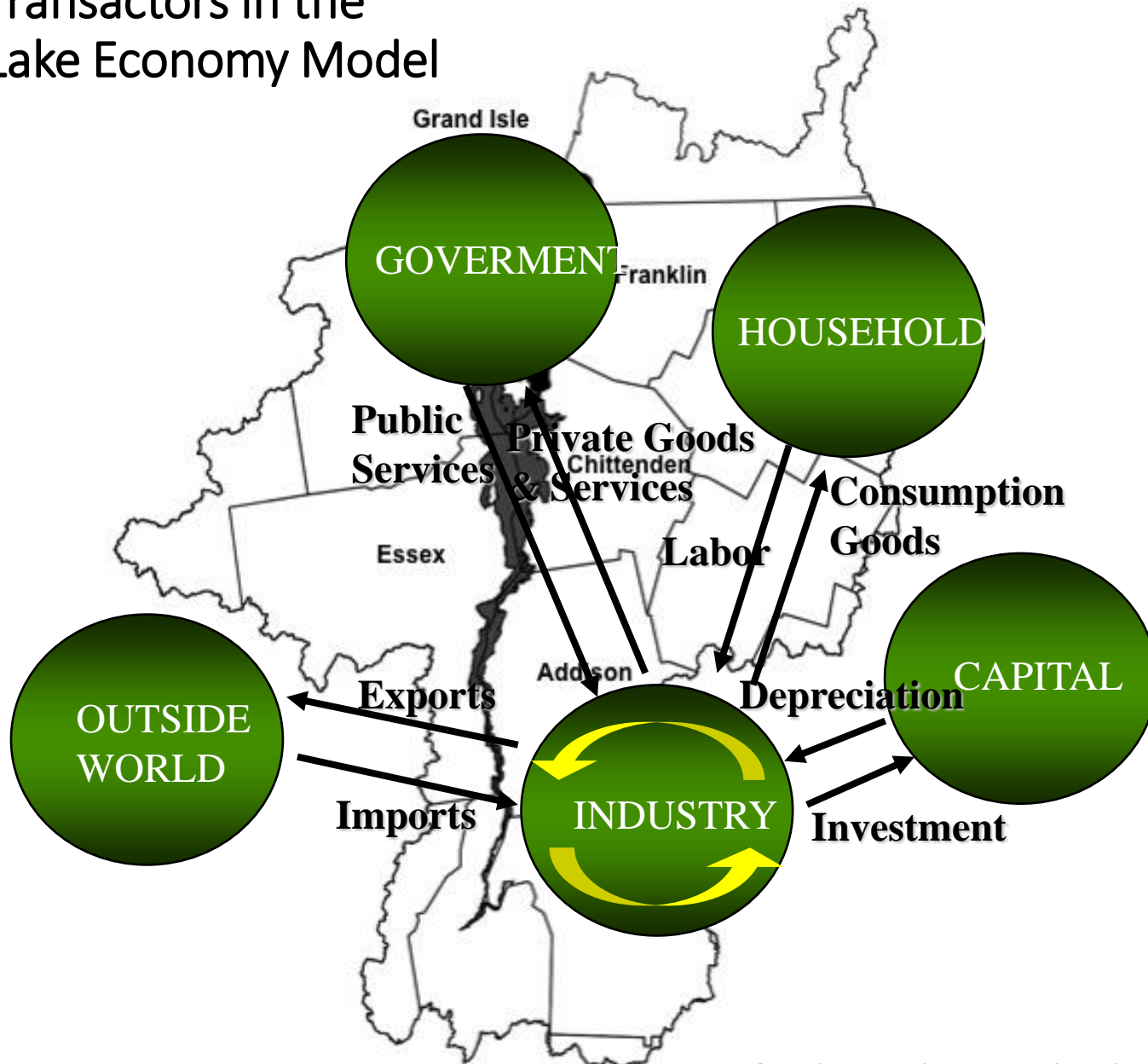
TMDL

- EPA (2014): 34% reduction in Total Phosphorous required to meet TMDL goals
- Δ Secchi depth = 0.624-m
- + \$5,700 for single family dwelling
- + \$61,000 for seasonal dwelling

Climate Change

- Average of six scenarios indicates 29.6% increase in Total Phosphorous
- Δ Secchi depth = 0.544-m
- Δ single family dwelling: - \$4,900
- Δ seasonal dwelling: - \$53,000

Primary Economic Transactors in the Lake Economy Model



IMPLAN SAM Findings

- \$1 tourism spending yields:
 - \$0.57 in labor income
 - \$0.62 in other value added (taxes, property income, profits)
- 1 new tourism-related job yields:
 - 0.4 jobs in supporting and induced activities
- \$300 million annual Lake-related spending yields:
 - additional \$72.75 million and 1,070 jobs
- 1-m decrease in water quality yields:
 - 195 lost full-time equivalent jobs
 - \$12.6 million decrease in tourism spending
 - \$16.8 million total decrease