Investigating Locational Affordability: Housing Costs, Vehicle Ownership Costs, and Foreclosures (14-0471)

Transportation Research Board
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Ann M Hartell, MRP
Locational Affordability

- Concept that recognizes linkage between housing and transport
- Costs for both are inextricably entwined
- Sustainability and resilience
  - Economic
  - Social / Equity
What does ‘Affordable’ Mean?

- In housing, we have percent-of-income
  - Alternatives include the residual income approach

- What about for transportation?
  - What is the threshold for unaffordability? 15%? 20%?
  - Broader equity-based approaches
Testing the Definitions

- Foreclosure as unaffordability indicator
  - Housing costs unsustainable
  - Lack of economic resiliency

- Community- and city-level impacts
  - Demands for social services
  - Declining tax base and revenue

- Link with car ownership?
Is There a Relationship Between High Vehicle Costs and Foreclosures?

Study Area

- Research Triangle Region of North Carolina
  - 6 counties
  - Neighborhood level/ Census tract
- Polycentric
  - 4 major employment centers
- Autodependent
  - Very low mode split
  - Local and regional bus transit
Is There a Relationship Between High Vehicle Costs and Foreclosures?

Quantitative Analysis: Dependent Variable

- Estimated foreclosure rate 2007/08
- Generated by model
  - Change in housing prices from their peak
  - % of mortgages that are ‘high-cost loans’
- County unemployment rate in June 2008
- Adjusted for investor loans
- In study area: 0% to 11.1% with a mean of 2.78%
Is There a Relationship Between High Vehicle Costs and Foreclosures?

Quantitative Analysis: Independent Variables

- US Census 2000
- Tract Median Income for Homeowners ($100s)
- Percent Owner-Occupied Households:
  Owner-occupied hsg units / Total occupied hsg units
- Percent High Housing Cost Households:
  Hsg units occupied by homeowners with mortgages expending ≥30% of income on housing / Total occupied hsg units
- Percent High Vehicle Cost Households:
  Owner-occupied hsg units with 3 or more vehicles / Total occupied hsg units
High Vehicle Costs vs Tract Median Income

- Weak, positive
- $R^2$: 0.0806
- Pearson: 0.248
### Regression Results

- **Adj R-square:** 0.666
- **N = 204**
- **Log-linear regression**

**Signs as expected**

**All variables highly significant**

### Model 2: All Variables

<table>
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<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Std. Coeff.</th>
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Interpreting Results

- If Foreclosure Rate = 5%
  - $100 increase in income > reduces foreclosure rate to 4.98%
  - $100 decrease in income > increases foreclosure rate to 5.02%
  - 1% increase in HHs with mortgages expending 30% or more of income on housing > increases foreclosure rate to 5.34%
  - 1% increase of home-owning HHs with 3 or more vehicles > increases foreclosure rate to 5.16%
Notes on the Interpretation

- Aggregate analysis; Census tract is unit of observation

- High vehicle ownership may be proxy for other household budget patterns

- Outcome variable + affordability thresholds

Credit: www.cameronburke.com
Conclusions

- Income an important factor in foreclosures
- Increased shares of households with high housing costs associated with increase in foreclosure rates
- Increased shares of households with high vehicle costs associated with increase in foreclosure rates
- Supports concept of locational affordability

Graphic: GROWashington Arstook
Percent High Vehicle Costs (quintiles)