



# Travel Behavior of Baby Boomers in Suburban Age Restricted Communities

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*Impact of Changing Demographics  
on the Transportation System*

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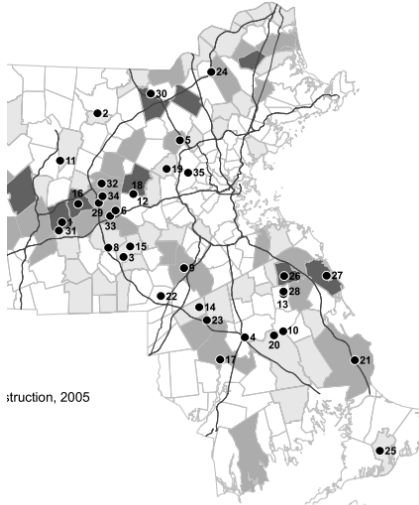
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## Outline

- Research Context and Questions
- Research Methodology
- Descriptive Statistics
- Modeling Behavior
- Implications and Further Research

● ● ● Context



- Age-restricted communities (55+)
  - Increasingly prevalent across USA & MA
  - Little studied in terms of travel & activity behavior
- Baby boomers largely suburban and auto-dependent.
- Suburbia may not be conducive to active lifestyles; lack of
  - Density
  - Local attractions (mixed uses)
  - Regular transit
  - Quality sidewalks

● ● ● Research Purpose

Increase our understanding of:

- Residential preferences of suburban baby boomers
- Influence of residential location on travel and activity behavior, focusing on differences between:
  - Age-restricted communities (RCs)
  - Typical suburban neighborhoods (TNs)

## ●●● Research Design

**Quasi-Experimental:** Matching 20 RCs with surrounding TNs

### **Mail-back Survey**

- Sampled households (HH) with one or two inhabitants aged 55-65 years
  - Purchased a commercial mailing list to target HHs
  - \$5 cash compensation mailed with survey
- Instrument
  - Attitudinal questions (residential and travel preferences)
  - Demographic and socioeconomics
  - Retrospective trip counts (mode and purpose) over past week (each HH member)
  - A single day travel diary (weekday) (each HH member)
- Size: 7000 envelopes mailed out
  - 1,284 useable HH responses (1,700 diaries)
  - 363 HHs in RCs, 921 HHs in TNs

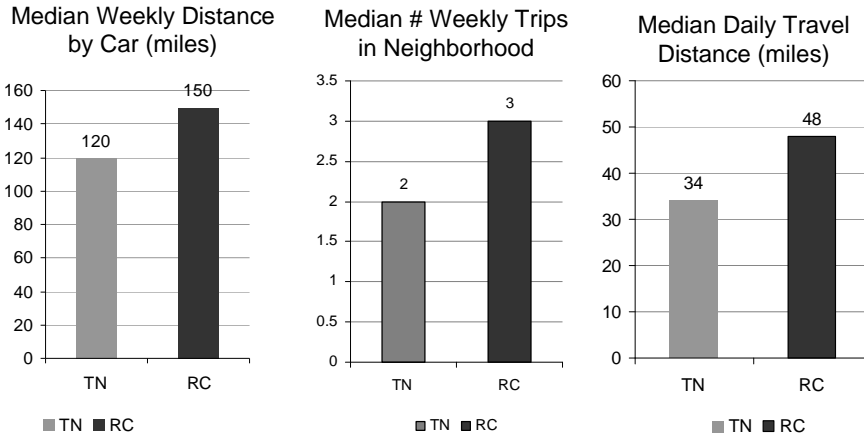
### **Spatial Analysis:** GIS

- Derive measures of accessibility to employment and attractions
- Neighborhood density & other physical characteristics (e.g., street networks)

## ●●● Summary of Findings

- Surveyed HHs in RCs and TNs similar in age, income, etc.
- RCs associated with more walking and more visits to neighbors
- RC HHs generate more trips per week and more local trips, and more trips with auto passengers
- RC residents more likely to walk from home or visit neighbors
- HH preferences for neighborliness influences RC choice
- HH preferences for walking does not influence RC choice
- Living in RC has greater influence on making visits to neighbors than on walking

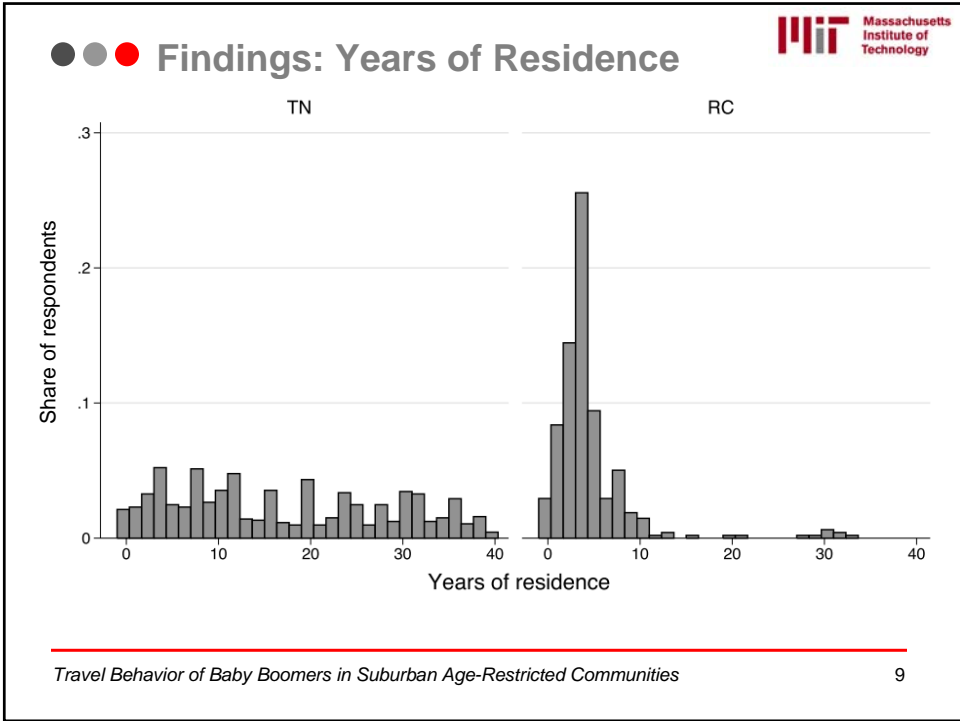
## ●●● Findings: Travel Summary



## ●●● Findings: Social and Leisure Trips

	Trip type	
	Local	Regional
Zero trip rate (%)		
RC	21.9	1.1
TN	30.1	1.4
Median trips		
RC	3	7
TN	2	6
Mean trips		
RC	3.8	7.4
TN	2.8	6.4

- RCs have lower share of HHs making 0 local trips during the week
- RC HHs make on average more social and leisure trips (locally and regionally)



**Findings: Local Trips and Neighborliness**

	RC	TN
Walk/cycle locally at least once last week	67%	59%
Visit a neighbor at least once last week	51%	34%

- RC residents appear more likely to:
  - take local trips by walking or cycling
  - visit a neighbor
- Local activity and neighbor visits not correlated with retail accessibility or street network characteristics

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●●● Findings:  
Traveling as Car Passenger

Mode	TN	RC	NHTS
	$n = 3,542$ %	$n = 1,445$ %	%
Private vehicle driver	87	79	89
Private vehicle passenger	6	14	-
Motorbike	< 1	< 1	< 1
Public transport	1	1	1
Cycle	< 1	< 1	< 1
Walk	5	6	9

●●● Modeling Behavioral Differences

**Examine RC/TN effect on 2 behaviors:**

- Local activity: defined as resident made one or more walking/biking trip per week
- Neighborliness: defined as resident visited neighbor one or more times per week

**Analytical Challenge: Risk of inferring false causality**

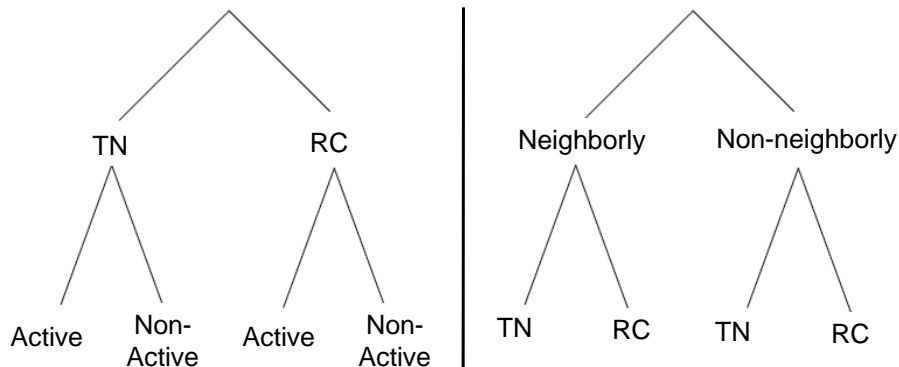
- Our premise: neighborhood setting influences individual's activity behavior
- Alternative possibility: individual's preference for activity behavior influences neighborhood choice
- Technically: sample selection bias and endogeneity

## ●●● Modeling Behavioral Differences

### Three modeling approaches

- **Statistical Control Model**
  - Accounts for endogeneity through inclusion of attitudes such as “Enjoy driving” or “Enjoy walking/biking” as explanatory variables
- **Instrumental Variable Model**
  - Reduces endogeneity by including a separate instrumental variable
  - Instrumental variable constructed from a model of residential choice (RC or TN)
    - Utilizing residents’ attitudes towards neighborhood characteristics
- **Nested Logit Model**
  - It allows joint estimation of residential choice and travel outcomes.

## ●●● Nested Logit: Resulting model structures



- Local activity model:
- Activity levels are conditional upon residential location
  - Residing in RC increases local activity trips

- Neighbor visits model:
- Residential location conditional on neighborly tendencies
  - Residents choose RC because they want to be neighborly

## ●●● Travel Models: Local Activity



	Statistical control			IV			NL		
	<i>b</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>t</i>	<i>p</i>
N'hood	0.31	2.49	*	-0.27	-1.01		-0.04	0.34	
Retired	0.49	3.95	***	0.48	4.11	***	0.51	4.07	***
Health	0.50	3.25	**	0.72	4.96	***	0.65	4.23	***
Enjoy driving	-0.12	-2.25	*						
Enjoy walking/biking	0.35	7.89	***						
Like sidewalks	0.25	5.57	***						
Two bikes				0.40	3.13	**			
One vehicle				0.31	2.29	**			
N	1545			1578			1427		
LR $\chi^2(6)$	123.78			46.7			103.9		
$p < \chi^2$	< 0.001			< 0.001			< 0.001		
log likelihood	-986.7			-1027			-937		
$\rho^2$	0.08			0.02			0.05		
Hosmer-Lemeshow $\chi^2(8)$	8.95			6.92					
H-L <i>p</i>	0.35			0.54					

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

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## ●●● Travel Models: Neighborliness



	Statistical control			IV			NL		
	<i>b</i>	<i>z</i>	<i>p</i>	<i>b</i>	<i>z</i>	<i>p</i>	<i>b</i>	<i>t</i>	<i>p</i>
N'hood	0.34	2.44	*	0.37	2.45	**	0.32	2.19	**
Retired	0.66	5.8	***	0.75	6.76	***	0.83	7.01	***
Male	-0.36	-3.33	**	-0.31	-2.93	**	-0.39	-3.42	***
Two bikes	0.29	2.3	*	0.31	2.49	*			
Health rest.	0.54	8.85	**						
Prefer sidewalk	0.13	2.86	**						
Prefer space around home	-0.14	-2.85	**						
Years resident	-0.01	-2.39	*				-0.02	-3.48	***
Low income household vehicles2				0.87	2.05	*			
				0.31	2.4	*			
N	1565			1572			1427		
LR $\chi^2(6)$	124			85.2			167		
$p > \chi^2$	< 0.001			< 0.001			< 0.001		
log likelihood	-993			-1009			-905		
$\rho^2$	0.06			0.04			0.08		
Hosmer-Lemeshow $\chi^2(8)$	3.73			8.61					
HL <i>p</i>	0.88			0.38					

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

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## ●●● In Summary

- Analytically
  - For local activity, residents do not apparently self-select into neighborhoods; RCs seem to induce more local activity
  - For neighborly visits, residents apparently choose into RCs because of preferences for neighborliness
- After controlling for preferences, little effect of RC on local activity
- Difference between RC and TN is greater in the case of neighborliness than for local walking/biking

## ●●● Limitations

- Imprecise dependent variables
  - Including due to use of retrospective weekly travel, interpretation of questions, etc.
- Neighborliness may be more associated with short tenure than RC, per se
  - RC residents, having lived there for shorter time, may be more inclined to get to know neighbors
- Fairly crude measures of built environment used
  - None of them significant in models
- Models have fairly low explanatory power

## ●●● Implications and Further Research



- Can RC neighborliness tendency be replicated?
  - More detailed analysis of community and social effects of RCs
- Further analyze Travel Diary Data
  - Mode choice, trip lengths, chaining
- Investigate apparent RC inclination towards ride-sharing
  - Again, possible sign of social capital present in RCs
- More detailed characterization of built environment
  - E.g., tree coverage, network characteristics, etc.
- Better travel data collection instruments
  - Non-intrusive, non-burdensome, but complete (ideally, multi-day)
- Expand to look at other aging adult locations (e.g. NORCs)

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