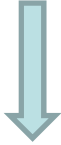


Residential Location Choice—a Search in the Mirror of the Past

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Motivation

- Travel behavior ↔ the built environment
- 
- Residential self-selection, but
 - What do we know about residential self-selection?
 - When is it formed?
 - What are the influences?

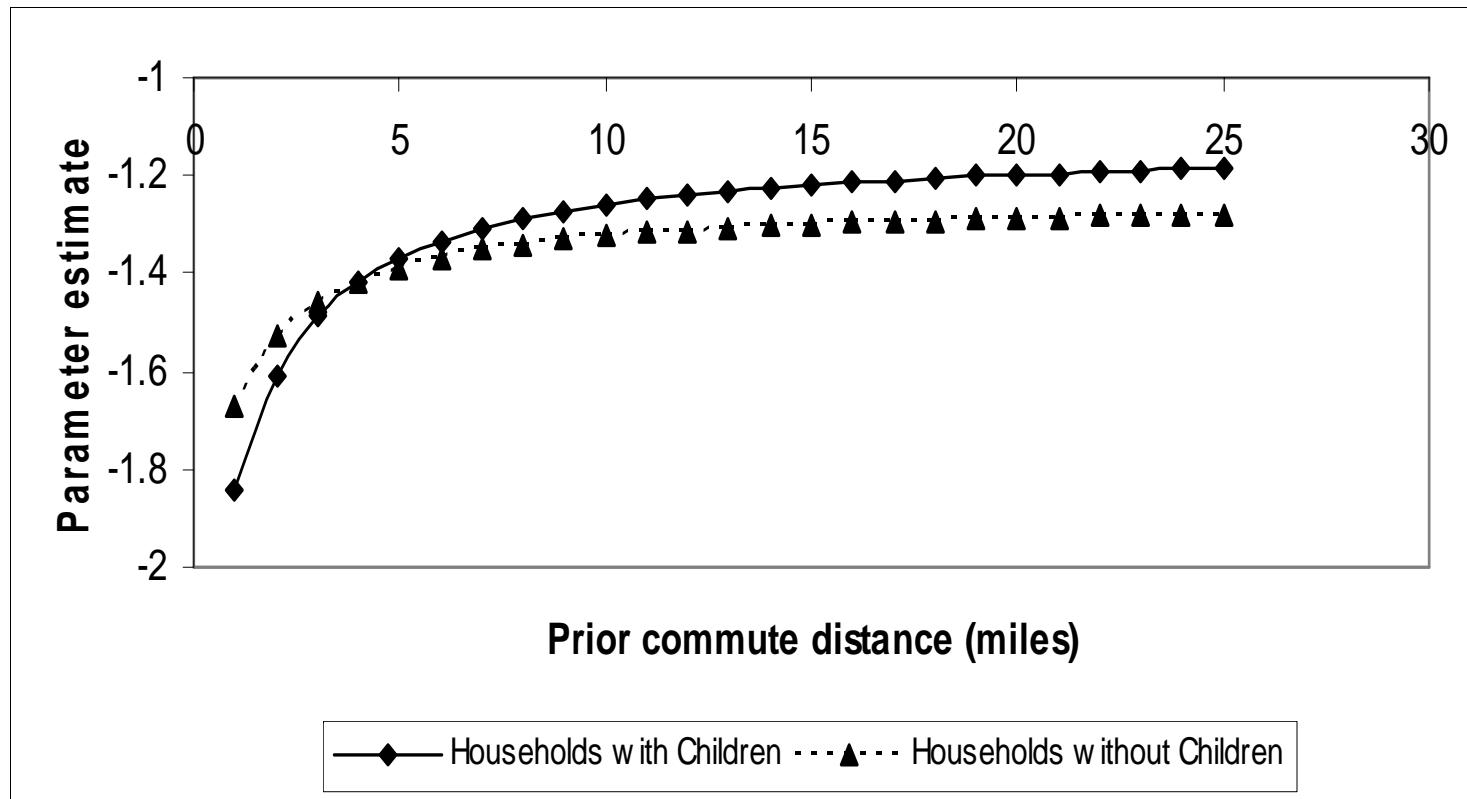
Past is a Prologue to Present

- Behavioral studies
- Life course research
- Human memory
- The current state of residential location studies

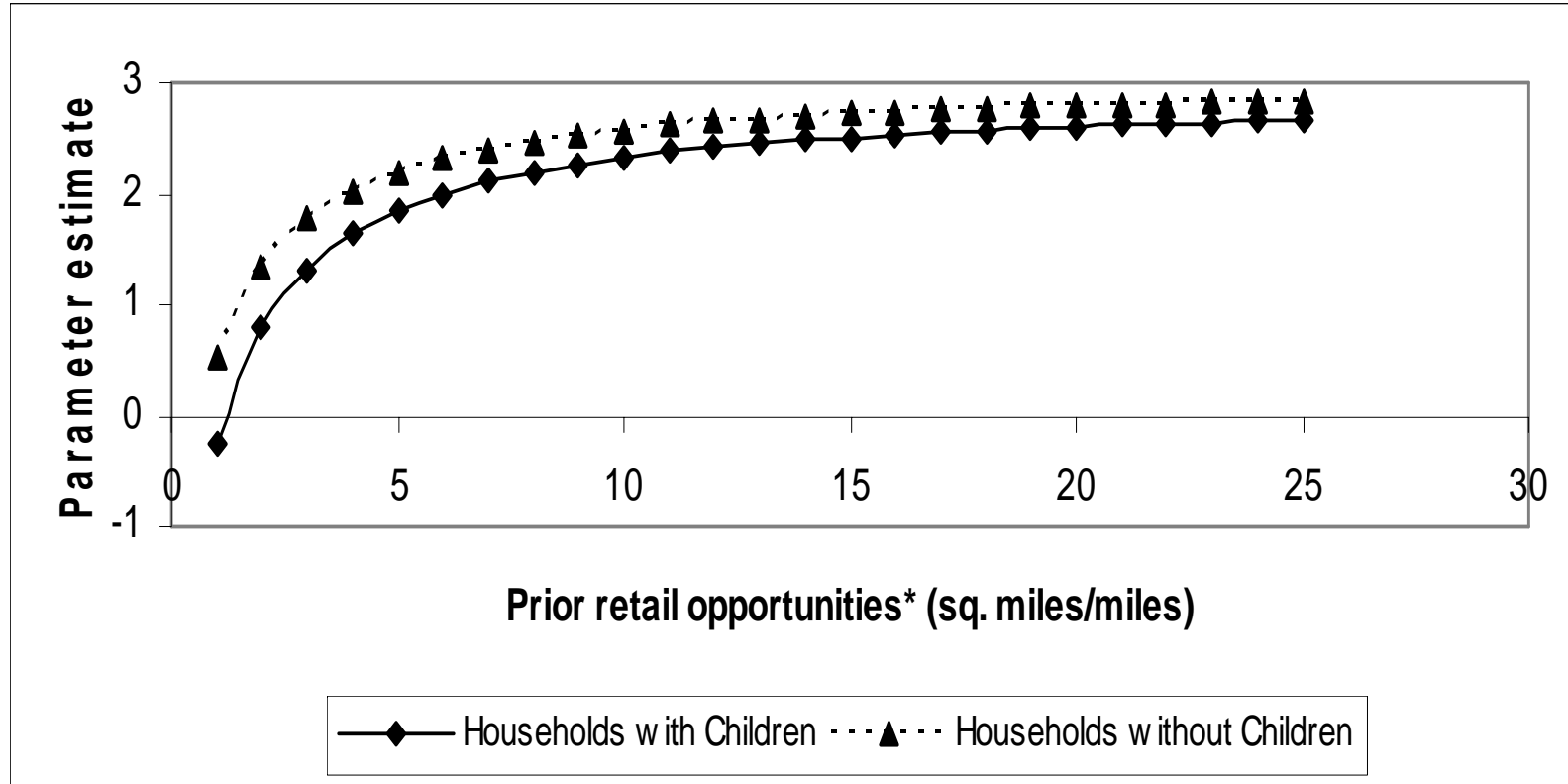
Alternative Hypotheses of Prior Locational Influence

- Adaptive behavior—people become adaptive to the environment they are exposed to and over time, they purposefully seek an environment with certain attributes
- Variety seeking—people get tired of they are used to and purposefully seek an environment that has different characteristics

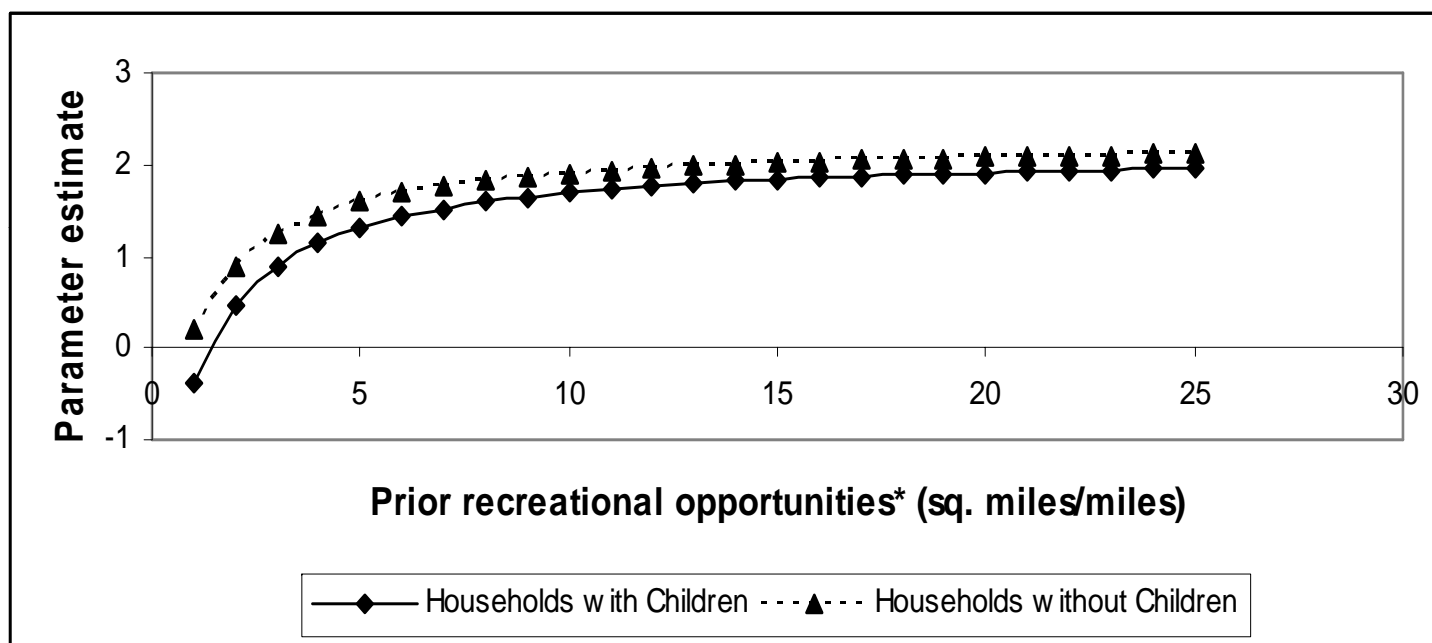
Preference towards Commute Distance (Chen et al., 2009)



Preference towards Retail Land Use (Chen et al., 2009)



Preference towards Recreational Land Use (Chen et al., 2009)



Limitations of the Earlier Study

- The use of a single prior location
 - Prior location influence vs residential self-selection
 - All prior locations are the same?
 - Possible interaction with SES

Our Hypotheses

1. Residential location choices are greatly influenced what was experienced spatially
2. Prior location influence precedes residential self-selection and thus is a key factor contributing to the formation of residential self-selection
3. Prior location influence is modified by the duration and the recency of the stay
4. There exist cumulative effects of multiple prior locations
5. There exists a period effect such that the same location experienced in different periods have varying effects

General Framework—Accounting for Prior Location Influence

- We modify the coefficients in the systematic utility function, $V = \sum \beta_l \times f(x_l)$
- A popular assumption of β_l in literature: β_l is a constant
- We propose the following:

$$\beta_l = \alpha_{l1} + \alpha_{l2} \frac{\partial f(x_{n,a,l})}{\partial x_{n,a,l}} = \alpha_{l1} + \alpha_{l2} \frac{\partial \log(x_{n,a,l})}{\partial x_{n,a,l}} = \alpha_{l1} + \alpha_{l2} \frac{1}{x_{n,a,l}}$$

Where,

β_l is the parameter of the l^{th} attribute,

α_{l1} is the base parameter for parameter β_l ,

α_{l2} is the adjustment parameter for parameter β_l , and

$x_{n,a,l}$ is the l^{th} attribute for household n in prior location a .

Empirical Dataset on Movers

- 269 households who relocated bet. 2007-2009
- “locate to” counties: Manhattan, Queens, Nassau, Suffolk, in New York City Metro Region
- Information collected on 3 locations where subjects spend the longest time, most recent prior location, and current location

SES Characteristics

Homeownership	Owner Occupied		Renter Occupied	
	Num.	% in sample	Num.	% in sample
	209	77.7	69	22.3
% of child-bearing HH.	49.0		42.1	
Average Household Size	2.90		2.63	

Gender		Male	Female
	% in Sample	40.1	59.9
Ethnicity	% of White	72.0	65.7
Education	Less than complete College	26.9	21.4
	Complete college degree	29.2	34.2
	completed graduate degree	43.9	44.4
Average Age		42.54	41.16

Income and purchase amount

Estimated Household Income	Buyer		Renter	
	Freq	%	Freq	%
\$ 50,000- 74,999	25	21.4	16	26.7
\$ 75,000- 99,999	33	28.2	13	21.7
\$100,000-124,999	13	11.1	3	5.0
\$125,000-149,999	7	6.0	5	8.3
\$150,000-174,999	18	15.4	9	15.0
\$175,000-199,999	0	0.0	1	1.7
\$200,000-249,999	6	5.1	4	6.7
\$250,000+	15	12.8	9	15.0
Total Num. Available*	117		60	

Purchase Amount Ranges	Freq	%
\$250,000 - \$349,999	7	7.6
\$350,000 - \$449,999	21	22.8
\$450,000 - \$749,999	34	37.0
\$750,000 - \$999,999	11	12.0
\$1,000,000 +	19	20.7
Total Num. available*	92	

Current and Prior Locations

Current County Choice	Manhattan	Queens	Nassau	Suffolk
Number of Subjects	94	78	49	48
% in Sample	35.2%	29.2%	18.4%	18.0%
Average Number of Reported Prior Locations	3.5	2.7	3.4	2.9
Spatial Distribution of Reported Prior Locations (%)				
Oversea	7.8	6.0	5.0	0.6
USA	92.2	94.0	95.0	99.4
NYS	59.6	78.2	83.2	78.7
Same County	45.4	54.3	49.2	55.5
Same Location	28.0	30.6	29.1	31.0
Other Counties in Study Region	5.0	7.3	19.0	18.7

Duration and Recency

Reported Duration & Recency of Stay by Ranking of Duration										
	Buyer					Renter				
	Duration			Recency		Duration			Recency	
	N	Mean	Std. Dev.	Mean	Std. Dev.	N	Mean	Std. Dev.	Mean	Std. Dev.
Longest	201	16.1	7.2	13.9	11.2	59	16.4	8.3	15.0	12.6
2nd Longest	190	7.8	4.5	9.8	11.5	57	6.7	4.3	7.7	10.1
3rd Longest	160	4.5	2.9	10.6	11.4	50	3.8	2.9	8.9	11.8
Total Reported Duration of All Prior Locations										
	Buyer					Renter				
	N	Mean	Std. Dev.	Min	Max	N	Mean	Std. Dev.	Min	Max
Age	208	42.1	11.6	21	79	60	41.6	11.4	23	78
Total Reported Duration	207	27.8	11.3	4.0	61.9	59	27.5	13.0	2.5	69.5

Self-selection vs. Prior Location Effect

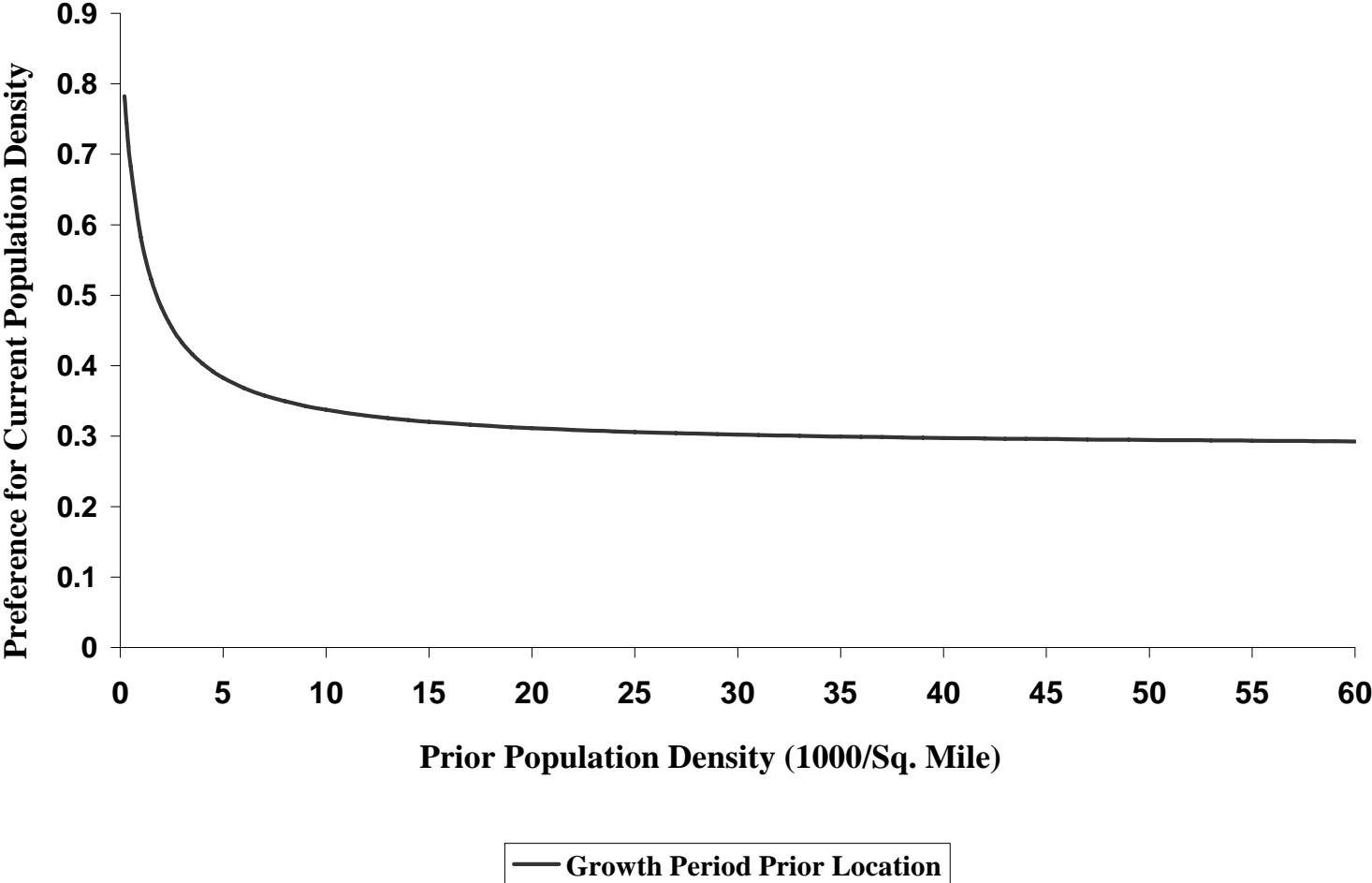
$$U_{n,j} = (\alpha_1 + \alpha_2 \frac{1}{x_{n,g} + 1}) \times \log(x_{n,j} + 1) + \sum_{m=1}^M \beta_m f(x_{n,j,m}) + \varepsilon_{n,j},$$

- 170 buyers in our sample reported locations they lived in prior to reaching 18 years old
- Thus, the significance of α_2 points to that prior location effect precedes residential self-selection

Buyers' Age Distribution for the Growth Period Location

Age Span	Frequency	Percent
0-12	3	1.76
0-18	79	46.47
7-12	1	0.59
7-18	45	26.47
13-18	42	24.71
Total	170	100

Effect of Growth Period Locations

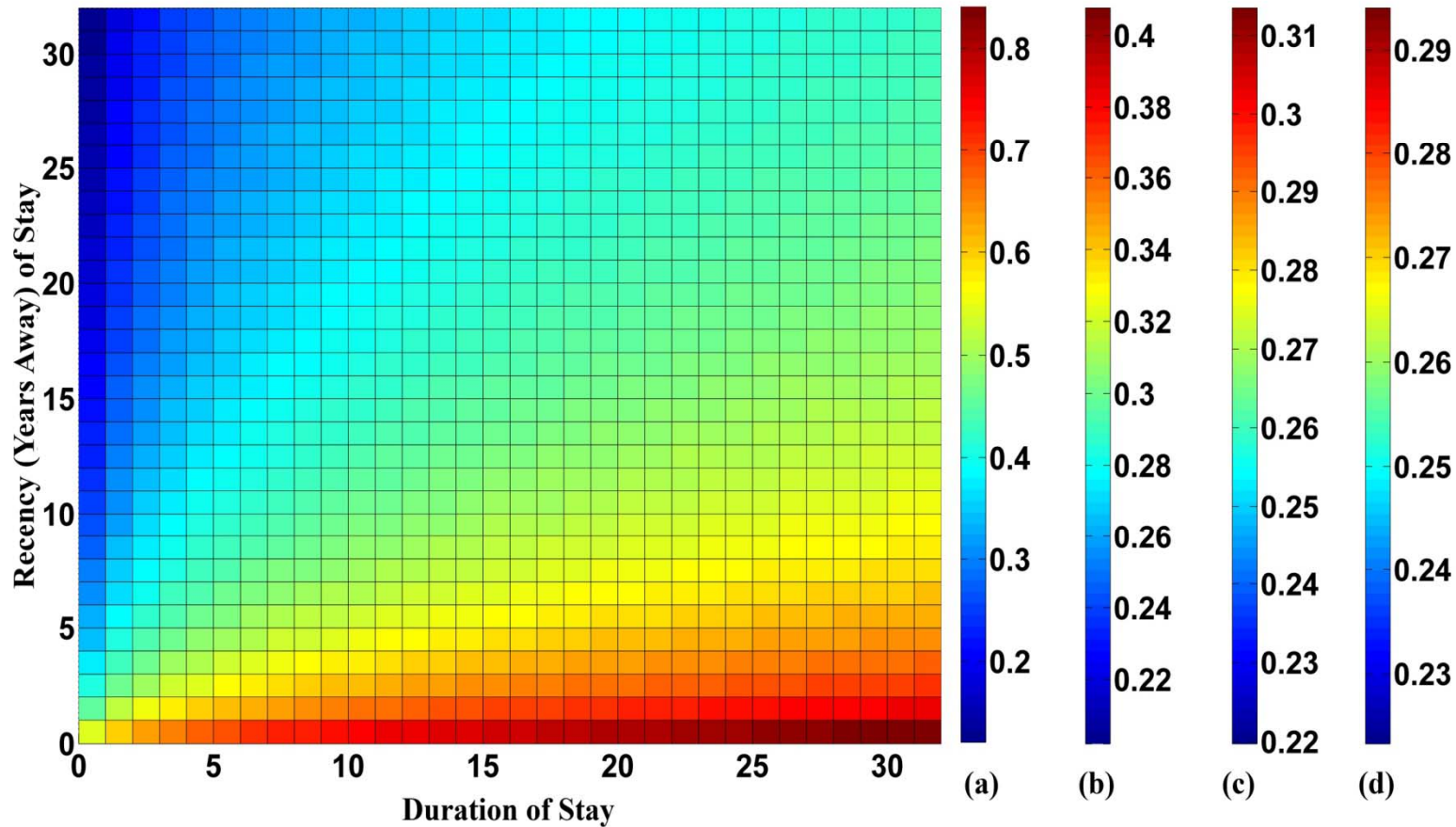


Modified by Duration and Recency?

$$U_{n,j} = (\alpha_0 + \alpha_1 \frac{1}{x_{n,g} + 1} + \alpha_2 \frac{1}{x_{n,g} + 1} d_g + \alpha_3 \frac{1}{x_{n,g} + 1} r_g) \times \log(x_{n,j} + 1) + \sum_{m=1}^M \beta_m f(x_{n,j,m}) + \varepsilon_{n,j},$$

- The significance of α_1 and α_2 supports the modification hypothesis
- Furthermore, we expect α_1 to be positive and α_2 to be negative

Effect of Duration and Recency



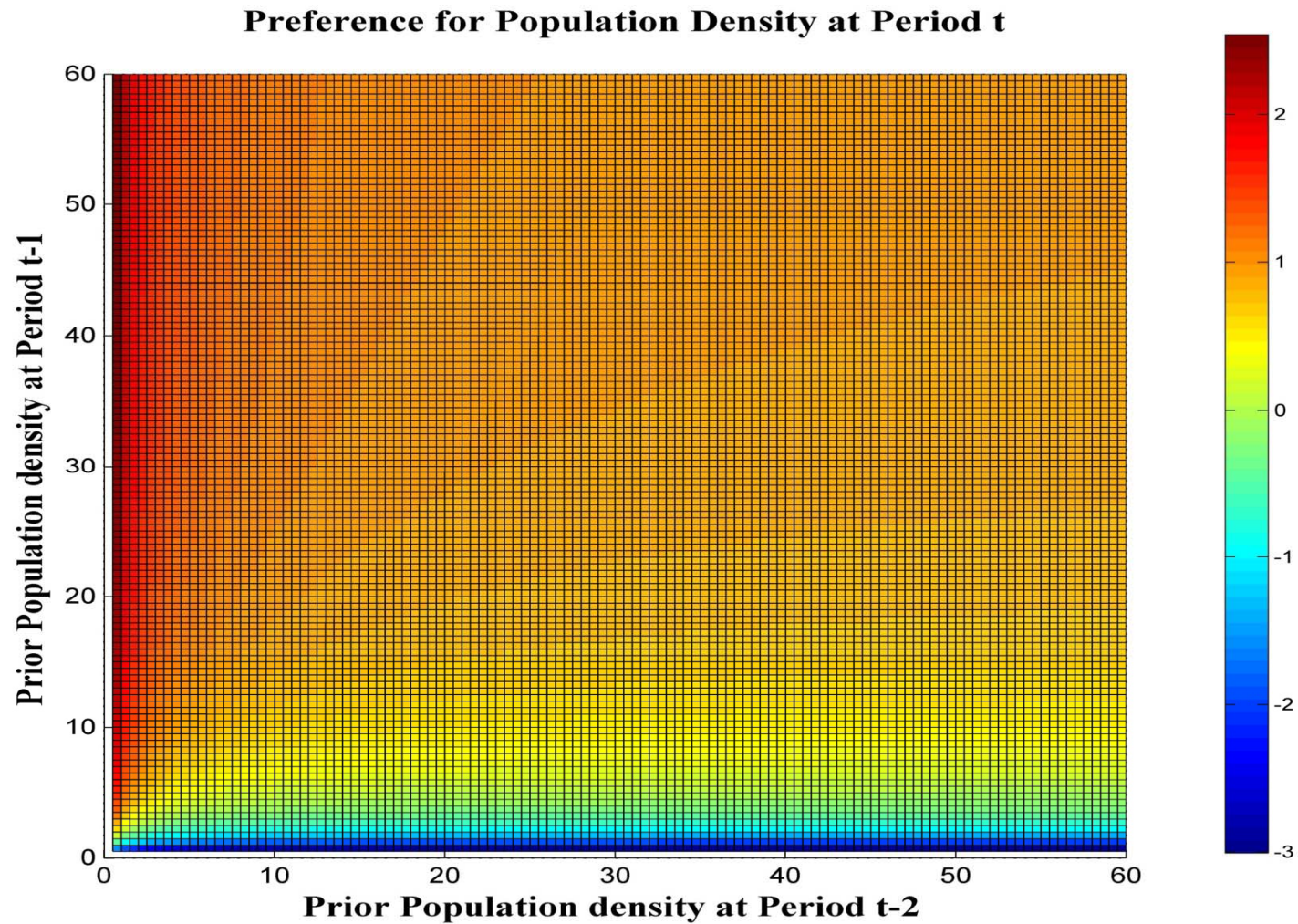
- (a) Preference for Current Population density when Prior Population Density=5 k/Sq. Mile
- (b) Preference for Current Population density when Prior Population Density=20 k/Sq. Mile
- (c) Preference for Current Population density when Prior Population Density=45 k/Sq. Mile
- (d) Preference for Current Population density when Prior Population Density=60 k/Sq. Mile

Cumulative Effects from Multiple Locations

$$U_{n,j} = \left(\alpha_0 + \alpha_1 \frac{1}{x_{n,a,t-2} + 1} + \alpha_2 \frac{1}{x_{n,a,t-1} + 1} + \alpha_3 \frac{1}{x_{n,a,t-2} + 1} \cdot \frac{1}{x_{n,a,t-1} + 1} \right) \times \log(x_{n,j,t} + 1) + \sum_{m=1}^M \beta_m f(x_{n,j,m}) + \varepsilon_{n,j},$$

- The significance of α_1 and α_2 supports the cumulative effect hypothesis
- The significance of α_3 shows interactive effects of multiple locations

Cumulative Effects of Multiple Locations

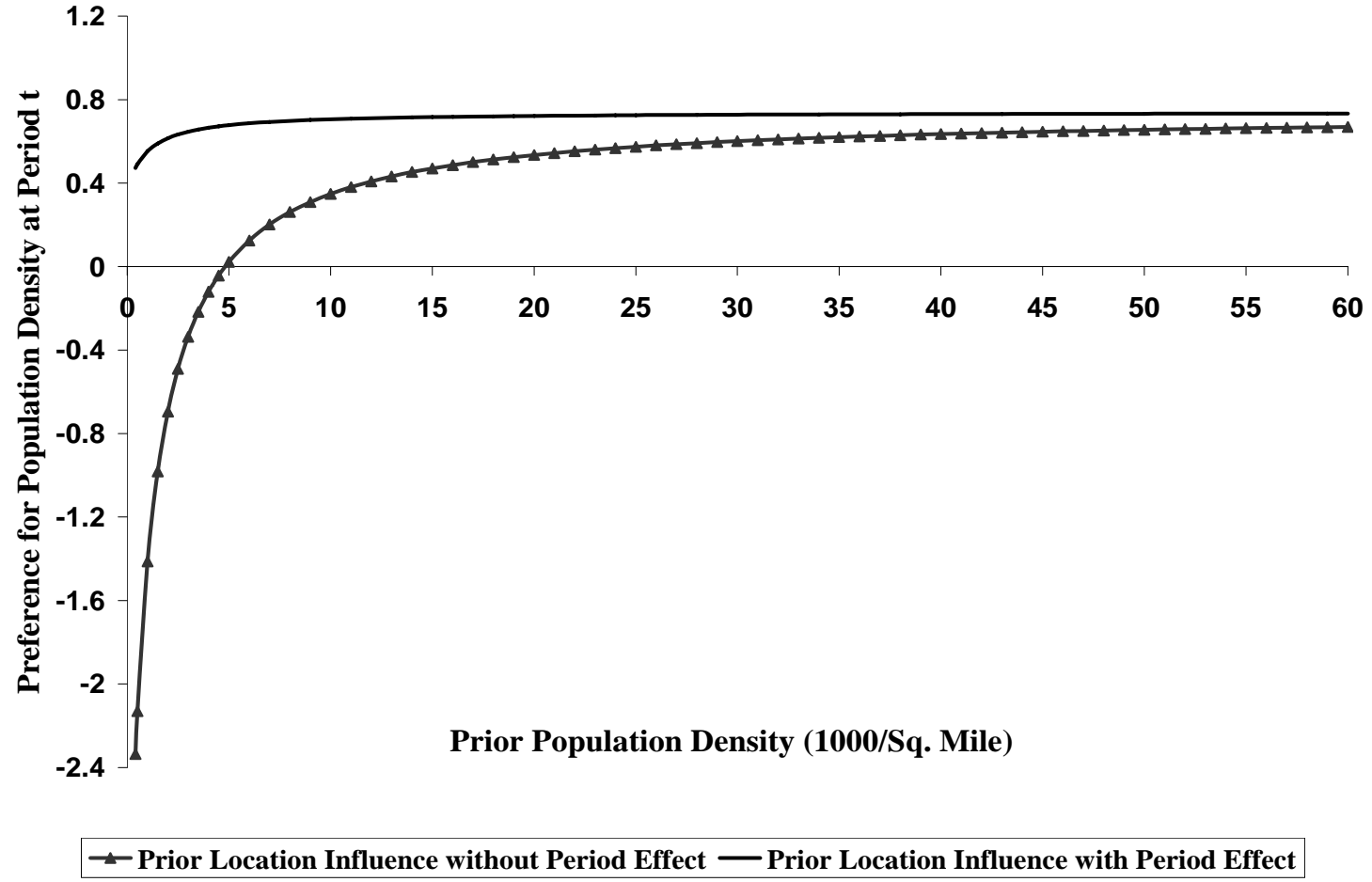


Period Effect

$$U_{n,j} = (\alpha_0 + \alpha_1 \frac{1}{x_{n,a,t-k} + 1} + \alpha_2 \frac{1}{x_{n,a,t-k} + 1} p_{t-2}) \times \log(x_{n,j} + 1) + \sum_{m=1}^M \beta_m f(z_{n,j,m}) + \varepsilon_{n,j},$$

- Significance of α_2 demonstrates period effect

Period Effect



Summary of Findings

- Prior location influence precedes residential self-selection, supporting its role in the formation of self-section
- Prior location influence can be modified by its own properties (eg, duration and recency) as well as SES (eg, period effect)
- There exist cumulative effects drawn from multiple prior location experiences
- Prior location effect can be adaptive or variety-seeking; the latter is found during the growth period

Questions Raised

- What explains the variety-seeking behavior resulted from the locational experience during the growth period?
- In general, under what conditions is one type of behavior more plausible than another?
- Are those who always seek for variety more or less happy than those who always desire familiarity?
- What are the policy implications?