

Housing Choice And Distance Moved: An Ecological Model

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For consideration of population shifts, intraurban compared to interurban, we propose a model based on an ecological framework of population, organization, environment and technology (a macro approach) with temporal and spatial dimensions affecting satisfaction of needs in the household (a micro system). Multiple regression using aggregate data from the U.S. Census for eight Standard Metropolitan Statistical Areas in the North Central region supports the hypothesis that interurban movers settle in established areas of owner occupied housing in which an urban life style for families with children and employed females can be supported.

Sociological examinations of "human ecology" use a macro approach to assess the distribution of individuals throughout a given area. Duncan and Schnore (1959) described population, organization, environment and technology as structural components forming an "ecological complex." Sly (1972) extended this framework to consider "push" factors affecting migrations of population from an area. However, the nature of the needs that determine the suitability of particular

environmental "niches" is illuminated by the more micro level of analysis that typifies social psychology. Human adaptation is thus a complex function of interactions between economic, political, cultural, social and psychological factors. Evidence for this complexity appears in high residential mobility that is served by a more-or-less continuously available supply of housing.

In this paper we propose a population shift model that relates technology assessed through age of housing to distance moved (i.e., intraurban vs interurban) and organizational measures of life cycle and life style characteristics of the residential locality selected. Aggregate data from the U.S. Census of Population and Housing (1970) are used to test the model.

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Population Distribution

Existing models that explain residential location are based on: (1) economic competition and resources (Alonso, 1964; Duncan and Duncan, 1955); (2) social choice or participation (Feldman and Tilly, 1960; Moriarty, 1974; Pickvance, 1973; Sabagh et al., 1969; Timms, 1971; Tomeh, 1964); (3) housing features such as space, age and site (Guest, 1972); and (4) adaptation to environmental stress (Brown and Moore, 1970; Clark and Cadwallader, 1972; Wolpert, 1966). Typically an ecological perspective focuses on adaptation in response to imbalance or incongruence between needs and relevant environmental characteristics. The condition of imbalance, *stress*, elicits a response or adaptation in the system (Selye, 1973). Stressors requiring residential changes for individual households develop from economic, social, cultural or political conditions. Examples include: changes in employment and life styles, changes in life cycle stage, changes in the image of one's environment, and changes due to governmental actions affecting availability or desirability of an area. More specifically, adaptation and potential residential mobility may result from incongruence between the environment and: (1) information for dealing with it (Moss, 1973); (2) activity required for maintenance (Wicker, 1972); or (3) satisfaction of household needs (Michelson, 1977).

Age and Distance

People who move need the information necessary to develop cognitive maps (Downs and Stea, 1973) that can serve to guide behavior within the framework of the new area. This allows: (1) maintenance and establishment of identity in respect to the new environment; (2) integration into the social life of the area; and (3) fulfillment of aspirations in respect to life cycle and life style (Keller, 1966; Michelson, 1977). The availability of such information is, in part, a function of distance moved. If the information is not supplied by relationships with people in the new area, residential choices are most likely made on the basis of information evaluated through common meanings

in a general sense rather than in terms specific to that locality. "New," for example, tends to be generally equated with "better" physical quality. In the absence of specific information regarding the surrounding environment, perceived age of house and closeness to nature, both features common to newly developed housing areas, account for most of the difference in housing preferences (Peterson, 1967).

Physical features of the house also differentially affect interurban and intraurban movers. Interurban movers typically have fewer outside contacts and little knowledge about places to go; thus more household members may be in the house at the same time. Inability to stagger the presence of household members within the dwelling can lead to stress (Mitchell, 1971). Architectural features advertised for newly constructed houses offering an increased range of activities or more private spaces may alleviate stress.

Model and Hypotheses

The proposed model proceeds from data and theory indicating that, depending on distance moved, information is differentially available. Interurban movers apparently experience less success in restoring balance to the household system as indicated by a tendency to move again (Butler and Kaiser, 1971). Since face-to-face contacts are more readily available to intraurban movers, more specific information can be used in making housing decisions. Personal contacts that allow specific answers to questions concerning opportunity for activity and contact aid in making successful moves (Michelson, 1977; Rossi, 1955).

The stress from incongruence between the environment and the satisfaction of a household's needs creates the "push" to move out of a particular area. Evaluation of residential localities differs according to aspirations which depend on life cycle stage and life style, and the distance moved which is related to availability of information about housing opportunities. The hypotheses for this study are based on the substantiated assumption that the external environment is apt to remain

unchanged and understood for intraurban movers; whereas interurban movers experience incongruences between the new residential environment and attainment of life style aspirations.

We propose a model using the structural components of the "ecological complex" in which housing technology representing various periods of development differentially attracts inter- and intraurban movers (Figure 1). Access to information through communication channels available to movers is assumed to be the mechanism whereby a community controls the distribution of persons changing residence, that is, attracts or repels segments of population on the basis of charac-

teristics measurable in terms of age or distance.

The major hypothesis guiding this study suggests that interurban movers with adequate resources drawn into an urban area presumably by environmental opportunities will be attracted to new areas in the absence of information with which to evaluate the social aspects of other localities. Intraurban movers, many of whom were recently interurban movers, will be attracted into established areas by factors concerning the social organization of the locality, i.e., life cycle stage and life style of the population currently residing there.

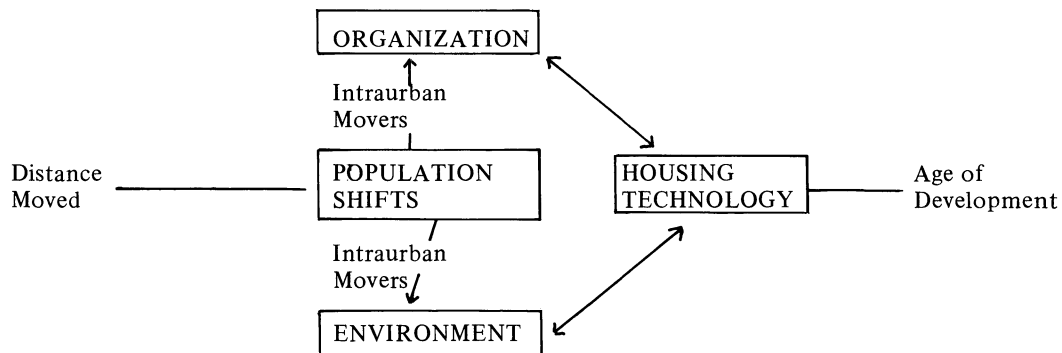


Figure 1. A model relating age and distance to ecological components of residential localities.

Procedure

To test the proposed model, data were selected from census tracts reported for SMSA's (Standard Metropolitan Statistical Areas) in the U.S. Census of Population and Housing: 1970, PHC (1).

To control for differences in the physical environment of the surrounding area, criteria of limited growth, moderate size, and similar climate

were used to select cities for this study. From the southern tier of states in the North Central region, an area of modest growth in the past decade, cities with a population of more than 100,000 in a single center and fewer than 300,000 in the total SMSA were selected. Eight cities met the above criteria: South Bend and Evansville, Indiana; Peoria, Illinois; Cedar Rapids and Des Moines, Iowa; Springfield, Missouri; Lincoln, Nebraska; and Topeka, Kansas.

The independent variable, age of housing technology, was divided into four categories: new, older, oldest and mixed, with all census tracts meeting the following criteria concerning period of development included in the study.

1. Tracts having 60% or more of the residential structures constructed between 1960 and March 1970 were selected as NEW residential localities (n = 23).
2. Tracts having 60% or more of the residential structures built in the interval from 1940 to 1960 were selected as OLDER established residential localities (n = 34).
3. Tracts having 90% or more of the residential structures built prior to 1940 were selected as the OLDEST residential localities (n = 40).
4. Tracts having at least 25% of the residential structures built during each of the intervals described above were selected as MIXED residential localities (n = 16).

The distance moved (the dependent variable) was measured from data concerning place of residence in 1965. Persons who reported living outside of the SMSA in 1965 were considered to have moved a long distance and referred to as interurban movers, although it is not known whether the previous residence was in fact rural or urban. Persons who reported living in the same SMSA but in a different dwelling were considered to have moved a short distance and referred to as intraurban movers.

Organization measures of life cycle and life style characteristics within the residential localities selected included: number of families with children; primary individuals; professionally employed persons; employed females; owner occupied housing units; median number of rooms; and availability of housing units from 1968 to March 1970.

Means and standard deviations were used to describe the characteristics of the tracts studied. Zero-order correlations and regression analysis

were both used in evaluating the proposed model. To test the model in terms of the attraction of interurban movers toward areas representing the newest housing technology, regression analysis was used with the availability of housing forced into the equation before the categories of housing technology were entered through stepwise regression. The same procedure was repeated with the number of intraurban movers. Further regression analyses were performed for each classification of housing technology to determine the relative importance of organizational variables concerning life cycle, employment and housing in attracting inter- and intraurban movers.

Findings

The newest and oldest areas represent extremes in family integration. A larger proportion of primary individuals (i.e. separated, widowed or divorced) and female heads of households with children are located in the oldest areas (Table 1). The mixed and older established areas resemble the new areas in family composition more closely than the oldest areas. As expected, the oldest areas have the smallest number of single family dwellings. The residents of the oldest areas have less education and income than residents of the other areas. As predicted, along with a higher median value of the single family dwellings, new areas are distinguished by having a larger number of newcomers, that is interurban movers, in their population while all areas have similar proportions of intraurban movers.

The hypothesis that new housing will attract persons moving from greater distances gained support. Using regression analyses with each type of housing area classified by age as a dummy variable and controlling for the availability of units, we found that new areas attract a significantly larger number of persons from outside the city and older established areas attract a larger number of persons moving from locations within the city. The path analysis from both regression equations is illustrated in Figure 2.

Table 1. Period of housing development and selected demographic characteristics.

Demographic Factors	Period of Development			
	Oldest, pre-1940	Older, 1940-60	New, 1960-70	Mixed
	%	%	%	%
Household				
Primary Individuals	43.4	11.9	9.4	14.9
Separated, widowed, divorced	26.4	10.2	7.2	10.7
Families	44.6	80.3	84.7	77.2
couples only*	26.1	28.9	25.2	28.0
with children	25.4	52.5	59.6	50.2
(female head)	20.3	6.9	5.9	7.7
Prior residence				
inside SMSA*	27.9	23.9	29.1	25.6
outside SMSA	16.6	13.3	16.1	14.5
Housing				
single family	51.2	88.7	88.9	89.1
owner occupied	38.3	76.0	77.0	71.7
available unit (since 1968)	36.9	28.7	43.9	31.3
Socioeconomic status			Medians	
House Value	\$9,122	\$14,765	\$23,121	\$15,118
House rent	72	111	130	92
Income	7,246	10,888	11,970	9,533
Education (school years)	10.8	12.4	12.8	12.1

*Not significantly different
all other univariate F ratios $p \leq .05$

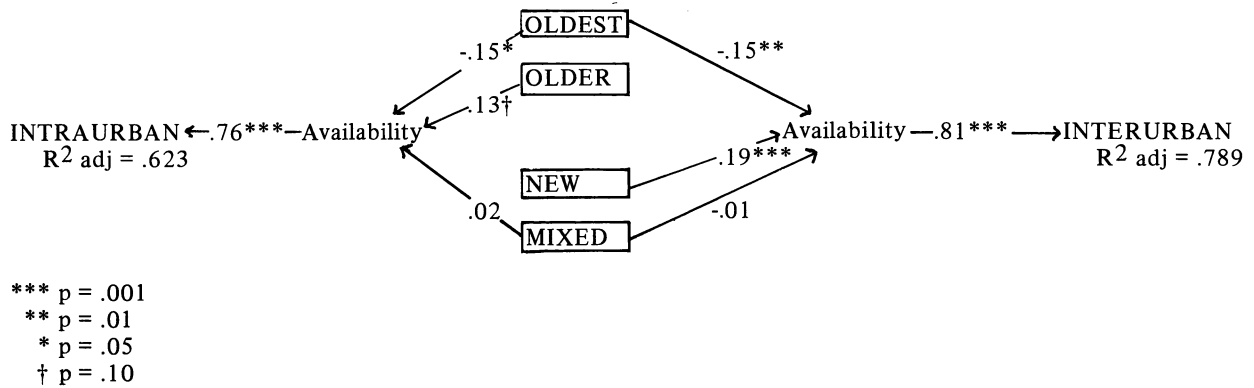


Figure 2. Path analysis—intraurban and interurban population shifts in relation to period of housing development.

Table 2a. Correlation matrix, means and standard deviations of characteristics of residential localities.

Mixed Residential Localities ^a	Oldest Residential Localities ^b										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
1. Professional Occupation	X	.87	.71	.67	.70	.34	.79	.65	.66	.80	129	(136)
2. Females employed	.91	X	.84	.76	.82	.47	.88	.81	.84	.77	467	(292)
3. Families with children	.77	.94	X	.39	.97	.68	.66	.96	.92	.42	281	(210)
4. Primary individuals	.85	.81	.60	X	.35	-.05	.90	.38	.51	.80	395	(200)
5. Owner occupancy	.70	.90	.99	.56	X	.71	.62	.96	.89	.42	457	(352)
6. Median rooms	-.26	-.26	-.13	-.54	-.11	X	.22	.71	.53	.11	4.0	(1.1)
7. Availability	.95	.95	.87	.85	.82	-.32	X	.59	.75	.82	395	(218)
8. Residence – Same	.67	.89	.98	.54	.98	-.10	.79	X	.87	.36	1152	(722)
9. Inside SMSA	.83	.95	.97	.67	.96	-.13	.89	.95	X	.48	750	(455)
10. Outside SMSA	.86	.70	.47	.89	.39	-.42	.80	.35	.52	X	417	(362)
Mean	138	519	519	154	769	4.9	341	1593	862	474		
Standard Deviation	(114)	(379)	(365)	(109)	(550)	(.4)	(233)	(1180)	(595)	(400)		

^aCorrelation coefficients below the diagonal

^bCorrelation coefficients above the diagonal

Table 2b. Correlation matrix, means and standard deviations of characteristics of residential localities.

Older Residential Localities ^a	New Residential Localities ^b										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
1. Professional Occupation	X	.90	.87	.73	.91	.15	.87	.84	.86	.89	352	(293)
2. Females employed	.80	X	.94	.78	.95	-.03	.91	.95	.90	.92	562	(420)
3. Families with children	.60	.73	X	.61	.98	.01	.89	.96	.95	.94	659	(488)
4. Primary individuals	.72	.81	.33	X	.63	-.19	.85	.62	.64	.67	100	(105)
5. Owner occupancy	.74	.84	.72	.72	X	.06	.87	.97	.94	.93	832	(560)
6. Median rooms	.50	.06	.09	.06	.24	X	-.07	-.02	.11	.00	5.4	(.6)
7. Availability	.68	.72	.75	.54	.48	.04	X	.82	.87	.92	479	(351)
8. Residence – Same	.59	.76	.72	.59	.94	.09	.35	X	.90	.88	1146	(907)
9. Inside SMSA	.51	.66	.83	.40	.72	.07	.59	.72	X	.85	1056	(682)
10. Outside SMSA	.73	.65	.68	.43	.44	.32	.89	.26	.46	X	971	(741)
Mean	350	762	750	183	1137	5.0	434	2425	1135	649		
Standard Deviation	(231)	(331)	(283)	(134)	(456)	(.4)	(219)	(964)	(468)	(422)		

^aCorrelation coefficients below the diagonal

^bCorrelation coefficients above the diagonal

Table 3. Housing technology, population shifts and organizational factors in residential localities.

POPULATION SHIFTS	HOUSING DEVELOPMENT							
	Pre-1940 Oldest (n=40)		1940-60 Older (n=34)		1960-70 New (n=23)		Mixed (n=16)	
	Intra	Inter	Intra	Inter	Intra	Inter	Intra	Inter
	Beta Weights							
ORGANIZATIONAL FACTORS								
Employment								
Professional	-.23	.46	.....	.....	.....	.....	.20	.37 ^a
Females employed	.....	.49	.....	.....	.....	.....	.....	.....
Life Cycle								
Families with children	.85	-.58	.64	.....	.85	.61	.82	.....
Primary individuals	.....	.....	.....	.....	.15	.....	.....	.58
Housing								
Owner occupied	.....	.....	.26	.....	.....	.....	.....	.....
Size	.....	.....	.....	.29	.13	.....	.....	.....
Availability	.37	.40	.....	.88	.....	.37	.....	.....
R ² Adj.	.896	.808	.707	.866	.905	.909	.957	.798
Coefficient of variability	19.8%	38.0	22.3%	23.8%	19.9%	23.0%	14.2%	37.9%

^aNot significant, all other β 's ($.10 \geq p \leq .001$)

To determine the influence of organizational factors on population distribution, residential localities varying in age of development were considered separately. In all areas, owner occupancy and families with children were highly correlated (Table 2). Employment of females was highly correlated with professional occupations, families with children and owner occupancy. For intraurban movers high correlations were shown between families with children, owner occupancy and number of females employed within the residential locality selected. For interurban movers high correlations existed with availability of housing, the number of primary individuals, professional employment and the number of females employed in the residential locality selected. Where the residential locality was either new or older, as compared to mixed or oldest, the number

of families with children and owner occupancy was correlated with the number of persons moving in from outside the city.

Intraurban Movers

Using stepwise regression, we found that the number of intraurban movers into all residential localities considered was associated with the number of families with children (Table 3). Moves into established areas were associated with owner occupancy and moves into the new areas were associated with house size and the presence of primary individuals. The presence of persons in professional occupations was positively related to intraurban movers in the mixed residential localities but negatively associated in the oldest areas.

Interurban Movers

Using stepwise regression analysis with movers from outside the city as the dependent variable, we observed that availability of housing units was positively related in the equations for the oldest, older and new residential localities. For the mixed areas, availability was intercorrelated with, and therefore suppressed by, the number of primary individuals and persons in professional occupations. In the oldest residential localities employment in professional occupations, employment of females and lack of families with children were significantly associated with interurban moves. In the older established areas, house size was significantly related to interurban moves. In new residential localities, the number of families with children was a significant factor related to persons making interurban moves.

Discussion

Recognizing the dangers in mixing macro and micro levels, we have made the assumption that processes which are social psychological or socio-cultural operating through choices of individuals will be reflected in aggregate data relating the characteristics of residential localities with the presence of intraurban and interurban movers. Our discussion is not to be taken as conclusive, but rather as suggestive based on the findings of a sample of cities representing low growth rates, small scale, and a geographic climate of extremes. Our criteria were established to control the influence of environment while studying population shifts in respect to the period of technological development represented in housing.

According to the data from these selected cities, house age is a significant factor in housing choices of interurban movers, although availability of housing units exerts an even stronger influence. For intraurban movers, persons who presumably have access to more information concerning both housing opportunities and the social structure of the various residential localities, or-

ganizational factors appear to be more important for housing choice than housing technology.

In the process of assimilation into a different city or new area, the image of the house provides the basis for social comparison of the self with others. New houses may be preferred for a variety of reasons: (1) to avoid unfavorable comparisons based on the patterns of social participation of the previous residents; (2) to avoid having family members assimilate the unknown behavior patterns and cultural norms of older established areas; and (3) to attain the prestige associated with newness.

A minority of interurban movers were drawn into oldest and mixed parts of the city in which there were fewer families with children. It is not possible to determine from census data whether this is due to a difference in the life cycle stage of the interurban movers themselves, for example, that they are in fact young unmarried professionals (Rossi, 1972) or to errors resulting from lack of information, or from compromises (Michelson et al., 1973) in selecting a first residence within a new community.

From aggregate data, conclusions cannot be drawn concerning the reasons underlying the difference in location of movers from outside the city. Other methods such as surveys designed to investigate spatial and temporal patterns in the distribution of various forms of information to persons who move could be used to indicate the correctness of the assumptions underlying the hypothesis of an inverse relationship between the age of house selected and the distance moved.

Although the underlying reasons remain an area for further investigation, the findings of this study indicate that temporal (age) and spatial (distance) patterns affect adaptations made by various segments or urban populations in the selection of housing. Persons changing residence within the city tend to move into older established areas, especially those areas having large numbers of families with children. New housing developments attract residents moving from outside the city.

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