A MODEL OF RESIDENTIAL MOBILITY OVER FAMILY LIFESPAN ACCORDING TO SOCIOECONOMIC CLASSES

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　본 연구의 목적은 소비자인 각 가구의 주거 서어비스에 대한 다양한 수요가 나타난 주거 이동 주기를 규명하므로 수요자의 다양성에 의한 주택공급 정책의 접근시 기본 자료로 활용될 수 있도록 체계적 근거를 마련하고자 하는데 있다. 연구의 목적을 달성하기 위하여 연구의 틀을 형성하여 국토개발연구원의 자료를 이용하여 실증 분석 하였다. 본 연구의 자료는 서울의 1620가구를 대상으로 하였고 SPSS와 LIMDEP을 이용하여 기초분석외의 판별분석, 로짓분석등을 이용하였다.

　본 연구의 결과는 다음과 같다. 사회계층과 가족 생활 주기에 따라 주거 이동 동기와 주거 이동 형태가 달랐다. 하류계층은 강요된 이동동기가 많았고 수평 또는 하향 이동의 형태로 이동하였다. 중류계층은 조정적 이동동기가 많았고 다른 계층에 비해 상향 이동이 많았다. 상류계층은 다양한 이동 형태를 가지고 있으며 특히 주거 시설 수준 면에서 상향이동을 하였다. 주거이동주기 유형을 파악하기 위하여 모델이 개발되었고, 모델에 의해 사회계층에 따라 상이한 유형이 나타났으므로 수요자의 다양성에 의한 주택 공급 정책이 필요함을 제시사해준다.

Introduction

Housing is a complex commodity which consists of many attributes. The demand for housing varies according to individual family size, preferences, need, and financial circumstance. Thus, households jointly move a wide variety of dwelling units at particular location. Policymakers and builders of housing have supplied dwelling units to the households according the actual behavior in the market situation. However they have not supported the distibution of housing stock into different dwelling units according to household's actual demand. In order to establish appropriate housing programs and policies to promote the wellbeing of the public, they need the knowledge and corresponding empirical data explaining how demand for diverse housing alternatives is related to demographic factors(Anderson,1984; Buckly and John,1983).

The purpose of this study is to present basic data about orientation of the policies in supply of housing for other socioeconomic classes through empirical study about residential mobility as the actual demand predictor. This study is intended to contribute to various

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planning policies according to socioeconomic classes, and present a microeconomic model of a market for heterogeneous housing units. This paper examines the residential mobility behavior over family lifespan of a household starting at the date the household was formed. The primary purpose of this research was to test the hypotheses that residential mobility behavior changes over family lifespan. The objectives of this study were: 1) to examine motives for moving, 2) to analyze patterns of residential mobility by the same classification as above, and 3) to develop a probabilistic model for both hypothesis testing and mobility prediction.

Proposed Study Framework

A study framework was proposed based on a review of the literature that emphasized factors associated with the motives for moving, the patterns of residential mobility, the residential mobility over family lifespan. Figure 1 depicts a graphic summary of the proposed study framework which describes the relationship among variables. The researcher's orientation to residential mobility conceptualized it as a series of linked decisions involving past residential mobility experiences, current residen tial mobility, preferences and intentions, and sub sequent mobility behavior. The change in housing satisfaction that might occur as a result of residential mobility could be measured by mesuring the change in housing conditions. There were problems that showed up from time to time having to do with interactions, relationships, and measurements that were a yet unresolved in a general way. Thiscd study was intended to measure the change between the previous and the new dwellings.

The following terms have been defined for use in this study. 1) Patterns of residential mobility: The patterns of residential mobility were conceptualized as the change in housing characteristics between before and after moving.

The patterns of residential mobility were classified according to the changed housing characteristics and the degree of change. The patterns of residential mobility according to the changed housing characteristics were classified as follows: change in housing type, change in tenure,change in dwelling size, and change in dwelling facility. The patterns of residential mobility by the degree of change was classified as upward-upward mobility, upward mobility,horizontal mobility,downward mobility, and downward-downward mobility.

Figure 1. Grapic summary of the proposed study framework
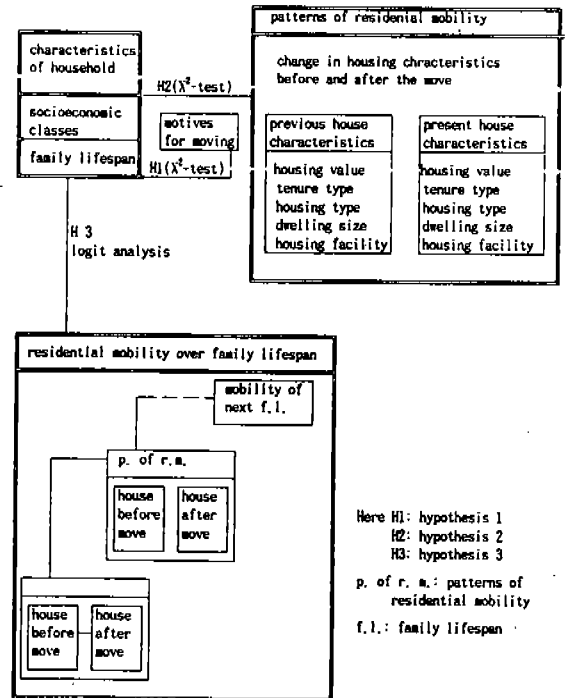
2) Residential mobility over family lifespan: "The Korean Dream" has been owning a home with a yard, a dog and a cat and two cars in the driveway! Unfortunately, the dream is getting harder to achieve because housing prices have risen faster than incomes have. Most Koreans leave the parental home after high school, college or marriage to start out on their own.

They usually begin as renters. The first purchase is nomarlly a starter home (a 1-bedroom condo, a studio, an apartment, or a small single-family home). Therefore, they climbs the ladder from renter, to the dream house. The residential mobility over family lifespan was defined as the climbing the ladder from renter to retirement housing.

The hypotheses developed were:

1-1. Socioeconomic class has a significant effect on the motives for moving.

1-2. The family lifespan has a significant effect on motives for moving.

2-1. The pattern of residential mobility has a significant relationship to the socioeconomic classes.

2-2. The pattern of residential mobility has a significant relationship to the family lifespan.

3-1. Residential mobility over family lifespan has a signficant difference acording to the socio- economic classes.

Methods

Data collectedin 1988 by Korean Research Institute for Human Settlements were used in this study. Multivariate analysis for description and statistics was used with SPSS and LIMDEP software package. A total of 1620 households in Seoul, Korea was used for this study. Questions was included the physical characteristics of house, and the demographic variables of household. Data were retrospective questions. Most of questions were asked at three different times: conditions prior to moving, present conditions, and future probability of residential mobility.

In order to explain this essentially joint nature of the decision concerning mobility and choice, an alternative model was used. This model had alternatives which were structured in a preference tree so that choices were associated with different branches.

Results

Motives for Moving

In total, adjustment move among categories of the expressed motives for moving are much common than induced moves. There were significant differences in motives for moving according to the socioeconomic classes. Most households in the lower class moved involuntarily; they were "forced movers". Most households in middle class moved voluntarily; they were "adjustable movers in housing". Most households in the upper class moved voluntarily, they were either "induced" or "adjustable movers".

There were significant differences in motives for moving according to the stage of the family lifespan. The first stage families had induced move. At the begining of the family lifespan, induced moving was an important motivating force for relocation. Second stage families had adjustment move in housing, while the third stage families had inforced and adjustment move in tenure. The fourth stage families were adjusting movers in tenure. The last stage families were adjusting movers in tenure or in housing.

This study presented the informations on showing the relationship of motives for moving and family lifespan. As expected, dwelling unit adjustment in tenure, and in housing is the most frequent explanation for mobility over all stages of the family lifespan. To aggregate all of this information as dwelling unit adjustment, therefore, is to miss the changing emplasis of different motives for moving.

The Patterns of Residential Mobility

There were significant differences in the patterns of residential mobility according to socioeconomic class. Households of the lower class moved horizontally or downwardly. They mostly moved from a rental into another rental housing. Therefore, the pattern of residential

mobility in tenure had a horizontal pattern. The majority of the lower class moved from a single-detached house to a single detached house or from a single-detached house to an apartment. Therefore the patterns of residential mobility in housing type had a horizontal or downward movement. In terms of dwelling size, results indicated a downward-downward movement, moving from a large to a small size. In additon, results showed a downward-downward or horizontal movement in the facility of house. Households of the middle class moved either upwardly in terms of the size and facility of housing or horizontally in home ownership and housing type. Households in the upper class moved upwardly. Their pattern of residential mobility was upward or upward-upward.

There were significant differences in the patterns of residential mobility according to the stage of the family lifespan. Households in the first stage of the family lifespan had horizontal and downward mobility pattern. Households in the second stage of the family lifespan had upward mobility pattern in home ownership and size. Households in the third stage of the family lifespan had either an upward or downward mobility pattern. Households in the fourth stage of the family lifespan had horizotal mobility pattern. Households in the last stage of the family lifespan had a downward mobility pattern in dwelling size and an upward mobility pattern in the facilities of the house.

Developing a Model of Residential Mobility

Residential mobility over family lifespan according to socioeconomic classes was developed by using a probabilistic model. The models were developed on the basis of rho-square and with a prediction rate. When the value of the rho-square and prediction rate was same, a model with more significant coefficient variables, was choosen. Table 1 showed the estimation results for each model.

In the model of tenure choice {P(O)}, seven explanatory variables were employed. Each of the coefficients of explanatory variables had the expected sign and most of the coefficient estmates were statistically significant at conventionally acceptable test levels. Results of this model indicated that previous dwelling type and previous facilities had negative impact on the probabililty of moving into the ownership dwelling. The more the years of education, the greater the income, and the larger the size of the previous dwelling had had, the higher the probability of moving into an ownership dwellings was. The households of those who were former ome owners had higher probability of moving into ownership dwellings than those of former rental dwellings.

Submodels for choice of dwelling type given tenure type was developed. Table1 presents the model estimation results of the next stage in the model. The results were generally consistent with what we expected. Five variables were considered in the model of moving into an apartment given rental tenure type {P(A|R)}. Each of the coefficients of the explanatory variables showed the expected relationship. But variables for dwelling size were not statistically significant. As expected, the probability of moving into an apartment given rental tenure type had a positive effect on education, income, and previous tenure type: households with more education,and income would move into an apartment given rental tenure type. In the model, moving into an apartment given ownership dwelling {P(A|O)}, four variables were employed. Each coefficient estimates was statistically significant at conventional acceptable test levels. The one exception was the previous housing facilities variable in this model. According to the results of this model, the probability of moving into an apartment given ownership tenure type became higher as years of education and age of first child became greater and previous rental housing and

previous housing facility became better.

In the probabilistic model of moving into a large dwelling size given ownership, apartment {P(L|O,A)}, positive or negative coefficients of the four explanatory variables were statistically significant. According to the model of moving into large dwelling gived rental, apartment, the probability of moving into a large dwelling increased as the age of first child and previous dwelling size increased. In this model, the better dwelling facility were, the higher probability of moving into large dwelling was. The model of moving into a large dwelling size given apartment, rental {P(L|A,R)}, the rho-square was 0.47, the prediction power was 86.0%, and the four explanatory variables were statistically significant. The variables of housing facilities, previous tenure type, previous dwelling size had a positive effect on this model. The only variable of the age of first child had a negative effect on these model. In the model

of moving into a large dwelling size given ownership, single-deta ched house {P(L|O,S)}, the rho-square was 0.53 and the predidtion power was 93.0%. Therefore, households with higher levels of education, and income had, a greater probability of moving into a large dwelling large dwelling. Households of owning cars and having good facilities in their previous and present dwellings had a higher probability of moving into large dwellings. On the whole, there appeared to be significant and explainable differences among residential mobility which were reflected in the parameter estimates in this model. In the model of moving into a large dwelling size given singledetached house,rental {P(L|S,R)}, as variables of age of first child, housing facilities, and previous dwelling size increased, so the probabilty of moving into a large dwelling size given single-detached house, rental increased.

Residental Mobility over Family Lifespan

Table 1. Logit model of residential mobility

	P(O)	P(A|O)	P(A|R)	coefficient (t- statistics) P(L|O, A)	P(L|R, A)	P(L|O, S)	P(L|R, S)
Independent variable	Owned	Apt. given owned	Apt. given rental	Large scale given apt.	Large scale given rental apt.	Large scale given s.d.h.	Large scale given rental apt.
Constant	(2:1637*	(-3:1317*	(-4:1896*	(-19:3217*	(-6:4340*	(-11:1877*	(-16:3150*
Education	(2:7807*	(2:3307*	(2:1209*	(1:1438*	(- :9609)	.0300	(1:1728*
Income	(2:4947*		(2:2287*			(2:0371)*	
Occupation				(-2:3089*	(- :1943)	(- :0468)	
Savings					(:8632)		(- :0087)
Car-ownership	(:3107)		(1:9937*	(2:8764*		(1:7834*)	
Age of first child		(-1:9219*			(-1:9905*		(1:9545*
Dwelling size			(- :9768)				
Housing facility					(2:5657*	(1:1529*	(1:6828*
Previous tenure type	(16:9257*	(-3:8944*	(- :7903*		(2:8376*		
Previous structure type	(-2:2127*	(1:9344*	(2:2346*				(:9117)
Previous dwelling size	(2:5407*			(:9185)	(1:2179*	(1:9243*	(4:2243*
Previous housing facility	(-1:9016*	(:7187)		(1:9052)			
L (β)	-486.38	-185.68	- 98.43	- 30.21	-200.54	- 64.205	- 46.260
L (0)	-695.52	-242.87	-144.59	- 80.31	-384.41	-135.33	- 96.665
ρ²	.29	.24	.32	.64	.47	.53	.49
χ² (d. f.)	397.49(7)*	114.39(5)*	92.51(6)*	100.73(5)*	357.75(7)*	142.25(5)*	94.81(6)*
prediction rate	79 %	82 %	83 %	93 %	86 %	93 %	87 %

Note logit coefficient (t-value)
* : significant   # s.d.h. :single detached house   apt. apartment

The probability of each alternative move was calculated by means of developed model. The probability in each stage of the family lifespan was calculated through substitution average value of the included variables in the model for the model formula(see table 2). The patterns of residential mobility change over time within households because the mobility behavior differs at different stages of the family life span. Most of the households in the lower class moved downwardly. They had first lived in a small-ownership single-detached house in the first family lifespan and moved into a small rented single-detached house in the next family life span. Most of the households in the middle class moved upwardly. They had first lived in the smallownership apartment in the first family lifespan and moved into a large-ownership single-detached house in last family lifespan. Most of the households in high class moved horizontally. They had first lived in a large-ownership single-detached house in

Table 2. The change of mobility probability over family lifespan according to socioeconomic class

	First	Second stage		Third stage		Fourth stage		Fifth stage	
	Prob.	Prob.	Change	Prob.	Change	Prob	Change	Prob.	Change
Lower class									
P_{111}	0.121	0.225	▮	0.328	▮	0.204	-0.124	0.084	-0.120
P_{121}	0.258	0.143	-0.115	0.024	-0.119	0.031	+0.007	0.170	▮
P_{112}	0.012	0.040	▮	0.067	+0.027	0.174	▮	0.121	+0.053
P_{122}	0.039	0.012	-0.027	0.001	-0.011	0.0017	+0.000	0.005	+0.003
P_{221}	0.186	0.173	-0.013	0.150	-0.023	0.141	-0.009	0.098	-0.043
P_{211}	0.361	0.384	+0.023	0.398	▮	0.371	-0.027	0.484	▮
P_{222}	0.008	0.007	-0.001	0.008	+0.001	0.012	+0.004	0.001	-0.011
P_{212}	0.015	0.016	+0.001	0.025	+0.009	0.065	▮	0.036	-0.029
Middle class									
P_{111}	0.063	0.039	-0.024	0.052	+0.013	0.026	-0.026	0.009	-0.017
P_{121}	0.120	0.095	-0.025	0.034	-0.061	0.053	▮	0.039	-0.014
P_{112}	0.133	0.188	▮	0.274	▮	0.265	-0.009	0.295	▮
P_{122}	0.054	0.039	-0.015	0.010	-0.029	0.016	+0.006	0.007	-0.009
P_{221}	0.258	0.333	▮	0.180	-0.153	0.143	-0.037	0.106	-0.037
P_{211}	0.200	0.119	-0.081	0.254	▮	0.341	▮	0.335	-0.006
P_{222}	0.039	0.063	+0.024	0.034	+0.029	0.023	-0.011	0.004	-0.019
P_{212}	0.134	0.124	-0.01	0.162	+0.038	0.133	-0.029	0.205	▮
Upper class									
P_{111}	0.002	0.001	-0.001	0.0002	-0.0008	0.0005	+0.0003	0.0005	0.000
P_{121}	0.080	0.009	-0.071	0.0042	-0.0048	0.009	+0.0048	0.025	▮
P_{112}	0.180	0.300	▮	0.180	-0.12	0.237	▮	0.252	+0.015
P_{122}	0.120	0.080	-0.040	0.066	-0.014	0.016	-0.012	0.042	-0.012
P_{221}	0.008	0.012	+0.004	0.016	+0.004	0.065	-0.006	0.020	+0.010
P_{211}	0.115	0.132	+0.017	0.049	-0.083	0.065	+0.016	0.090	▮
P_{222}	0.245	0.167	-0.078	0.303	▮	0.138	-0.165	0.087	-0.051
P_{212}	0.252	0.299	▮	0.382	▮	0.480	▮	0.483	+0.003

* prob. ; probability   + : increase   - : decrease

Note. Pmig : the probability of moving into alternative m, i, g housing

   m : tenure type (if m=1, rental; if m=2, owned)
   i : structure type (if i=1, single detached house; if i=2, apt.)
   g : dwelling size (if g=1, small scale; if g=2, large scale)
   O: Owned   R: Rental   A: Aptment   S: Single detached house
   L: Large scale dwelling size   S: Small scale dwelling size

the first family lifespan and continued to move inti similiar housing except in the stage of the last family life span.

Conclusion and Implication

The analyses provide moderate support for hypotheses. It is clear from the results of this study that residential mobility is related to socioeconomic classes and family lifespan in Korea. The information presented here has allowed to examine the validity and usefullness of the family lifespan explanation for residental mobility. It is clear that various expressions of housing adjustments are the primary motivation. A behavioral model of residential mobility must incorporate both housing adjustments and family lifespan changes households at different stages of the family lifespan. Therefore, the results of this study will be useful in planning household's long-term housing plan in relation to the family lifespan.

Moving behavioral variation may arise from important differences among the three socioeconomic classes. The results of this study indicate that especially the households of the lower class tend to have downward mobility trend than the other classes. Therefore the households of the lower class are chronic movers. The findings in this study can be applied to planning policies for housing supply and economic assistance for the lower income classesand to assist households in planning for the residential mobility over family lifespan.

Results of these analyses further substantiate the premise that mobility is explained not only by certain demographic conditions of households alone. Mobility is also explained by the effect of social and economic events that influence residential

mobility and by housing policies that either encourages or prohibits families to move. Therefore, further study are necessary to recognized these conditional predictors of residential mobility.

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