

DWELLING FEATURES AS INTERVENING VARIABLES IN HOUSING SATISFACTION AND PROPENSITY TO MOVE

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Abstract

Dwelling features were examined to determine their role as intervening variables between dwelling characteristics and two additional factors: housing satisfaction and propensity to move. The sample comprised 161 female heads of single-parent families with elementary-school-aged children. A path analysis was used to test a causal model both for the entire study group and separately for black and white respondents. The results show that housing satisfaction was the most indicative determinant for propensity to move for both black and white women. Housing type also had a significant, direct effect on propensity to move among white women. Dwelling features were the prime determinants of housing satisfaction for both groups. Other background variables showed indirect effects through dwelling features. The results have policy and design implications for housing developed for single-parent families.

Introduction

Numerous authors have studied determinants of residential satisfaction (Chapin, 1951; Danes and Morris, 1986; Foote, Abu-Lughod, Foley, and Winnick, 1960; Galster and Hesser, 1981; Hintz and Null, 1988; Lansing and Marans, 1969; White, Kasl, Zahner, and Will, 1987; Zimring, 1981) and the link between satisfaction and mobility (Morris, Crull, and Winter, 1976; Morris and Jakubczak, 1988; Speare, 1974). Background characteristics of household members and intervening variables such as tenure and housing type have been examined. Most authors, however, have not looked at specific features of dwellings. For example, is simply living in multifamily housing cause for dissatisfaction? Or, perhaps there are specific features of multifamily housing that contribute to dissatisfaction and the desire to move.

The objectives of this study, which was partially funded by a grant from Sigma Chi, are two-fold. The first is to examine the relationship between several dwelling features and residential satisfaction. The second goal is to identify the determinants of residential satisfaction and mobility among female heads of single-parent families. This is a group that may be faced with an above-average number of economic and social constraints.

The determinants of housing satisfaction and mobility among single-parent families are particularly important because of the constraints these families face and because of the impact of these families on children. If housing policy is to be directed toward these families, their needs and aspirations should be known and considered. Because of economic hardship, many single-parent households have been forced into more crowded, less desirable housing than they would prefer (Dillman, Tremblay, and Dillman, 1979). Over half of female-headed households with children under age 18 have some type of housing problem. According to Birch (1985) their houses are crowded or physically inadequate, or they are burdened by excess cost. Undesirable conditions such as these contribute to the severity of family problems and increase the probability that these women may suffer from excessive stress (Booth and Edwards, 1976; Choldin, Jacobsen, and Yahnke, 1975; Gove and Hughes, 1983).

The number of single-parent households has increased rapidly in recent years. One of four families with children under the age of 18 was headed by a single parent in

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1984. That is almost double the 1970 rate (U.S. Department of Commerce, 1984). Nearly 90 percent of these families are headed by women whose incomes are often lower than those of comparable, male-headed households (U.S. Dept. of Labor, 1979). In addition, they often face discrimination in the housing market because they are not married, yet have children or because of the source of their income (Marans and Colten, 1980; U.S. Dept. of HUD, 1975, 1976). Locational choices for many of these families are also more limited because they seek housing close to employment, day care, and family (Banner, Berheide, and Greckel, 1982; Hayden, 1980). Although about a third of divorced women never remarry (U. S. Dept. of HUD, 1980) their status is often viewed by policymakers and others as transitional or as a deviant life-style (Burgess, 1980; Schor and Moen, 1979). As a consequence, little effort has been made to assist them in meeting their housing needs.

Theoretical Framework

According to empirical evidence, housing satisfaction is related to size of the dwelling and the amount of space available (Chapin, 1951; Cottam, 1942; Cutler, 1947; Dean, 1951; Foote, Abu-Lughod, Foley, and Winnick, 1960). Structural quality is another important factor (Danes and Morris, 1986; Hintz and Null, 1988), but its importance may vary by social class (Keller, 1966). People in lower socioeconomic groups aspire to amenities that upper classes tend to take for granted (Cutler, 1947).

Several neighborhood characteristics have also been related to housing satisfaction. These include the level of maintenance in the neighborhood and the social characteristics of the neighbors (Foote et al., 1960; Lansing and Marans, 1969; Zehner, 1971); control over social interactions (Zimring, 1981); and perception of crime in the neighborhood (White, Kasl, Zahner, and Will, 1987). Blacks have also been found to be less satisfied with housing than whites. This may be due to different preferences and expectations (Kinsey and Lane, 1983), discriminatory practices, and income differentials (Hanna and Lindamood, 1979).

Speare (1974) considered housing satisfaction as an intervening variable between individual and dwelling variables and how these related to mobility. His study was based on the assumption that a person does not consider moving unless some threshold of dissatisfaction is reached. Individual and household characteristics, location characteristics, and social bonds were all tested and found to be influential in determining housing satisfaction. Indirectly, these affected the desire to move as well.

Morris, Crull, and Winter (1976) isolated dwelling characteristics from household characteristics and found them to be important intervening variables between household characteristics and housing satisfaction. Housing and neighborhood satisfaction were both determinants of a desire to move. Several direct effects were found between housing deficits and a desire to move, particularly structure and tenure. In a replication of the study, Morris and Jakubczak (1988) also found tenure-structure deficits to have both a direct effect on a propensity to move and an indirect effect through housing satisfaction.

Galster and Hesser (1981) used objective measures of respondent and dwelling characteristics as independent variables, while adding subjective measures such as noise and crime as intervening variables. Four measures of satisfaction were used as dependent variables: neighborhood satisfaction; satisfaction with qualitative features of the house such as plumbing and exterior condition; satisfaction with quantitative structural attributes such as number of rooms; and satisfaction with the type of structure. More recently, Galster (1987) has suggested that studies of residential satisfaction should be considered for nonlinear relationships. Galster theorized that although there is no lower boundary for human discontent, once households attain the desired degree of a given characteristic, they become as satisfied as possible. This tends to level the curve. Galster also found that dissatisfaction thresholds vary across household types due to differences in need and aspiration.

Model

The hypothesized model for this study is shown in Figure 1. Household characteristics are income and size. In addition the age, education, and occupational status of the household head are included.

Four groups of intervening variables define relationships among the variables. The first group of intervening variables features dwelling characteristics: duration of residence, duration of residence squared to test for nonlinear relationships, tenure, housing type, and location.

The second group of variables concentrates on dwelling features that may be determining factors in why dwelling characteristics affect satisfaction and intention to move. These variables include 1) adequate indoor storage, 2) adequate size of rooms, 3) freedom to make changes in the interior of the dwelling 4) attractive neighborhood, and 5) privacy from neighbors' noise.

The third group introduces a measure of subjective well-being between dwelling features and satisfaction. This is to determine if the absence of these features lowers satisfaction directly or indirectly through psychological stress. The fourth and final group is residential satisfaction.

Methodology

Source

A sample of 1,000 women was selected systematically from a 1983 list of female-headed households with one to four children in elementary school. The list was obtained from school census data of Roanoke County and the city of Roanoke, Virginia. Usable responses were obtained from 161 single mothers. Respondent data were collected in 1985. Of the 1,000 questionnaires initially mailed, 371 were returned by the post office and 304 were returned by households. Of these, 143 respondents were eliminated because they remarried or were living with other adults in the household. The remaining households did not respond.

Variables

Household characteristics Each variable representing a background characteristic is listed in Table 1 along with respective response categories. Income was measured in net dollars per year. Other household characteristics were categorical variables. Household size ranged from two through five, based on the sample limitation that only families with one through four children were selected. The age range of household heads was not extreme due to the limitation of subjects to mothers of elementary-age children.

Dwelling characteristics All variables representing dwelling characteristics are shown in Table 2. Response categories and sample sizes are also shown.

Housing satisfaction The stress score ranges from 0 to 22 and was created from the Langner (1962) index of psychological stress symptoms and manifestations. Residential satisfaction was measured by a single question asking how satisfied the respondent was with her current dwelling. Several researchers have noted that a single measure of the respondent's perception of satisfaction may be more accurate than a weighted index because the weighting is specific to each family (Galster, 1987; Morris, Crull, and Winter, 1976).

Propensity to move was also measured by a single question asking if the respondent intended to move within the next year. The income and stress variables are categorized for brevity in Tables 1 and 3. However, the continuous range of values was used in the regression analysis.

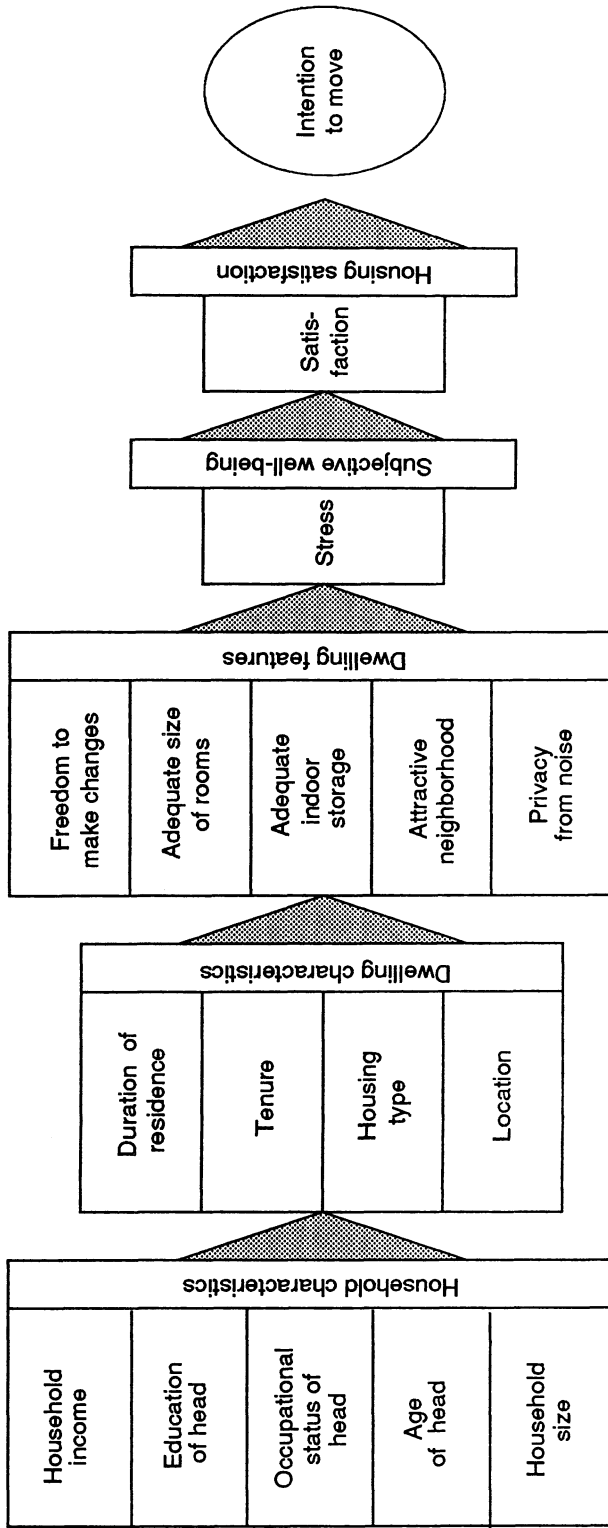


Figure 1. Hypothesized causal model.

Table 1. Household characteristics of respondents in percentage and Chi-square test of group differences.

Characteristic	Full sample N=161	Black respondents N=58	White respondents N=103	Chi-square	d.f.
Income					
Less than 5,000	31.7	48.3	22.3	21.98	2*
5,000-9,992	24.8	20.7	27.2		
10,000 or more	29.2	8.6	40.8		
Education					
Less than 12th grade	14.3	19.0	11.7	7.03	3
High school graduate	31.1	34.5	36.9		
Some college	36.6	36.2	36.9		
College degree or above	16.8	6.9	22.3		
Occupational status					
Unemployed	19.3	22.4	17.5	0.43	1
Employed	79.5	74.1	82.5		
Age					
Under 30	28.6	44.8	19.4	17.61	3*
30-34	27.3	29.3	26.2		
35-40	31.7	15.5	40.8		
Over 40	11.2	6.9	13.6		
Household size					
2 members	59.0	48.3	65.0	11.85	2*
3 members	32.9	32.8	33.0		
4 or 5 members	6.8	15.5	1.9		

Note: Percentages may not sum to 100 due to missing cases or rounding.

*p <.01.

Analysis

Regression analysis was used to define a causal model with five groups of variables. Although ordinal and dichotomous variables are not technically the best choice for a path analysis, this technique has been used successfully by previous researchers and assumed to be accurate (Boyle, 1970; Galster and Hesser, 1981; Labovitz, 1970; Morris, Crull, and Winter, 1976; Morris and Jakubczak, 1988; Speare, 1974).

A path analysis was made of the entire sample to identify determinants of housing satisfaction and propensity to move among single, female parents. Preliminary analysis of the data indicated there were significant differences between black and white respondents for most housing and household variables. These differences indicated that intervening variables might differ for blacks and whites. Previous research produced similar results (Kinsey and Lane, 1983). For this reason, path analyses were performed on each subsample.

Findings

Comparison Tests

Household characteristics The characteristics of respondents across all household variables are given in Table 1. Overall, they had low-to-moderate incomes, with two thirds having a net income of less than \$10,000. Over half had some education beyond high school and most were employed full time. About one third of respondents were black and two thirds were white.

Differences between characteristics of black and white respondents are shown in Table 1. The two groups were similar in educational and occupational status. The black respondents, however, had significantly lower incomes; were younger; and had slightly larger families.

Dwelling Characteristics

The dwelling characteristics for the total sample and comparison of black and white respondents are given in Table 2. The duration-of-residence variable shows that over half of the sample had lived in their dwelling for four or more years. However, the questionnaire return rate suggests that the population of single parents is probably more mobile than indicated here. In addition to the 63 respondents who had moved in the last three years, 371 questionnaires were returned by the post office. These households had moved and either left no address or the forwarding period had expired.

There were no significant differences between black and white respondents in duration of residence or location. There were differences in tenure and housing type. Black respondents were significantly more likely to live in rented, multifamily housing.

Dwelling Features

There were significant differences between blacks and whites for all dwelling features. Blacks were less likely to have adequate storage, adequate size of rooms, freedom to make changes in the interior, an attractive neighborhood, or privacy from noise.

Table 2. Dwelling characteristics and features of respondents' homes in percentage and Chi-square test of group differences.

Housing variable	Full sample N=161	Black respondents N=58	White respondents N=103	Chi-square	d.f.
Dwelling characteristics					
Duration of residence					
Less than one year	13.0	15.5	11.7	3.06	4
1-3 years	25.5	27.6	24.3		
4-6 years	29.2	27.6	30.1		
More than 6 years	26.7	22.4	29.1		
Tenure					
Not own	65.2	86.2	53.4	21.94	1*
Own	28.6	5.2	41.7		
Housing type					
Multifamily	52.2	69.0	42.7	9.92	1*
Single-family	42.9	25.9	52.4		
Location					
Rural & towns <10,000	19.9	19.0	20.4	3.71	3
Town 10,000-50,000	9.3	12.1	7.8		
Suburb >50,000	34.2	24.1	39.8		
Urban area > 50,000	29.2	32.8	27.2		
Dwelling features					
Adequate storage					
No	55.9	70.7	47.6	8.69	1*
Yes	44.1	29.3	52.4		
Adequate size of rooms					
No	42.9	55.2	35.9	5.81	1**
Yes	57.1	44.8	64.1		
Freedom to make changes					
No	50.0	77.6	34.0	29.38	1*
Yes	50.0	22.4	66.0		
Attractive neighborhood					
No	28.0	41.7	20.4	7.95	1*
Yes	72.0	58.3	79.6		
Privacy from noise					
No	62.7	75.0	55.3	5.16	1**
Yes	37.3	25.0	44.7		

Note: Percentages may not sum to 100 due to missing cases or rounding.

*p <.01. **p<.05.

Well-being, Satisfaction, and Intention to Move

Although about half of the total group was satisfied or very satisfied with their current dwelling, there was a significant difference between satisfaction levels of black and white respondents. These are shown in Table 3. Black respondents were more likely to be dissatisfied. There were, however, no significant differences between the two groups on intention to move or stress levels. Stress scores were grouped into categories of low, 0-7 stress symptoms, and medium or high, 8-22 stress symptoms, for this Chi-square analysis.

Table 3. Primary study variables and Chi-square test of group differences.

Variable	Full sample N=161	Black respondents N=58	White respondents N=103	Chi-square	d.f.
Housing satisfaction					
Very dissatisfied	10.6	12.1	9.7	13.23	4*
Dissatisfied	15.5	25.9	9.7		
Neither	23.6	25.9	22.3		
Satisfied	32.9	22.4	38.8		
Very satisfied	14.3	6.9	18.4		
Intention to move					
No	47.2	37.9	52.4	2.78	2
Maybe	31.7	37.9	28.2		
Yes	19.9	20.7	19.4		
Psychological stress symptoms					
Low (0-7 symptoms)	54.7	55.2	54.7	0.01	1
Medium or high (8-22 symptoms)	38.5	36.2	39.8		

Note: Percentages may not sum to 100 due to missing cases or rounding.

* $p < 0.01$.

Correlation

In order to establish that a variable is an intervening variable, it must be more strongly related to the dependent variable than to the background variables. The effect of background variables should be mainly indirect via the intervening variables. An analysis of correlation coefficients supports the hypothesis that satisfaction is an intervening variable between intention to move and all background variables. Dwelling features, as hypothesized, were also more highly correlated with satisfaction than with the household or dwelling characteristics. This supports their status as intervening variables.

Freedom to make changes and privacy from noise were possible exceptions. Privacy from noise was slightly more highly correlated with housing type than with satisfaction. Freedom to make changes was more highly correlated with tenure and housing type. This indicates that these two variables may not be valid intervening variables. The low correlations between duration of residence and dwelling features also indicate a lack of support for duration of residence as an intervening variable.

Household characteristics had very weak correlations with intention to move, as did duration of residence and location. These are shown in Table 4. Intention to move was moderately correlated with all the dwelling features, tenure, and housing type. Household characteristics were only slightly more highly correlated with satisfaction, except for income and age. These correlations can be accounted for since higher-income respondents can afford housing with better features and because older women are more likely to have higher incomes. All correlations with an absolute value of 0.21 or greater were statistically significant at $p < .01$.

Table 4. Correlation coefficient matrix of intervening variables and dependent variables with household characteristics.

Variables	Dwelling characteristics				Dwelling features					Stress	Satis- faction	Intent to move
	1	2	3	4	1	2	3	4	5			
Household characteristics												
Income	.00	.49	.27	.11	.29	.29	.31	.27	.29	-.18	.35	-.14
Education	.17	.47	.29	.21	.30	.15	.17	.22	.12	-.24	.17	-.12
Occupational status	.00	.26	.10	.15	.03	.05	.12	.13	.06	-.05	.10	-.01
Age	.28	.49	.35	.07	.28	.22	.22	.23	.22	-.05	.27	-.18
Household size	-.06	-.10	.11	-.18	-.03	-.15	-.07	-.10	.07	-.04	-.07	-.04
Dwelling characteristics												
1 Duration of residence					.18	-.03	.11	.02	-.03	-.07	.00	-.19
2 Tenure					.55	.22	.30	.27	.37	-.10	.31	-.33
3 Housing type					.65	.19	.24	.27	.52	-.17	.36	-.40
4 Location					-.14	.00	-.11	-.06	-.08	.05	-.17	.15
Dwelling features												
1 Freedom to make changes										-.23	.43	-.39
2 Adequate size										-.28	.47	-.25
3 Adequate storage										-.33	.47	-.32
4 Attractive neighborhood										-.15	.50	-.28
5 Privacy from noise										-.23	.41	-.31
Stress											-.31	.18
Housing satisfaction												-.51

Note: All correlations with an absolute value of .21 or greater are statistically significant at $p < .01$.

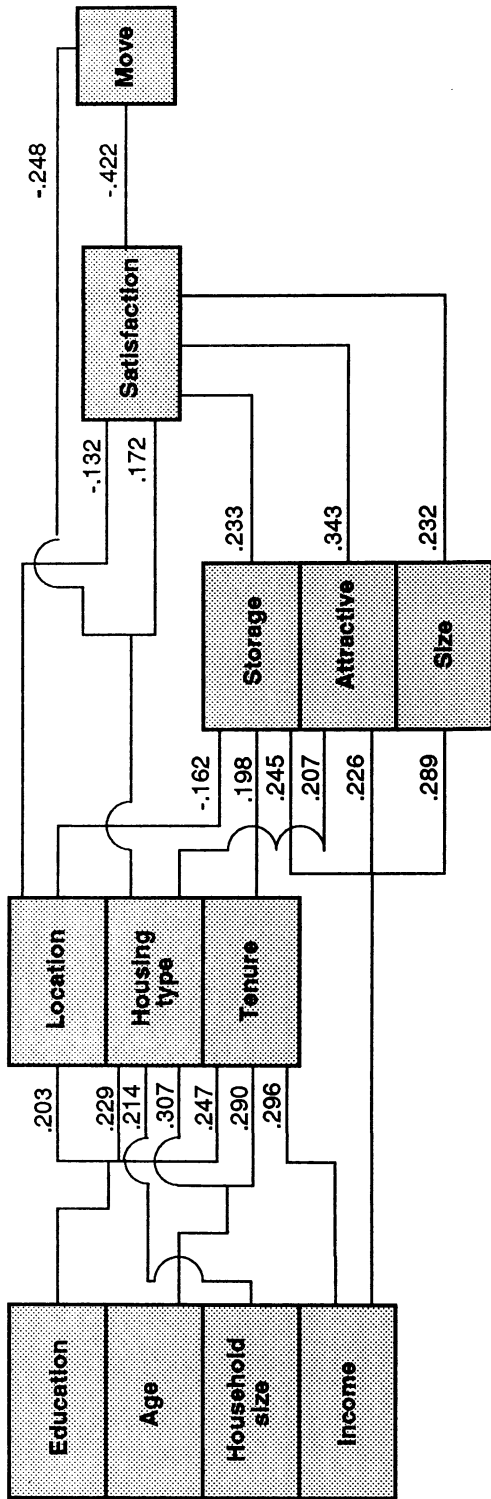


Figure 2. Tested causal model for full sample including statistically significant Beta coefficients.

Path Analysis

Total Sample

A path analysis was used to show that the intervening variables had an independent effect on satisfaction and intention to move when the effects of the background variables were taken into account. The path diagram for the total sample of single-parent households is given in Figure 2. It is similar to the hypothesized model in Figure 1. Standardized Beta coefficients were used for comparison purposes. Paths are only included in the diagram for statistically significant Beta coefficients.

Five variables were dropped from the model because they did not have significant independent relationships to satisfaction or intention to move once the other variables were included. These variables were occupational status, duration of residence, freedom to change interiors, privacy from noise, and stress.

Satisfaction Residential satisfaction depended on only four of the five household characteristics. Occupational status was dropped from the model since it had neither a direct nor indirect effect on satisfaction or intention to move. Household income affected satisfaction indirectly through tenure, adequate storage, attractive neighborhood, and adequate size. Location and housing type had both direct and indirect effects on satisfaction. Housing type had an indirect effect through attractive neighborhood, and location had an indirect effect through adequate storage. Tenure had an indirect effect on satisfaction through adequate storage. The fourth dwelling characteristic, duration of residence, had no effect on satisfaction or intention to move and was dropped from the model.

Three dwelling features had direct effects on satisfaction: adequate storage, attractive neighborhood, and adequate size. Freedom to make changes, privacy from noise, and stress had no direct nor indirect effects on satisfaction and were dropped from the model.

Two variables, satisfaction and housing type, had a direct effect on intention to move. All other variables left in the model had an indirect effect on intention to move, either through housing type or satisfaction. No nonlinear relationships were found.

When the magnitude and direction of Beta coefficients are considered, it becomes apparent that the strongest effect on propensity to move among this study group is dissatisfaction with the dwelling. Housing type, the other significant variable, also has a negative coefficient. This indicates that the intent to move is greater for multifamily housing. Housing dissatisfaction is related to unattractive neighborhoods, inadequate storage space, inadequate size, multifamily housing, and living in urban or more populated locations.

Those living in accommodations lacking desirable dwelling features are more likely to be living in rented, multifamily housing in urban areas and have lower incomes. Renters are more likely to be lower income, less educated, and younger. Multifamily residents are more likely to be younger, less educated, and have smaller families.

Grouped Sample

The trimmed path models for white and black respondents are shown in Figures 3 and 4, respectively. There are several major differences between the groups. For white respondents the main determinant of intention to move is housing dissatisfaction. However, the negative coefficient for housing type is nearly as strong. This indicates that merely living in multifamily housing is a strong motivator of residential mobility among white women, regardless of dwelling features.

Housing type affects intention to move among black women only indirectly through the lack of freedom to make changes and dissatisfaction with the dwelling. For black women, duration of residence also affects freedom to make changes. Stress reentered the equation for black women as an intervening variable between adequate storage and satisfaction.

Most household characteristics and dwelling characteristics dropped out of the equation for both groups. Dwelling features are left as the prime determinants of satisfaction. This further supports the hypothesis that dwelling features are intervening variables between dwelling characteristics and satisfaction.

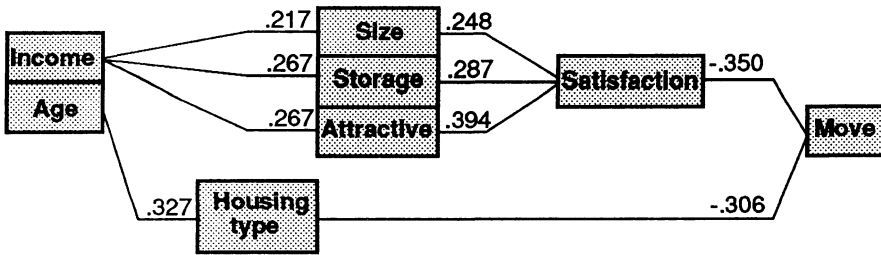


Figure 3. Tested causal model for white respondents including statistically significant Beta coefficients.

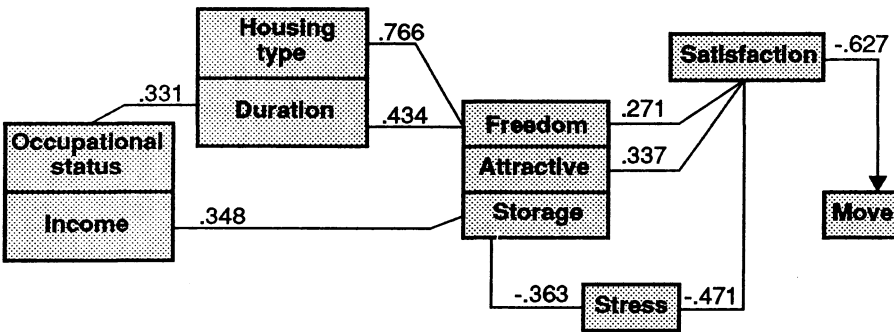


Figure 4. Tested causal model for black respondents including statistically significant Beta coefficients.

Analysis of intention to move Not all families move because of dissatisfaction with their dwelling. The 83 respondents who indicated they would move or might move during the next year were asked to note the reasons on a multiple-response question. This helped determine the extent of nonhousing-related influences on propensity to move. The results are given in Table 5. All housing-related reasons for intending to move had response rates of over 20 percent. Less than 10 percent of responses were related to other factors such as a change in family status or employment. These responses, when given, came from a larger percentage of white respondents. Those who checked “other” were asked to specify their reasons to move. These responses included personal factors such as bad memories associated with a marital home or needing to move to a different town for a change of pace. Several indicated housing-related factors such as needing yard space, wanting a house, too much noise, lack of amenities, or poor maintenance by the landlord. Other reasons concerned the neighborhood. Examples include moving to a better school district or closer to public transportation.

Table 5. Reasons for intending to move: percentage of respondents who indicated they would move or might move during the next year.

Reason	Total sample N=83	White respondents N=49	Black respondents N=34
Dwelling is wrong size			
too small	42.2	44.9	38.2
too large	1.2	2.0	0.0
Dissatisfied with dwelling	36.1	30.6	44.1
Dissatisfied with neighborhood	31.3	26.5	29.4
Improve location	30.1	34.7	23.5
Dwelling too expensive	20.5	16.3	26.5
Plan to buy a house	10.8	16.3	2.9
Change in family structure	9.6	14.3	2.9
Change of employment	8.4	14.3	0.0
Move closer to family	7.2	8.2	5.9
Unable to maintain dwelling	2.4	2.0	2.9
Other	18.1	18.4	17.6

Note: Multiple-response question; percentages do not sum to 100.

Conclusions

The findings suggest that housing satisfaction may be the most important determinant of propensity to move. Among white women, however, housing type may also be a significant factor. Path analyses for both black and white respondents supported the hypothesis that dwelling features are important intervening variables in the determination of housing satisfaction for single mothers.

These group differences support Galster's (1987) contention that different household types should be analyzed separately. Although a division of groups by race does not imply different household needs, there may be cultural differences or differences in socioeconomic background that influence housing expectations and aspirations. This also supports Kinsey and Lane's (1983) finding of lower housing satisfaction and differing preferences of blacks from whites. No comparisons of other household characteristics were made since the sample was quite homogeneous in other respects.

Previous research findings on propensity to move are partially supported by this study. The use of housing satisfaction as an intervening variable in propensity to move (Morris et al., 1976; Morris and Jakubczak, 1988; Speare, 1974) is substantiated for this group of single parents. There are, however, several discrepancies between this and earlier research.

Household income has previously been identified as having a direct effect on both housing satisfaction and propensity to move (Morris and Jakubczak, 1988). In the current study, income has a significant effect on housing satisfaction and propensity to move but only indirectly through dwelling features. Specific dwelling features have not been included in previous studies.

Other variables which were previously found to have significant effects on housing satisfaction such as age, household size (Morris and Jakubczak, 1988), and duration of residence (Speare, 1974) were not significant in this study. These differences may be due to the homogeneity of this study sample. Single-person households, very large households, and the elderly are all groups that may account for significant differences in study results. None are included in this sample.

The reduced number of significant variables in Figures 3 and 4, representing white and black respondents, contrast with the model for the total sample in Figure 2. This suggests that looking at household types separately may give a more efficient view of factors specific to that household type. As Galster (1987) pointed out, aggregating household types may obscure important differences in their relationships to housing satisfaction.

These findings should be interpreted with caution due to the possibility of sample bias created by the relatively low response rate. The addresses of nonrespondents, particularly those returned by the post office, indicate that many of these women may represent lower socioeconomic groups. Women living in poorer housing conditions or recent movers may be under-represented in the sample.

While these findings only apply to this sample, it is likely that housing satisfaction and propensity to move are affected by similar dwelling characteristics among single parents in general. Housing satisfaction should be the goal of any policy directed toward housing single parents or any other household type. For single, female parents it is apparent that housing satisfaction can be enhanced by providing 1) adequate storage and room sizes, 2) management policies that permit some freedom to make minor changes in the interior, and 3) by locating housing in attractive, clean, and safe neighborhoods. Enhanced housing satisfaction is also economically advisable since satisfied tenants are less likely to move.

Recommendations

Further research needs to be conducted to determine if the same dwelling features are important determinants of satisfaction and propensity to move among other household types. Such studies may reveal other features that are more significant. It would also be beneficial to examine the specific causal model for other household groups to identify their main determinants of satisfaction and propensity to move. Data from groups such as the elderly, single adults living alone, childless couples, and families with teenagers would add valuable information to the body of knowledge. More extensive research in this area with specific household types would be particularly helpful in establishing design guidelines for housing development.

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