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*DETERMINANTS OF HOUSING SATISFACTION OF LOW-INCOME,
RURAL, MALE FAMILY HEADS*

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ABSTRACT

A causal model based on the Morris and Winter (1975, 1978) theory of family-housing adjustment is used to examine some of the determinants of housing satisfaction of low-income, male family heads of work-force age who live in a rural area. Differences between housing norms and housing conditions are utilized as intervening variables between family characteristics and housing satisfaction. Perceived low levels of maintenance quality and fewer bedrooms than needed decrease satisfaction. Home ownership reduces home maintenance needs, but has little or no direct effect on housing satisfaction. Household characteristics tend to have indirect effects. Maintenance quality decreases with age of the head and increases with higher levels of maintenance skill of the head. Larger families tend to have greater need for more bedrooms.

INTRODUCTION

Between March, 1982 and March, 1983, the poverty rate in the Midwest increased by 1.3 percent, as 764,000 people fell below the poverty level (U.S. Department of Commerce, 1983). People with the lowest income face the greatest constraints to housing choice and generally occupy the worst housing (Ozanne and Struyk, 1976). In addition, the incidence of inadequate housing is greater in rural areas than in urban locations (U.S. President's Commission on Housing, 1982).

Housing policy makers and assistance organizations, seeking to improve the housing conditions of the rural poor, need information to target declining resources to the types of housing assistance perceived as most beneficial by the occupants. Understanding the determinants of housing satisfaction for rural low-income families is important because of the relationship between housing satisfaction and feelings of well-being (Hafstrom and Dunsing, 1973; Campbell, Converse and Rogers, 1976).

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The purpose of this report is to identify housing problems that face families who experience chronic poverty. Interviews with male co-heads of families living in Appalachian counties in southeastern Ohio provide the data. Household incomes are at or below 125 percent of the poverty level. Hypotheses to be tested are: 1) satisfaction with housing is directly influenced by maintenance quality, adequacy of number of bedrooms and ownership/rental tenure, and 2) background variables -- education, age, family size, maintenance skill and per capita difference between income and poverty level-- influence maintenance quality, adequacy of number of bedrooms and owner/rental status. The background variables are hypothesized to indirectly influence housing satisfaction.

BACKGROUND

Empirical studies using community or nation-wide samples tend to be only moderately successful in explaining variation in responses to housing satisfaction questions. Morris, Crull, and Winter (1976) and Newman and Duncan (1979) report R^2 's for housing satisfaction regression equations of .176 and .214 respectively. Relatively low correlations may be attributed to difficulties in measuring housing satisfaction across a broad range of income classes. One such measurement problem is identified as differential systematic error (Winter and Morris, 1983).

Differential systematic error occurs when different groups adjust their response to satisfaction questions either upwards or downwards from what would be an accurate appraisal of the real level of services or utility enjoyed. Housing satisfaction assessments may be shifted higher than would be otherwise expected when chronic poverty provides no alternative to living in low quality housing. When income is somewhat above the poverty level, identification with the materially more successful may heighten critical evaluation and lower satisfaction ratings.

Campbell et al. (1976) point out that group shifts in housing satisfaction assessments in one data set produce a U-shaped relationship between housing satisfaction and income. Their study shows equally high satisfaction ratings for both the highest and lowest income classes. Assessments decline sharply between the lowest and middle income groups, although increasing income should allow greater opportunity to improve housing conditions and increase utility. Thus, it appears appropriate to examine low-income households as a special group separate from other income groups to decrease the incidence of differential systematic error.

An additional reason to investigate the poor, exclusive of other groups, is that specific components of dissatisfaction may be more easily suppressed. The two psychological mechanisms, used to relieve the stress of unsatisfactory conditions when income or market constraints severely restrict other options, are normative adaptation (Morris and Winter, 1978) and accommodation (Campbell et al., 1976). Normative adaptation includes lowering of the norms or standards used to evaluate housing conditions. Accommodation occurs by blocking awareness or becoming less sensitive to stressful situations. Use of either mechanism increases perceived satisfaction. Significant determinants of housing dissatisfaction for a sample of low-income

people would identify conditions that make it difficult to relax norms or to reduce sensitivity. If conditions reducing satisfaction differ between groups with differing constraints, it is not necessary to assume that norms held by the groups differ. An alternative assumption is that specific norms are more easily suppressed.

The congruence of spouses' responses to questions about decisionmaking processes is a topic of recent research. Monroe, Bokemeir, Kotchen, and McKean (1985) warn that the validity of assumed congruence is to be questioned. They conclude that as many as 24 percent of couples are substantially misrepresented by reports from only one spouse. Nevertheless, correlations between husband and wife assessments tend to be greater than 50 percent, causing multicollinearity problems to arise when responses for both partners are used as exogenous variables in path analysis (Schumm, Southerly, and Figley, 1980).

Husbands were interviewed to avoid multicollinearity problems. Mayer (1983) points out that "...the category into which consumer coping activities fall is invariably the one in which the husband's relative participation is the highest" (p. 368). This is particularly true of time spent in home maintenance activities (Cogle, 1981) which are of particular interest in this study. In addition, the husband's responses are considered as important as those of any other family member and are often under-represented or missing from surveys.

MODEL

The model for this study derives from theoretical models developed by Morris and Winter (1975, 1978) and Brown and Moore (1975). Sequential relationships among variable categories for a path analysis are shown in Figure 1.

Socio-demographic characteristics are treated as exogenous variables. According to Morris and Winter (1978), these characteristics influence housing satisfaction indirectly, serving to establish norms for appropriate housing. Housing characteristics are not included among the exogenous socio-demographic variables. Instead, they are compared to norms as the basis of decisions about adequacy or habitability of housing.

The second stage of variables in the model is called the *deficit* or *stressor* level. Morris and Winter (1975) propose that housing satisfaction depends on attainment of housing conditions congruent with cultural and family norms. Deficits arise when incongruent conditions exist. Brown and Moore (1970) utilize a similar concept in their theoretical model that is called a stressor. They point out that stressors derive from disparity between "...collective needs of the household and the characteristics of its environment" (p.112). The third level of the model is housing satisfaction. It is hypothesized that satisfaction will be lowered by the presence of deficits or stressors.

Housing deficits considered for inclusion in the model are: ownership or rental tenure status deficits; style and type of housing structure deficits; space-need deficits; quality of structure, services and maintenance deficits; housing expenditure deficits; and

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neighborhood quality deficits. Morris and Winter (1978) identify these factors through an extensive literature review and conclude that usually they are direct influences on housing satisfaction.

Style and type of housing structure, proportion of income spent for housing and neighborhood quality measures are not included in analyses of the model. Conventional single-family homes are the normative standard for appropriate housing for husband-wife families (Dillman, Tremblay, Jr., and Dillman, 1979). However, preliminary analyses indicate a non-significant negative correlation between this culturally normative structure and housing satisfaction for the sample of low-income husbands. For this group, structure deficits are not relevant.

Housing expenditure burden is not used because it tends to cause housing satisfaction to increase instead of decrease. This phenomenon is not only true for this sample. It occurs for other groups (Guthrie and Barclay, 1982, Hanna and Lindamood, 1979). Perhaps relatively high housing expenditure is perceived as either an income or market problem instead of a housing problem.

Ratings of neighborhood quality are not available for inclusion in the model. Lack of community services (Goss and Day, 1985) and ratings of neighborhood satisfaction (Campbell et al., 1976, Guthrie and Barclay, 1982, Morris et al., 1976, Newman and Duncan, 1979) have a strong direct effect on housing. Conversely, McCray and Day (1977) suggest that rural low-income residents are not particularly dissatisfied with their community environments. They further attribute the lack of community dissatisfaction to suppression of salience by psychological mechanisms.

The only exogenous variable unique to this study is a measure of household heads' maintenance skills. The exogenous variables relate to the unmet needs and resources which are the inputs of management theory (Deacon and Firebaugh, 1981). Maintenance skills as human resources can be used to improve housing conditions. In addition, this new measure is included because it can be influenced by policy.

Age and education of the family head, income gap from the poverty level, and family size are also included among background variables in the model. In other studies using the Morris and Winter (1978) model, age and income are socio-demographic variables often having an independent influence on housing satisfaction. Other traditionally used background measures are unnecessary because of lack of variation in the sample. For example, all household heads are white males living in a rural location.

PROCEDURES

The study was conducted in four rural Appalachian counties in southeastern Ohio. At the time of the 1980 census, 75 percent of the housing units of the counties were classified as rural. The largest city in the area was Jackson, with a population of 6,675. Median

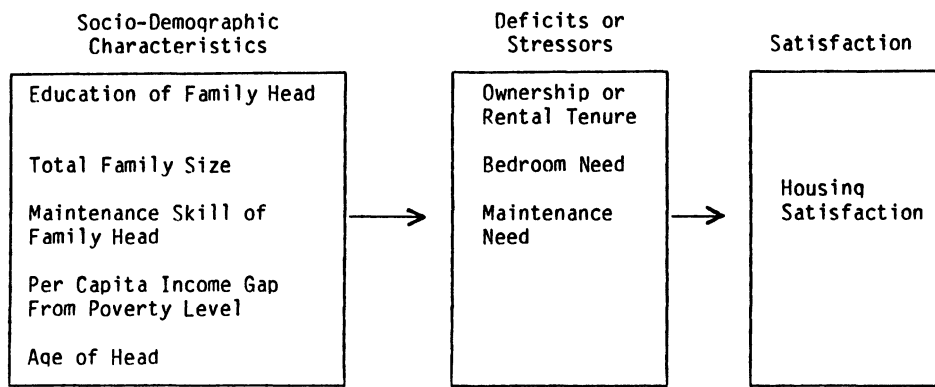


Figure 1. Hypothesized Model

household incomes for the counties were at least 30 percent below the statewide median. Rates of abandoned housing and units lacking some or all plumbing facilities were high compared to the rest of Ohio.

Contacts with 174 male household heads were made through referrals from public organizations involved in assistance or educational programs for low-income people in the local area. Interviews with 138 men were conducted between October 1976 and April 1977. This report is based on data from 95 men who were head of husband-wife families with no other adult present. The respondents were between 20 and 55 years of age, had lived in their present homes for more than one year and answered questions adequately for measurement of variables studied. Gross family incomes were no more than 125 percent of the U.S. Bureau of Census poverty level for the same sized families.

More than one-half of the men were unemployed at the time of the interview. Three out of every four had experienced a period of unemployment in the last three years. Although average earned income was \$3,120 (1976 dollars), mean household income was higher at \$4,790 because of transfer payments. None of the families was being served by a housing assistance program.

Although 45 percent of the families owned their homes, the mean value of the owned units was only \$7,500. Average housing expenditures for all households were \$1,562. The expenditures did not differ significantly between owners and renters. Rents ranged from \$10 to \$180 per month. Housing expenditures were 55 percent of the family budget if the head was unemployed and only 25 percent if he was employed.

Housing conditions reflected the poverty of the respondents. Interviewers described foundations of 37 houses as having major faults. Considerable deterioration of facing material was noted at 41 houses. Sixty-two homes had no gutters or downspouts. Porches and steps appeared to need at least minor repair at 61 of the homes, while broken or cracked windows were noted in 59 of the houses.

Common amenities and adequate space were frequently lacking. Fifteen percent of the homes did not have piped water. Of those with an indoor water supply, 26 percent had only cold water. More than half of the homes had no central heating system. Mean space in all housing units was 869 square feet. On the other hand, most of the families occupied one-story, single-family homes.

Measurement

Variables used in the model, the symbols used later for their identification and measurement and range of response within the sample are summarized in Table 1. Maintenance skill (M SKIL) was the summation of Likert-type scores on 16 questions. The maintenance need of the residence (MINEED) was based on the respondent's evaluation of the quality of housing maintenance. He compared the house condition to his own norm for quality in response to questions which paralleled the M SKIL items. Means and standard deviations and item-scale correlations are shown in Table 2 for items

Table 1. Variables and Measurements Used In Analysis

Variable	Symbol	
Education of family head	ED YRS	
Age of family head	AGE HD	
Family size	N PERS	
Maintenance skill of family head	M SKIL	
Per capita income gap from poverty level	PCYGAP	
Ownership or rental tenure	TENURE	
Bedroom need	BRNEED	
Maintenance need	MINEED	
Housing satisfaction	SATISF	
	Range	
Measurement	Minimum	Maximum
Years of education completed	0	14
Numbers of years since birth	20	55
Number of persons including parents and children living with them	2	11
Cumulative scale score (see Table 2)	45	79
Total family income less poverty level for size of family divided by family size	-1468	382
Dummy variable (owners = 1, renters = 0)	0	1
Difference between the family head's count of bedrooms needed for the family of the same size, sex and age composition of his own family and the actual number of bedrooms the family had	-3	+3
Cumulative scale score (see Table 2)	0	16
Cumulative scale score	23	176

summed into both the M SKIL and MINEED scale.

The major dependent variable (SATISF) was an index of 17 items rated on satisfaction and weighted for importance. The index items are described in Table 3. SATISF items originated from 24 housing and neighborhood satisfaction questions developed by Morris and Winter (1978). Two items, satisfaction with space in the bathrooms and with storage in the garage, attic or basement, were not used because many men living in homes without these facilities did not rate them. Two missing responses to other items were scored as a neutral

Table 2. Means, Standard Deviations and Correlations of Items Combined Into Maintenance Skill Index (M SKIL) and Maintenance Need Index (MINEED)

Item	M SKIL Index Response ^a			MINEED Index Response ^b		
	Mean	SD	Correlation With M SKIL	Mean	SD	Correlation with MINEED
outside painting	3.56	.75	.66	.71	.46	.59
inside painting	3.45	.70	.70	.73	.45	.66
wall papering	3.11	.49	.48	.46	.50	.73
plaster repairs	3.17	.54	.74	.51	.50	.74
concrete repairs	3.19	.59	.57	.45	.50	.70
wood finishing	3.26	.59	.63	.58	.50	.69
replacing boards	3.35	.65	.76	.61	.49	.78
repair of siding	3.21	.50	.80	.52	.50	.69
roofing repairs	3.36	.62	.73	.59	.49	.59
gutter repairs	3.20	.50	.68	.27	.45	.33
crack caulking	3.35	.61	.79	.63	.48	.74
pipe repairs	3.25	.55	.69	.36	.49	.68
faucet repairs	3.35	.54	.72	.40	.50	.54
switch repairs	3.41	.66	.62	.48	.50	.72
insulating	3.39	.66	.71	.68	.47	.61
building storage	3.16	.51	.50	.54	.50	.70
M SKIL	52.76	6.39				
MINEED				8.52	5.17	

^aEach item was preceded by "How good are you at...".
Scores were 1=very poor, 2=poor, 3=average, 4=good, 5=very good

^bEach item was preceded by "Does your house need any of the repairs or improvements." Scores were 0 = no, 1 = yes.

satisfaction rating. The weighted score was thus midway in the range from 1 for "dissatisfied" in combination with "very important" to 13 for "very satisfied" in combination with "very important". Five other items were not included in the SATISF score as a result of low factor loadings on a common dimension with other items when factor analyzed.

More than 90 percent of inter-item correlations were between .10 and .60 for the M SKIL, MINEED and SATISF measures. Guilford and Frutcher (1973) recommend this range for item correlation and a range from .30 to .80 for item-test correlations for a well constructed test. Cronbach's coefficient ALPHA, a measure of internal consistency was slightly greater than .90 for each measure.

Analysis

Ordinary least squares regression was used for analysis. Techniques, developed by Specht (1975) for evaluation of causal models and appropriate for samples with at least five cases per variable were followed. The trimmed model shown in Table 4 and Figure 2 met Specht's three criteria for evaluation of causal models: exogenous variables have explanatory power to predict endogenous variables, all variables in the model contribute to overall goodness of fit and the reproduced correlation matrix is a reasonable approximation of the original matrix (Table 5). Likelihood-ratio tests based on chi-square were used to evaluate each criterion.

RESULTS

The fact that this study is conducted with a unique sample must be considered. In particular, the convenience sample warrants caution in extending the following generalizations to other groups.

The results support the theory that satisfaction is primarily a function of attainment of an environment that matches cultural and family norms. Two deficit variables have the greatest total effect on satisfaction (Table 4). Maintenance need and bedroom need emerge as strong influences on housing satisfaction. Even though poverty constraints may suppress the impact of normative deficits, low quality of housing maintenance and inadequate bedroom space still remain a cause of dissatisfaction.

The influence of ownership tenure on satisfaction is mainly indirect through maintenance need (Figure 2). When the path between tenure and satisfaction is removed from the model, original correlations are adequately reproduced (Table 5). Perhaps ownership would become more salient once quality and space needs are achieved. However, for families such as those in the study, home ownership appears to be the most easily repressed need among the deficits examined.

Although ownership *per se* may be suppressed, it is one method of improving the maintenance quality of homes. Struyk (1977) suggests that the superior maintenance of homes by their owners is the most valid reason for policies encouraging home ownership. The

Table 3. Means, Standard Deviations, and Correlations of Items Combined into Satisfaction Index (SATISF)

Satisfaction Index Item ^a	Mean	SD	Correlation with SATISF
The number of rooms in your house	6.12	4.12	.73
The amount of space in your house	6.17	4.03	.77
The number of bedrooms in your house	6.15	4.07	.69
The space in the bedrooms	7.11	3.80	.66
The number of bathrooms in your house	5.80	4.00	.55
The cooking facilities in your house	7.79	3.76	.70
The storage in the kitchen	6.21	4.08	.72
The storage in bedrooms	6.14	3.85	.76
The comfort of your house in winter	6.94	3.98	.46
The comfort of your house in summer	8.46	3.24	.35
The insulation and weatherproofing of your house	4.77	3.76	.51
The physical condition of your house	5.89	3.99	.74
The privacy your house provides for family members	7.60	3.66	.64
The floor plan of your house	7.48	3.49	.73
The style or design of your house	7.15	3.44	.61
The image your house gives to others	6.43	3.61	.76
The location of your house from the neighbors	8.54	3.05	.41
SATISF	114.73	40.94	

a). Each item was preceded by "please indicate your feelings about your present situation with one of the following answers: very dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied, very satisfied" and "please indicate how important you feel these features are to your housing satisfaction with one of the following: very unimportant, unimportant, important, very important." A score of 13 indicated a "very satisfied" and "very important" response. A score of 1 indicated "very dissatisfied" in combination with "very important."

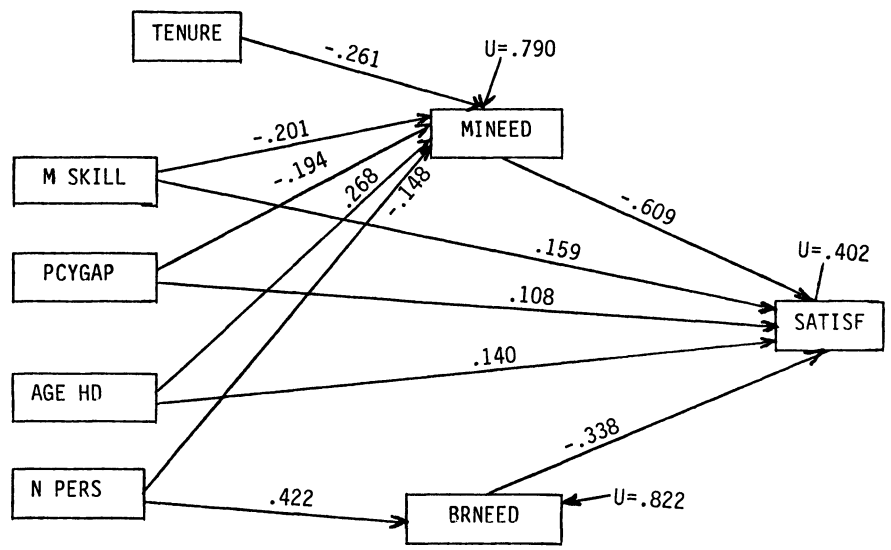


Figure 2. Paths Retained in Trimmed Model

Table 4. Coefficients for Trimmed Model

Dependent Variable	Independent Variable	F	b	Beta	Indirect Effects		Total Effect
					BRNEED	MINEED	
BRNEED ^a	N PERS	20.10*	.184	.421			.421
MINEED ^b	AGE HD	6.79*	.148	.268			.268
	N PERS	2.10	-.341	-.148			-.148
	M SKIL	4.39*	-.162	-.201			-.201
	PCYGAP	4.17*	-.003	-.194			-.194
	TENURE	7.39*	-2.690	-.261			-.261
SATISF ^c	AGE HD	4.06*	.610	.140		-.163	-.023
	N PERS				-.142	.090	.052
	M SKIL	5.15*	1.018	.159		.122	.281
	PCYGAP	2.42	.013	.108		.118	.226
	TENURE					.159	.159
	BRNEED	24.94*	-14.208	-.338			-.338
	MINEED	71.61*	-4.824	-.609			-.609

* $p > .05$

^aAdjusted $R^2 = .178$, $F_{1,93} = 20.10$, Constant = $-.18$

^bAdjusted $R^2 = .210$, $F_{5,89} = 4.73$, Constant = 13.83

^cAdjusted $R^2 = .598$, $F_{5,89} = 26.43$, Constant = 98.13

greater total effect of maintenance skill over ownership tenure, however, illustrates the merit of policies supporting educational programs to increase employability and reduce poverty. As the income gap from poverty level decreases, housing maintenance improves. In addition, the self-help aspect of maintenance labor by the participants of a program would enhance dollars contributed through any other transfer programs developed to improve housing quality. Thus, efficiency of assistance programs would be improved.

Table 5. Original and Reproduced Correlations for Trimmed Models, Mean and Standard Deviations

Variable ^a	ED YRS	AGE HD	N PERS	M SKIL		
ED YRS ^b	--	--	--	--		
AGE HD	-.251	--	.376	.094		
N PERS	-.212	.376	--	-.021		
M SKIL	.071	-.094	-.021	--		
PCYGAP	-.014	.098	.083	-.091		
TENURE	-.041	.133	.085	.105		
BRNEED	-.279	.083	.422	.021		
MINEED	-.042	.178	-.080	-.232		
SATISF	.043	-.001	-.088	.270		
Mean	9.21	32.54	4.86	52.76		
SD	2.63	9.36	2.33	6.39		

Variable ^a	PCYGAP	TENURE	BRNEED	MINEED	SATISF
ED YRS ^b	--	--	--	--	--
AGE HD	.098	.133	.159	.178	-.027
N PERS	.438	.085	.422	-.080	-.036
M SKIL	-.091	.105	-.009	-.232	.280
PCYGAP	--	.050	.035	-.175	.202
TENURE	.050	--	.036	.268	.192
BRNEED	-.060	.048	--	-.034	-.293
MINEED	-.175	-.268	.070	--	-.628
SATISF	.234	.127	-.372	-.663	--
Mean	-454.46	.45	.72	8.52	114.73
SD	351.93	.50	.97	5.17	40.94

^aZero-order correlations appear below the diagonal and reproduced correlations for MODEL II above the diagonal

^bED YRS are not included in the trimmed model

The influence of maintenance skill on maintenance need does not require that the person of such skills be a home owner. Maintenance skill directly and significantly influences quality of maintenance whether or not the skilled person owns the home. In other words, although home owners live in better maintained homes than renters, both renters and owners with higher skill levels enjoyed superior home maintenance quality.

Renters are generally not expected to do as much maintenance and repair as owners. Renters in the lowest-income group may have more latitude, however, than others to make improvements before rent increases occur. They tend to occupy the lowest quality homes

in a market area.

The direct impact of maintenance skill on housing satisfaction can be interpreted in two ways. First, a more complete measure of maintenance needs may be required to capture all of the indirect influence through that variable. Second, maintenance skill may provide a better image of self and home, thus enhancing ratings of satisfaction independent of actual quality of housing.

Larger families tend to have fewer bedrooms than needed. The total effect of age of head on housing satisfaction is small due to the offsetting indirect influence of a higher maintenance need. Education of the head has little direct or indirect effect on housing satisfaction and is removed from the originally hypothesized model.

Use of a sample of very low-income male heads and a segment of the Morris and Winter housing adjustment process (1975, 1978) for analysis explains approximately 60 percent of variation in housing satisfaction of respondents. It does not prove that better prediction can be obtained by separate analyses of different income groups. Measures used in the model also differ from previous analyses and no test for difference of $R^2 = .598$ between this and results of other studies is possible. However, the magnitude of R^2 obtained is a possible indication that prediction levels of previous research have been influenced by systematic differential error.

Another interpretation of the amount of variance explained is that a unique measure of housing quality is required for different socio-economic groups. According to Morris and Winter (1978), cultural norms apply *by definition*, to all families in a society. Nevertheless, "unlike other housing norms, quality norms are probably contingent upon income; income and housing quality should be congruent" (Morris and Winter, 1975, p. 83). Following these ideas, the quality norms that are applicable are culturally derived with income as a determining factor. This parallels the need for information about family composition and age in order to derive bedroom need. A measure of quality appropriate for only one income group, when used in an analysis encompassing a broad spectrum of income groups, leads to underestimation of the importance of housing quality as a determinant of housing satisfaction and lower overall explanation.

CONCLUSIONS

Maintenance needs and lack of bedrooms have a direct negative influence on housing satisfaction of low-income male family heads. Improved quality is positively related to home ownership, maintenance skill and improved income status. The latter relationship is not significant, however. Larger families tend to have fewer bedrooms than needed. Direct effects of maintenance skill and age of the head are weak in comparison to space and quality deficits, but do have a significant impact on housing satisfaction.

Education *per se* has little influence on housing satisfaction, although ability to do home maintenance, reflecting a specific type of education, is of some importance. Two non-significant relationships are retained in the model in order to reproduce original correlations adequately. These are the paths between household size and

maintenance need and between income gap from poverty level and satisfaction.

The results provide some support for the theory underlying the model and the hypothesis that systematic differential error may reduce predictability when all income groups are combined into a single analysis. In addition, support is provided for the hypothesis that normative adaptation or accommodation are not effective mechanisms for suppressing quality and space needs.

In conclusion, the authors emphasize that the results are tentative because they are based on a limited sample. Replications with other groups, such as female family heads, urban residents, minority groups and low-income people in other geographic locations are suggested. Additional research is needed to determine if these results have a broader and more general application.

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