

HOUSING AFFORDABILITY: EFFECT OF HOUSING MARKET AND SOCIO-ECONOMIC FACTORS

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Abstract

A major concern of the American public is housing affordability. The purpose of this study was to investigate how general housing market factors differed between rural and urban counties in a midwestern state and their effect on housing affordability. Research results suggest that in urban counties the housing market factors have a higher mean score than those of rural areas. Housing financing programs and regulations are more apparent in urban areas than in rural areas. Household characteristics impacted housing affordability rather than the housing marketability. There was no significant difference in the housing cost burden between rural and urban households. This study indicated that 76% of the total respondents identified themselves as living in affordable housing.

Introduction

"How much for housing?" "Can I afford it?" These questions have long been a concern for American families. There is not a housing shortage today. There are plenty of houses to buy and builders to supply more; however, with increasing quality of housing, affordability is still an issue (Lesser, 1982; Linneman & Megbolugbe, 1992). In today's economy, with inflation low and interest rates at their lowest in several decades, more options are available for families considering housing purchases. However, there still is a shortage of affordable housing -- housing that people can buy for a monthly payment equal to 25% or 30% of their income. Although homes are more affordable today than they have been for over a decade due to lower interest rates and minimal inflation, tougher credit standards and slow loan processing still causes an availability problem (Kennedy, 1992). Increased housing quality expectations of buyers and housing price inflation have caused a change in housing affordability. Purchasing higher quality housing requires more financial resources than the purchase of an average- to lower-quality house. For most households, affordability depends on mortgage financing and, to a certain extent, down payment requirements. In fact, Linneman and Megbolugbe (1992) reported that 93% of home buyers finance their home purchases. With the current decrease in interest rates and comparatively stable housing prices, home buyers in the early housing market of the 1990s are in a better situation than home buyers were in the 1970s and 1980s.

The Council on Development Choices (1983) reported that less than one-quarter of American families could afford median priced, single-family new homes, while in 1970 almost half of American families could afford a median priced home. The median price of housing for the first time home buyer in 1987 approached \$67,000, up more than 92% from the \$34,800 figure for 1975 (Apgar & Brown, 1988). The reported total burden for the first-time buyer in 1987 was 26.2% of gross income (cash burden of 32.4%), while the gross rent burden was 29.7%.¹ Kennedy (1992) reports that in the South, the median income of \$32,703 is not enough to buy the median home of \$92,000. Rising prices make home own-

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This research was supported by the Oklahoma Agricultural Experiment Station Project, "Socio-Economic and Structural Dimensions of Adequate Housing Perceived by Rural Households: A framework for Housing Decisions."

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ership a good investment for those who already own. However, prices may force young first time buyers to be priced out of the housing market because of larger down payments and/or unaffordable monthly mortgage payments.

There are many influences on both housing availability and housing affordability, especially in certain subdivisions of urban centers and in rural areas. One might argue that housing demand responds to demographic needs. However, Mutchler and Krivo (1989) indicate the problem transcends the usual price-demand situation. Housing development is influenced by important political and economic decisions which are unrelated to demographic demands and changes. Housing stock is strongly influenced by private investors who may not have reliable information and may have other goals than to benefit the consumer.

The price of building materials, land, and labor is responsible for some of the increases in housing prices. Increased regulation has also had an effect on housing availability and cost. Significant factors in the increase of land cost and barriers in the diffusion of affordable housing are building code regulation and land use control regulation, as well as the cost of public services (Frieden, 1979; Miller, 1981; and Seidel, 1978). These factors impose on the buyer both a direct cost, in terms of requiring health and safety features, and an indirect cost, in terms of preventing production effectiveness and innovation, thereby reducing availability and affordability (Frieden, 1979; Hancock, 1993; Seidel, 1978).

Dolbeare (1983) and Linneman and Megbolugbe (1992) insisted housing affordability has become increasingly critical in relation to housing quality and/or availability for low income families. Affordability denotes housing costs beyond mortgage or rent, and also includes utilities, taxes, insurance, and maintenance (Hughes & Sternlieb, 1988). These operating costs, particularly utilities, have greatly increased in the past decade and a half. The first time home buyers' ability to afford housing is of particular concern. The effect of rising housing costs has been worse for the poor, increasing the number of homeless individuals and families. Elderly individuals also face challenging maintenance costs as they live in older structures. Previous research suggests significant relationships between socio-economic characteristics and the proportion of income spent on shelter (Feins & Lane, 1983; Hancock, 1993).

The purpose of this study is to assess housing affordability and the effect of urban/rural location in relation to the housing market factors. The study has three specific objectives: 1) identifying general housing market factors in urban and rural communities, 2) identifying differences in the housing cost burden between rural and urban residents, and 3) assessing the effect of housing market factors and households' socio-demographic factors on housing affordability.

Definitions

Housing affordability - a measure defined by the percentage of income spent for shelter, including mortgage and rent (housing cost/income) (Feins & Lane, 1983). The old rule of thumb for what families could afford was 25%, but official criterion of affordability based on recent legislative amendments (the rate charged in federally-subsidized housing), as well as mortgage lending criteria is 30% (Achtenberg & Marcuse, 1983).

Housing market factors - include the demand, supply, interaction between demand and supply, and the outcomes of the housing market. Marantz, Case, and Leonard (1976) identified factors of the housing market related to discrimination in rural housing as housing market outcome, demand (socio-economic characteristics and financing), supply (housing, land, financing, and municipal services), and the interaction between demand and supply (information change and regulation). Housing market outcomes of transaction, price, or tenure are results of the market interaction between demand and supply.

Housing intermediaries - housing-related agencies that involve decision makers in the housing market (Ha, 1989; Weber & McCray, 1984).

Rural - area of 2,500 inhabitants or less in areas not included in a SMSA (Standard Metropolitan Statistical Area) according to the 1980 Census (US Bureau of Census, 1983)².

Urban - area of 50,000 or more within a SMSA according to the 1980 Census (US Bureau of Census, 1983)².

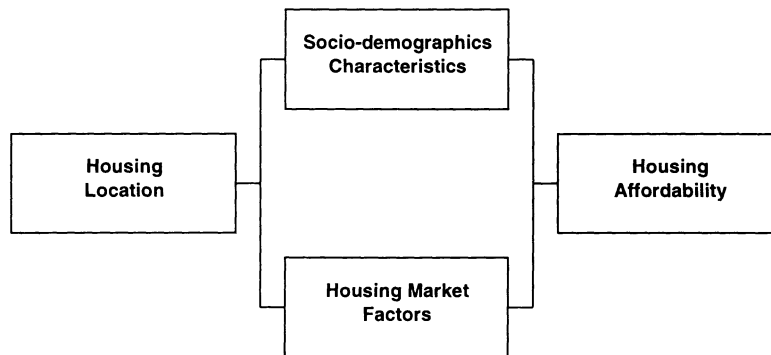
Research Design

Sample

Household data were collected from eight rural counties stratified geographically, and two urban counties in a midwestern state. Approximately 300 households from each county were selected with a total of 3,031 (rural-2,431 and urban-600) questionnaires mailed to households selected from telephone directories using systematic sampling methods. Response rate was about 41%, which is considered appropriate for a general population survey (rural-42% and urban-36%) with a total of 1,041 (rural-842 and urban-199) responses used for data analysis.

Housing intermediaries included in the sample were county cooperative extension agents, Farmer's Home Administration county supervisors, regional planners, real estate agents, lenders, and mayors or city managers of each community. The sample included all rural community intermediaries listed in the telephone directory. The urban sample included ten real estate agents and ten lenders as the most knowledgeable about housing in the urban areas who were randomly selected from telephone directories. The sample included a total of 123 intermediaries with a total of 87 responses (71%).

Figure 1. Conceptual housing affordability model.



Instrumentation and Data Collection

Household Data: To measure housing affordability, questions were included about household income, and items related to housing cost. Housing cost items included utility, maintenance, taxes, insurance, and mortgage/rent.

Housing Intermediary: Data from housing intermediaries were collected using a Housing Practice Survey developed by the S-194 Southern Regional Housing Research Committee (Beamish, Weber, & McCray, 1991). The Housing Practice Survey includes questions related to financing, housing programs, and housing regulations in communities. Financing indices include seven items with three response levels: "not available (0)," "limited availability (.5)" and "general availability (1)". Existence of local housing programs and regulations within communities include six items and seven items respectively, each having response levels of "no (0)" and "yes (1)." The instrument solicited local housing market information concerning financing, housing regulations, and housing programs

Data Collection: A derivation of Dillman's (1978) Total Design Method for the mailed survey was utilized. The survey packet, which included a questionnaire, a cover letter, and a return envelope, was mailed to each intermediary and to each household. A follow-up post card and survey packet were sent at two-week intervals to non-respondents. Due to budget constraints, the registered letter and telephone calls were not utilized. Additional data for housing market factors were collected from the *Statistical Abstract of Oklahoma 1987* (Dikeman & Earley, 1987).

Results and Discussion

The conceptual framework that guided analysis of housing affordability is illustrated in Figure 1. Characteristics of both households and the housing market differ in relation to location and affordability issues.

Table 1. Mean difference between rural and urban counties: Households' socio demographic characteristics.

		Rural M	Urban M	T	χ^2	P-value
Years lived (years)		30.12	25.50	-2.26 ^c		.024
House value (\$)		45439.70	96745.30	-7.30 ^c		.000
House age (years)		51.20	49.50	1.33 ^c		.182
Household size		2.60	2.50	1.33		.485
Age of respondent (years)		51.21	49.46	1.33		.182
Education (years)		12.80	14.70	-8.97		.000
Income (\$)		29030.27	40877.19	-7.37		.000
Housing cost (\$)		562.02	785.00	-4.17 ^c		.000
Housing cost burden (%) ^a		29.34	29.30	.01 ^c		.994
Tenure	1=owner 0=renter	639/770	149/180 ^b		.00	.946
Sex	1=male 0=female	392/770	102/180 ^b		1.93	.164
Marital status	1=married 0=female	161/770	46/180 ^b		1.84	.174
Race	1=nonwhite 0=white	56/770	14/180 ^b		.05	.815

^a housing cost burden=(housing cost/income) x 100

^b f/n when n=total of rural or urban f=frequency of 1

^c unequal variance

Housing Location and Household Characteristics

Household characteristics were compared by residential location utilizing a t-test and chi square statistic (Table 1). Years lived in the current residence, estimated house value, respondent's education and household income, and housing costs were significantly different between rural and urban respondents at the .05 level. Rural residents had lived longer in their current house. Estimated house values were significantly higher in urban areas. The estimated house value in urban areas was almost double the value in rural areas. Household incomes and education levels were higher in urban areas. Urban households also spent more on housing than rural households. There were no significant differences in the age of home, household size, and age of respondents between the rural and urban areas.

Housing Location and Housing Affordability

When housing cost burden was operationally defined as [(Housing cost/household income) x 100], no significant difference in mean scores between rural and urban residents was found (see Table 1). This result may be explained by the previous discussion that although urban households spend more for housing, they also have higher incomes. Rural households had less income and spent less on housing.

When housing affordability was defined as spending 30% or less of income on housing (Achtenberg & Marcuse, 1983; Feins & Lane, 1983; and Stone, 1990), 76% of the total respondents (which included both rural and urban areas) were identified as living in affordable housing. (Seventy-five percent of rural households and 77% of urban households).

When housing affordability was defined as spending less than 25% of income on housing, about 64% of total respondents were identified as affordable with no difference between the rural and urban residents. This result of a relatively high ratio of affordable housing might

be due to the respondent's characteristics. The mean age of respondents was moderately high (rural-51 years old and urban-49 years old), and respondents' household income level was greater than the state level. The mean of the estimated per capita income of total respondents was \$12,049 with rural-\$11,168 and urban-\$16,350, while the reported Oklahoma state level of per capita income from 1986 was \$11,084 for rural and \$11,810 for urban (Table 2). Mean of household annual income of total respondents was \$31,329 with 2.6 household size. Rural respondents' mean income was \$29,039 with 2.6 household size and urban \$40,877 with 2.5 household size. About 83% of respondents in both rural and urban areas were owners. These differences between the research sample and population limits the application of research results to other housing markets.

Table 2. Mean difference between rural and urban residents: Housing market factors.

	Rural M	Urban M	T	P-value
Population 86 ^b	19464.51	571384.00	47.33 ^a	.000
Net migration 86 ^b	-490.32	17720.00	43.16 ^a	.000
Population change (80-86) ^b	.90	10.30	24.23 ^a	.000
Single hsg permit (84-87) ^b	39.35	9106.80	19.39	.000
Multi hsg permit (84-87) ^b	3.09	5634.04	25.41 ^a	.000
Per capita income 86 (\$) ^b	11084.90	11810.28	.96 ^a	.342
Financing (HP)	.33	.64	6.25	.000
Housing program (HP)	.78	.91	2.54	.012
Housing regulation (HP)	.54	.85	3.98	.000

^a unequal variance

^b source: Center for Economic and Management Research, Statistical Abstract of Oklahoma 1987, University of Oklahoma

Housing Location and Housing Market Factors

Responses from intermediaries were utilized in assessing several housing market factors. A reliability test to measure inter-item consistency of the Financing, Housing Programs, and Housing Regulation categories exhibited consistency with a standardized alpha of .75, .68, and .86 respectively.

The total score of each category (Financing, Housing Program, and Housing Regulation) was divided by the valid item number of answers to be used for analysis. Items for each category are listed in Tables 3, 4, and 5. The range of each value was 0 to 1, and mean values of Financing, Housing Program, and Housing Regulation were .42, .82, and .63.

Characteristics of the general housing market, financing, housing program, and housing regulation scores and eight other housing market related factors were analyzed using a t-test for mean differences between rural and urban areas (Table 2). Population and net migration in 1986, population change between 1980 and 1986, and the number of residential building permits between 1984 and 1987 were significantly higher in urban areas than in rural areas. Urban financing was more available than rural financing. Also, more housing pro-

Table 3. Availability of financing: Mean difference between rural and urban counties.

	Rural M	Urban M	T	P-value
Adjustable/variable rate mortgages	.76	1.00	3.80	.000
Other alternative mortgages	.32	.64	3.40	.001
Mortgage financing using Local or state bonds	.28	.56	3.71	.000
Builder-assisted loans	.25	.55	3.37	.001
Self-help housing programs	.32	.42	1.02	.309
Condominiums	.18	.81	7.82	.000
Cooperatives	.08	.25	2.60	.011

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grams and regulations existed in urban areas. These results are consistent with the Beamish, Weber, & McCray (1991) study of community diversity which indicated a higher population is associated with greater availability of financing, housing programs, and regulations.

Sub-items related to financing, programs, and regulations were analyzed by the t-test statistic. Among the seven financing items, six items showed a significant difference in availability between rural and urban areas. Adjustable/variable rate mortgages and other alternative mortgage types, mortgage financing using local or state bonds, builder-assisted loans, condominiums, and cooperative financing were significantly more available in urban communities. There was no difference in the availability of self-help housing programs.

Table 4. Existence of local housing programs: Mean difference between rural and urban counties.

	Rural	Urban	T	P-value
	M	M		
Community development block grant of housing	.37	.68	2.37	.020
Housing for special groups	.70	1.00	3.23	.001
Housing assistance programs	.89	.83	.78	.432
Energy efficient programs for housing	.74	.95	2.87 ^a	.005
Public water system	1.00	.96	1.57	.118
Public sewer system	.95	.96	.18	.856

^a unequal variance

Table 5. Existence of local regulations: Mean difference between rural and urban counties.

	Rural	Urban	T	P-value
	M	M		
Minimal building codes	.79	.91	1.32	.189
Building codes which allow construction of housing other than traditionally built conventional homes	.66	.82	1.43	.155
Minimal zoning regulations	.75	.87	1.25	.211
Zoning regulations which allow the placement of housing other than traditionally built conventional homes	.64	.91	3.09 ^a	.002
Zoning regulations favorable to mobile/manufactured housing	.47	.73	2.19	.030
Zoning regulations which permit non-standard spacing between homes	.21	.86	6.78	.000
Other innovative zoning regulations	.14	.90	8.75	.000

^a unequal variance

Three of the six housing programs (community development block grants, housing for special groups, and energy efficiency programs) had a significantly higher proportion of availability in urban areas (Table 4). However, there were no differences in housing assistance programs, public water systems, and public sewer systems.

Among the seven housing regulations, four items showed a difference at the .05 significance level (Table 5). Zoning regulations which allow the placement of housing other than traditionally-built, conventional homes, zoning regulations favorable to mobile/manufactured housing, zoning regulations permitting non-standard spacing between homes, and other innovative zoning regulations were present to a larger extent in urban communities. There were not differences in the types of building codes and minimal zoning regulations between rural and urban areas.

Effects of Housing Market Factors and Socio-demographics on Housing Affordability

The previously identified 12 socio-economic variables (Table 1) and the nine housing market factors (Table 2) were subjected to two maximum R^2 improvement stepwise procedures to find the best set of variables to predict housing affordability. One stepwise procedure included income and housing cost; while the other excluded these two variables in the set of independent variables because they were directly used for the calculation of housing cost burden. The second stepwise procedure presents the effects of selected variables which excluded income and housing cost in the variable set. After two stepwise procedures, two final models with the criterion of less mean square error, R^2 improvement, entrance significance level of .10, and bounds on condition number under 30 were developed (Tables 6 and 7).

Table 6. Multiple regression model of housing cost burden with income and housing cost.

	Standardized			Model	Adj
	Beta	T	P-value	F	R^2
Income	-.50	-14.51	.000	73.72	.36
Housing Cost	.54	15.45	.000		
Housing Value	.01	0.31	.750		
Marital Status	.06	1.93	.054		
Age	.05	1.75	.080		
Sex	-.06	-2.03	.043		

n=795
p=.0001

Table 7. Multiple regression model of housing cost burden without income and housing cost.

	Standardized			Model	Adj
	Beta	T	P-value	F	R^2
Years lived	-.09	-2.5	.011	12.97	.08
House Value	.13	3.6	.000		
Education	-.15	-4.1	.000		
Marital Status	.20	5.7	.000		
Tenure	-.03	-.89	.374		

n=795
p=.0001

The resultant models show all nine housing market factors deleted through stepwise procedures. These results can be explained by the correlation matrix which indicates that no housing market factors are significantly correlated with a household's housing cost burden (Table 8). Housing market factors are correlated, but not directly with housing affordability. More residential building permits were allowed in more populated and/or migration inflow areas. Financing and housing programs were also more available in the higher populated communities.

Affordability model with income and housing cost is summarized in Table 6. The association of these six variables (respondent's age, marital status, sex, household income,

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house value, and housing cost) with housing cost burden was significant. Approximately, 36% of the variance in the affordability ratio was explained. The lower income household appeared to spend a higher proportion of income on housing than the higher income household, which is consistent with previous research. Feins and Lane (1983) indicated that higher income households typically spend a smaller proportion of their budget for housing.

Table 8. Pearson correlation coefficients.

	1	2	3	4	5	6	7	8	9
1 Population 86	-								
2 Net migration 86	.99	-							
3 Population change 80-86	.70	.72	-						
4 Single hsg permit 84-87	.99	.98	.69	-					
5 Multi hsg permit 84-87	.99	.99	.70	.99	-				
6 Per capita income 86	-.10	-.06 ^{ns}	.25	-.18	-.14	-			
7 Financing	.85	.79	.36	.79	.81	-.16	-		
8 Hsg regulation	.72	.68	.79	.67	.68	.13	.62	-	
9 Hsg program	.34	.32	.23	.28	.29	-.05 ^{ns}	.43	.23	-
10 Hsg cost burden	.02 ^{ns}	.02 ^{ns}	-.01 ^{ns}	.02 ^{ns}	.02 ^{ns}	.03 ^{ns}	-.02 ^{ns}	.00 ^{ns}	.00 ^{ns}

^{ns} = not significant at the .05 level

The older individual appeared to spend a higher proportion of income on housing than the younger individual. Age was categorized into four groups and the results are presented in Table 9. The oldest and the youngest groups spent a higher proportion of income on housing than baby boomers or the middle-aged group. Even though the elderly paid off mortgages on their homes and their housing expenditures were smaller, their relative income was lower than the baby boomers and the middle-aged group. Stone (1990) mentioned that nearly 22% of all home owners (12.7 million households) were shelter poor and more than one-third of the shelter poor owners are elderly singles and couples with incomes under \$10,000, which is consistent with this study.

Table 9. Income and housing cost burden.

	Income	Housing cost burden
Age		
Younger (-24)	19667 ^a	31.35 ^a
Baby Boomers (24-42)	32413 ^b	21.92 ^b
Middle age group (42-65)	32632 ^b	28.00 ^a
Elderly (65+)	19310 ^a	28.00 ^a

*Means with the same letter are not significantly different at the .05 level.

Married respondents appeared to be living with a higher burden of housing costs than single respondents. The female householder had a higher burden of housing costs than the male. Stone (1990) also indicated that about one-quarter of shelter poor owners were non-elderly and female-headed home owner households.

An affordability model without income and housing cost is summarized in Table 7. Years lived in current housing, present house value, respondent education, marital status, and tenure appeared as significant factors in the affordability model. A joint association of these five variables was found at the .0001 significance level. This model explains approximately eight percent of the variance in the housing cost burden.

Respondents living in housing with a higher value appeared to have a higher burden of housing costs. Education is very likely to have a significant effect on the proportion of income allocated to shelter, which affects house value. Marital status and tenure were significant to house value. The married respondents have a higher house value than the single respondents.

Summary and Conclusions

The purpose of this study was to identify differences of the general housing market factors between rural and urban areas in Oklahoma and their effect on housing affordability. Significant differences between rural and urban communities were apparent in the housing market factors. However, housing market factors did not appear to significantly influence housing affordability.

With the changing demographics and the impact of this on rural America, a better understanding of factors impacting affordability is important. An urban comparison also helps in understanding differences and similarities in the marketplace. Infrastructural issues will always be a challenge in rural areas, as well as migration problems. Mutchler and Krivo (1989), underscore this point, in that housing stock is not only responsive to household composition, but also produces household composition to respond to the availability and affordability of housing.

Therefore, although rural communities are aging with the young adult exploring job opportunities in urban areas, quite often the community is unprepared to meet the housing availability demands of new industries which might locate in rural areas. Assess to housing then becomes a market factor and impacts both affordability and availability questions.

Incentives such as housing financing or housing programs were more likely to be available in urban areas. These results may suggest the existence of discrimination in the housing market against rural residents by limiting local housing market resources. Financing or planning agencies are more supportive of families who live in urban communities. According to the 1980 US Census, more than 61 million people (about 26% of the population) are residing in rural areas (US. Bureau of Census, 1983). Financing or planning agencies may need to alter or develop rural policies supporting equal opportunity programs to make a comprehensive contribution to raising the level of decent and affordable housing.

Housing affordability, however, was effected more by characteristics of households than by the general housing market factors within the community. For example, respondent's age, income, house value, education, marital status, sex, and tenure were significant factors in housing affordability. No difference in housing cost burden between the rural and urban resident was found in this study. A majority of households appeared to live in affordable housing in terms of monthly housing expenditures. The characteristics of respondents such as the average age of 50, a higher income than the state level, and a higher ratio of owners, indicate the need for further research to determine if the results are applicable beyond this study. Therefore, further study may need to expand the population to lower income groups or renters to clarify the problems of housing affordability and the influences of the general housing market on housing affordability in general.

Footnotes

1. First time buyer cost as percent of income of potential homebuyer proxied by median family income of married couple.
2. 1980 census information is used to correspond with data collection procedures, which occurred before release of 1990 census.
3. The population of Oklahoma is of a higher rural proportion with two major urban centers, therefore sampling was stratified geographically.

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