

DEVELOPING VITALITY INDICES WITH HOUSING VARIABLES: COMPARING NON-METROPOLITAN UTAH AND IDAHO COUNTIES

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Abstract

The focus of this exploratory study was to develop and test rural community vitality indices that incorporate measures of housing. Specifically, its purposes were (1) to examine the relationships between housing, employment, and demographics with community vitality indices for non-metropolitan counties in Idaho and Utah, and (2) to develop and compare two rural community vitality indices. The two indices were (1) a three-variable index and (2) a five-variable index. For each index, regression analyses were performed on the Idaho and Utah non-metropolitan counties, using 1980 and 1990 U. S. Census Data. Significant predictors for one or both rural vitality indices included: Total labor force, the proportion of vacant housing units (a negative predictor), and the median value of owner-occupied housing (the most significant predictor).

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Introduction

Economic development and rural revitalization are not likely to succeed without attention to housing supply and demand (Bonnen & Wimberley, 1992; Shreve & Belsky, 1991). Unaffordable and inadequate housing are barriers to business growth and rural community development efforts. Too often, the role of housing in community economic development and community well-being has been ignored or underestimated and has not been addressed by most economic and community development initiatives and strategies. There is also a need for better integration of housing data with household demographics for non-metropolitan economic development (Myers, 1990).

Vitality indicators that employ selected housing data will help rural leaders design initiatives to promote rural and community economic development and foster family economic well-being. The purpose of this study was to contribute to the NC-217 regional housing research group's development of a rural community vitality index by creating and comparing two community vitality indices that incorporate measures of housing.

Review of Literature

Rural Community Vitality

In the 1980s and 1990s, rural communities showed: loss of economic vitality, a relative decline in income, high rates of unemployment, low work-force participation, and exodus of talent. Mazie and Killian (1992) reported that rural America suffered badly during the 1980s. Rural employment growth lagged considerably behind that of metropolitan areas, and earnings per job declined, primarily in agriculture, mining, and forestry, key economic resources in rural areas. Not only did employment growth lag in rural areas, but also the growth that did occur was concentrated in lower paying, part-time jobs.

The exodus of talent was another concern for the future. Johansen and Fuguitt (1990) reported continued out-migration of young people, lower birth rates, and more retired people migrating into non-metropolitan communities. Non-metropolitan areas with low levels of urban accessibility have not experienced the same trends in growth and renewed economic feasibility as those near urban centers (Sears, Redman, Kusmin, & Killian, 1992; Shreve & Belsky, 1991).

Housing as an Indicator of Community Vitality

Housing has been lacking in measures of community vitality. Shreve and Belsky (1991) concluded that economic and community development efforts can be enhanced by attention to the housing supply and demand within rural communities. Myers (1990) suggested that housing data need to be integrated with household demographics. Further, Wilkinson (1991) asserted that without adequate planning for related developments in housing and services, it is difficult for any economic development to occur.

Lucksinger (1994) suggested that adequate housing may draw businesses and industries. Furthermore, adequate housing can support a better quality of life, maximize

social interaction, create new roles, prolong life, forestall institutionalization, and maintain positive relations between children and parents, and among families in neighborhoods.

Many non-metropolitan communities lack a range of housing choices that can accommodate diverse housing needs, especially for minorities and people with low income or special needs. Individuals at all income levels who move to a community because of job opportunities in expanding industries often have difficulty in locating suitable housing. Even when housing options are available in a community, they may not be affordable (Belden, 1993; Gaberlavage & Blanchette, 1995; Galston, 1992; Humphrey & Wilkinson, 1993).

Theoretical Framework and Methods

The ecosystems model developed from social systems theory by Deacon and Firebaugh (1988) directed the approach for the NC-217 regional housing research. Inputs are resources or demands, used here as independent variables. Outputs are considered demand responses and resource changes. This first exploratory analysis developed and tested two output indices.

Secondary data used in this study are from the U.S. Census Bureau *USA Counties 1996* (1996). The 1980 and 1990 raw data from the non-metropolitan counties in Idaho and Utah were analyzed. The researchers operationalized the concept of community as a county unit for testing two Community Vitality Indices that contained housing independent variables, though their number of variables differed. "Rural" and "non-metropolitan" are used interchangeably to refer to the non-metropolitan county (see Yust & Memken [2000] for a complete description of the NC-217 regional research theoretical framework and methodology).

Sample Description

Non-metropolitan counties used as units of analysis in this study were grouped in two ways: by state and by decade. Rural Idaho and Utah counties were examined in 1980 and 1990. For each of the two indices, the researchers conducted four analyses: Idaho 1980 and 1990, and Utah 1980 and 1990.

Idaho. In 1990, Idaho had slightly more than one million citizens, including a significant population of Hispanics (5%) who form the migrant farm labor base, and a historical Native-American population. Of the 44 counties in the state, 42 were classified as non-metropolitan. Over the years, service and trade industries have replaced natural resource industries as the state's largest employers (Idaho Department of Commerce, Division of Economic Development [IDC/ED], 1991).

In all age groups, poverty is more common in rural than in urban Idaho. In the 1970s, in-migration was higher than out-migration in all but seven rural counties. By the 1980s, when tough economic times led to slow growth, out-migration was nearly 42,000 more than in-migration. Almost 98% of this out-migration came from 31 of Idaho's rural counties (IDC/ED, 1991).

Although the population of rural Idaho traditionally has been relatively young, it is now, like much of the state's populace, growing older. Of the counties with the highest proportion of elderly in 1990, nine of ten were rural (IDC/ED, 1991). Rural Idaho housing typically is older than that in urban counties, has a smaller percentage of units connected to public sewers, and has more units in substandard condition. Nineties' growth offset Eighties' declines, but housing shortages continue to be one of the most common problems identified by rural community leaders (IDC/ED, 1991).

Utah. The state of Utah has a population of 1.9 million and is growing about 2% per year. Utah's accelerating population includes 9% minorities, who live primarily along the metropolitan "Wasatch Front." The largest minority in the state is Hispanic (5%), followed by Asian (2%), Native American (1.5%), and Black (0.5%). Two large reservations in the northeastern and extreme southeastern parts of the state are home to the majority of the Native Americans. The Navajo Reservation (primarily in Arizona) has a northern extension in Utah (Governor's Office of Planning and Budget Demographic and Economic Analysis, 1993).

Dependent Variables

The first index (hereafter I-5) developed for this study included five dependent variables (outputs). The second index (I-3) included three dependent variables. Figure 1 shows the variables for both indices. These variables were identified by factor analyses of variables prior to the state comparisons. Those loading high on factors related to the health of a community and its economic and social conditions were used in the indices.

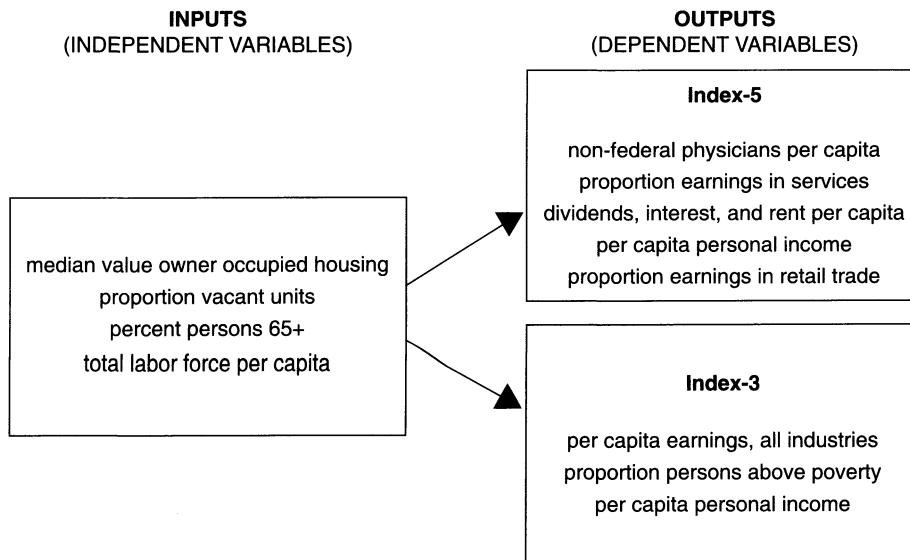


Figure 1. Community Vitality Indices

I-5 included the following dependent variables: (1) non-federal physicians per capita, (2) proportion of earnings in services, (3) dividends, interest, and rent per capita, (4) per-capita personal income, and (5) proportion of earnings in retail trade. Selected by the same procedure, I-3 used three dependent variables: (1) per-capita earnings in all industries, (2) proportion of persons above poverty level, and (3) per-capita personal income. Reliability coefficients for the indices yielded Alpha scores as follows: Idaho 1980, 0.80; Idaho 1990, 0.75; Utah 1980, 0.82; and Utah 1990, 0.76.

Independent Variables

For all analyses, the same four independent variables were used (Figure 1), including two measures of housing: 1) median value and 2) proportion of vacant units. Third, a demographic variable (percentage of persons 65 years and older) was selected to discover the relationship between an aging population and community vitality. Finally, to indicate the extent of a community's human capital resources necessary to purchase goods and services, total labor force per capita was selected.

Descriptive statistics were generated for the independent variables (Tables 1 and 2). Variables were recoded into units per capita and percentages for comparison across counties and over the two decades. Independent variables were tested for multicollinearity, and highly correlated variables (above 0.65) were excluded from the study.

Within each state, the dependent variables were divided into 10 percentile groups. Those variables that had more than four cases with values of zero were also excluded because they skewed the ranking. Once rankings were created for all index variables, they were summed to create one single variable, the community vitality index.

Results and Discussion

Descriptive Summary

Tables 1 and 2 show descriptive statistics for the non-metropolitan counties of Utah and Idaho in both 1980 and 1990. For *total labor force per capita*, although both were low compared to national averages, Idaho's means (42% - 45%) were slightly higher than those of Utah (38% - 41%) for 1980 and 1990, respectively. Utah's low means for total labor force per capita are likely related to its higher proportion of children (non-workers) rather than to any particular economic force.

For *proportion of vacant housing units to total housing units*, rural Utah had a mean of 23% vacant housing units in 1980, while Idaho had 20% unoccupied. In Utah, the proportion of vacant housing units continued to increase, to 29% in 1990, while Idaho remained at 20%. The vacancy rates for year-round units obviously would be lower¹.

In 1980, Utah's *percentage of people 65 years of age and older* was 10% and Idaho's was 11%. By 1990, both had risen: Utah to 11% and Idaho to 13%. (In comparison, the 1990 U. S. figure was also 13%). Again, the lower percentage in Utah may be a factor of a large or growing young population.

Table 1. Descriptive Statistics: Utah 1980-1990.

Variables	Utah									
	n	1980			SD	n	1990			SD
		Min.	Max.	M			Min.	Max.	M	
Total labor force per capita	25	32%	48%	38%	.03	25	36%	52%	41%	.04
Proportion of vacant housing units	25	3%	66%	23%	16.3	25	5%	72%	29%	17.5
% 65 years of age and older	25	5%	16%	10%	3.1	25	6%	19%	11%	3.5
Median value of owner occupied housing	25	\$34,300	\$71,000	\$48,672	\$8,740	25	\$37,800	\$107,800	\$56,780	\$15,120

Table 2. Descriptive Statistics: Idaho 1980-1990.

Variables	Idaho									
	n	1980			SD	n	1990			SD
		Min.	Max.	M			Min.	Max.	M	
Total labor force per capita	42	37%	57%	42%	.03	42	38%	60%	45%	.04
Proportion of vacant housing units	42	7%	60%	20%	.14	42	5%	64%	20%	.14
% 65 years of age and older	42	5%	18%	11%	2.8	42	6%	20%	13%	3.2
Median value of owner occupied housing	42	\$27,000	\$72,400	\$40,283	\$8,350	42	\$32,500	\$127,400	\$50,605	\$15,297

Table 3. Regression: 5-Variable Community Vitality Index for Utah 1980-1990.

Variables	1980		1990	
	β	Sig. T	β	Sig. T
Total labor force per capita	.235	.287	.108	.631
Proportion of vacant housing units	-.273	.096	-.270	.098
% 65 years of age and older	.247	.196	-.070	.693
Median value of owner occupied housing	.593	*.011	.560	.013*
	R ² = .517 Adj. R ² = .421 df = 24 F = 5.36 (.004)*		R ² = .523 Adj. R ² = .428 df = 24 F = 5.48 (.004)*	

* $p < .05$

For *median value of owner-occupied housing*, Utah had higher median values than Idaho both in 1980 (\$48,672) and 1990 (\$56,780), perhaps a result of large, multi-bedroom units for large families. Idaho's average values for both 1980 (\$40,283) and 1990 (\$50,605) were somewhat lower. These findings are consistent with those of Bowles, Smith and Johnsson (1993) who found that Utah has the highest housing cost burden in the Western region when per-capita income is considered with median home price. That burden could result from either low per-capita income or high median house values.

Five Variable Community Vitality Index (I-5)

Utah. The 1980 and 1990 regression equations were statistically significant at the $p < .05$ level ($F = .004, .004$) and accounted for less than one half of the variance (Adj $R^2 = .421, .428$, Table 3). Only one of the individual variables was statistically significant as a predictor of the state's 1980 and 1990 community vitality index scores: median value of owner-occupied, non-condominium housing.

Idaho. The 1980 and 1990 regression equations were statistically significant at the $p < .05$ level ($F = .000,000$) and accounted for almost one half of the variance (Adj $R^2 = .475, .437$, Table 4). Two variables were statistically significant in both 1980 and 1990: 1) as with Utah, the median value of owner-occupied housing was positively

Table 4. Regression: 5-Variable Community Vitality Index for Idaho 1980-1990.

Variables	1980		1990	
	β	Sig. T	β	Sig. T
Total labor force per capita	.345	*.016	.141	.310
Proportion of vacant housing units	-.406	*.001	-.503	*.000
% 65 years of age and older	.050	.716	.151	.301
Median value of owner occupied housing	.503	*.002	.630	*.000
	R ² = .527 Adj. R ² = .475 df = 41 F = 10.29 (.000)*		R ² = .492 Adj. R ² = .437 df = 41 F = 8.95 (.000)*	

* $p < .05$

related to community vitality; 2) conversely, the proportion of vacant housing units had a significant, but negative relationship on community vitality, i.e., counties with a high proportion of vacant housing units have low community vitality. A third variable was statistically significant only in 1990 in Idaho: total labor force per capita apparently had a positive effect on community vitality.

Three Variable Community Vitality Index (I-3)

Utah. For 1980 and 1990, Utah regression equations were statistically significant at the $p < .05$ level ($F = .031, .025$), accounting for under one third of the variance (Adj $R^2 = .277, .296$). However, none of the individual variables was statistically significant as a predictor of the 1980 or 1990 Utah community vitality index scores (Table 5).

Idaho. The 1980 and 1990 regression equations were statistically significant at the $p < .05$ level ($F = .007, .001$) and accounted for 24% of the variance in 1980 and 33% in 1990 (Adj $R^2 = .238, .330$; Table 6). One variable (total labor force per capita) was statistically significant. Although a strong predictor of community vitality for Idaho, because the equation accounted for well under one half of the variance, other factors may better explain community vitality in Idaho's non-metropolitan counties.

Table 5. Regression: 3-Variable Community Vitality Index for Utah 1980-1990.

Variables	1980		1990	
	β	Sig. T	β	Sig. T
Total labor force per capita	.446	.073	.418	.106
Proportion of vacant housing units	-.068	.702	-.115	.511
% 65 years of age and older	.262	.218	-.113	.571
Median value of owner occupied housing	.010	.968	.205	.375
	$R^2 = .397$ Adj. $R^2 = .277$ df = 24 F = 3.295 (.031)*		$R^2 = .413$ Adj. $R^2 = .296$ df = 24 F = 3.524 (.025)*	

* $p < .05$

Table 6. Regression: 3-Variable Community Vitality Index for Idaho 1980-1990.

Variables	1980		1990	
	β	Sig. T	β	Sig. T
Total labor force per capita	.487	.005*	.638	.000*
Proportion of vacant housing units	.060	.665	.136	.299
% 65 years of age and older	-.292	.086	-.006	.970
Median value of owner occupied housing	-.200	.274	-.062	.717
	$R^2 = .313$ Adj. $R^2 = .238$ df = 41 F = 4.209 (.007)*(.001)*		$R^2 = .396$ Adj. $R^2 = .330$ df = 41 F = 6.059	

* $p < .05$

Conclusions and Implications

This study explored predictors of two community vitality indices for 1980 and 1990. The analyses support the idea that total labor force per capita, median value of owner-occupied housing, and proportion of vacant housing units are important positive or negative predictors of community vitality. Both indices tested here may be useful to measure certain aspects of community vitality.

The focus of this study was to incorporate measures of housing in community vitality indices. Two housing measures were incorporated in the framework as input (independent) variables: median value of owner-occupied housing and proportion of vacant units. Findings suggest that both are useful, but the median value of owner-occupied housing was a more consistent and positive predictor of community vitality.

The value of housing has long been recognized as an economic indicator and has been included as the only housing variable in many standardized economic measures. The findings of this study have implications for housing research. Community vitality research needs to include housing measures as well as both economic and noneconomic factors. Current demographic data (in particular, household characteristics) should be incorporated into models of the economy and the infrastructure. The remaining papers in this special issue are the result of revising, enlarging, and improving the indices first tested on a small scale using the Utah and Idaho data.

Out of new knowledge, we can improve conditions for diverse populations and ascertain the importance of housing to community vitality. The need to carefully monitor demographic trends and the status of housing to improve measures of community vitality continues.

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End Notes

¹ Included in the vacant housing classification were vacant year-round units offered for sale, offered for rent or sale, rented or sold but awaiting occupancy; held for weekend or for other occasional use; held for a janitor or caretaker; pending settlement of an estate; pending repairs or modernization; or held for personal reasons of the owner. Also included were vacant units temporarily occupied by persons who have a home elsewhere (U.S. Department of Commerce, Bureau of the Census, 1996).