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NONMETROPOLITAN POPULATION TRENDS: TWENTY-FIRST CENTURY UPDATES

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ABSTRACT

Population trends in the nonmetropolitan counties of the United States continue to be erratic. This study used 2008 population estimates to make comparisons of 2000-2008 population changes with those of the decades of the 1980s and 1990s. Findings showed that population changes during the early years of the 21st century were more reminiscent of the 1980s than the 1990s, as overall population growth was minimal and the number of counties losing population exceeded the number of counties with population growth. It appears that the first decade of the 21st Century can be labeled as the "Rural Rebound Reversal" decade. The variable with the strongest relationship to population growth was a natural amenity scale. Throughout the study period, counties with more extensive amenity resources were much more likely to have population growth than counties lacking such amenity resources. Counties with more extensive urban influence also have more positive trends than other counties. The implications of these findings are discussed.

During the westward expansion of the United States, settlers were attracted to areas where available resources allowed them to earn an economic livelihood. In time, communities emerged to meet the needs of those settlers (Albrecht 2004). Eventually, thousands of communities were scattered across the country, most remaining small and rural as the years passed. Prior to the late 1960s, those rural communities, taken together, consistently experienced a net out-migration as more people were moving from rural to urban areas than vice-versa. Rural residents were "pulled" to urban areas because of higher wages, a more diverse and growing employment sector, and a broader array of services. At the same time, individuals were "pushed" from rural areas largely because of declining employment in the natural resources industries, especially agriculture (Brown 2002; Kandel and Brown 2006). Despite a steady stream of out-migration, rural populations remained fairly stable because of natural population increases where births exceeded deaths (Fuguitt, Brown, and Beale1989; Johnson 1989; Johnson and Cromartie 2006).

Since the 1960s, previously stable nonmetro population patterns have become erratic and much less predictable (Johnson 2003; Kandel and Brown 2006). Population change patterns are even more unpredictable at the local level, in that nationwide figures belie tremendous variations that exist from one community to another (Johnson and Cromartie 2006). Seeking to understand these changing population trends and the factors causing variations from time to time and from place to place has been a consistent and prominent theme in rural sociological

research (e.g., Fuguitt et al. 1989; Johansen and Fuguitt 1984; Johnson 1989; 1993; Kandel and Brown 2006). An updated exploration of these issues is vital as global changes, including economic restructuring and technological developments, are likely to further change demographic patterns in nonmetro counties at the national level and perhaps alter the characteristics of counties most likely to experience population growth and decline (Albrecht 2007).

The purpose of this manuscript is to contribute to scholarly understanding of nonmetro population patterns in two major ways. First, more recent trends were explored as 2008 population estimates were analyzed as well as data from the 1980, 1990 and 2000 censuses for all nonmetro counties in the United States. Thus, this analysis provides a comparison of early 21st century trends to population patterns from the 1980s and 1990s. Second, an array of independent variables were utilized to explore the characteristics of counties with growing and declining populations and the extent to which relationships between various independent variables and population change vary over time. This manuscript continues with an overview of population trends in nonmetro areas and a discussion of the factors related to these trends. The methods utilized in this study are described, the findings discussed and conclusions drawn.

LITERATURE REVIEW

Nonmetropolitan Population Trends

For nearly two centuries following the inception of the United States, there was a near-steady movement of people from nonmetropolitan to metropolitan counties (Brown 2002). Then, beginning in the 1960s, those long established patterns were disrupted. Johnson and Fuguitt (2000) maintain that three major and largely unexpected population shifts have occurred in rural America in recent decades. First was the "nonmetropolitan turnaround" of the late 1960s and 1970s (Beale 1975; Bender et al. 1985; Johnson and Purdy 1980; Lichter, Fuguitt, and Heaton 1985), characterized by widespread population growth and net migration gains in nonmetro areas. This was followed by the "turnaround reversal" of the late 1970s and 1980s (Albrecht 1993; Beale 1988; Beale and Fuguitt 1990; Johnson 1993), where nonmetro growth slowed considerably and net migration flows again favored metropolitan areas. At that point, many scholars concluded that the nonmetropolitan turnaround was merely an anomaly (Richter 1985). Researchers were then again surprised by the "rural rebound" of the 1990s (Johnson and Beale 1994; Johnson and Cromartie 2006; Shumway and Davis 1996), where the population growth patterns exhibited in the 1970s, though not as extensive, were

repeated. The extent to which the population trends of the 1990s have continued into the 2000s, or a totally new pattern has emerged, is an issue of considerable significance.

Numerous studies have attempted to document the magnitude and extent of these rural population trends over time and the factors related to the wide variations evident from county to county (e.g., Johnson 2003; Johnson and Fuguitt 2000; Kandel and Brown 2006). Despite substantial variations from one time period to another, several variables have consistently been related to population growth or decline. Specifically, researchers have found significant relationships with the presence or absence of amenities, economic structure, income and education levels, and the level of urbanization. Each is briefly described below.

Amenity Resources

Historically, the initial settlement and subsequent development of communities in nonmetro areas was strongly related to the presence or absence of traditional natural resources such as minerals, timber, and most critically, the soil, water and climate conducive to agricultural production (England and Brown 2003). Where traditional natural resources were most extensive, the subsequent population that could be supported was greater and life could be lived more abundantly. In contrast, where the land was too dry or mountainous for agriculture, or where other resources were lacking, settlement was subsequently limited. The presence or absence of amenity resources mattered little.

In recent years, the relationship between resource availability and demographics has changed considerably. Specifically, it has been argued that the significance of traditional natural resources has diminished, while the importance of amenity resources has increased (Goe, Noonan, and Thurston 2003). With reduced employment in agriculture and the natural resource industries, the advantages once held by areas rich in traditional natural resources has declined (Jackson-Smith, Jensen, and Jennings 2006). In recent years, most new jobs are in the service sector, which is much less dependent on traditional resources. Further, rapidly improving information and communication technology has resulted in the reduced relevance of location. Thus, many new service-sector jobs have much more geographic flexibility than in the past.

It is now possible for nonmetro areas to attract many high quality mobile service-sector jobs and jobs that could be defined as part of the "creative class" (Allen and Dillman 1994; Florida 2002; McGranahan and Wojan 2007). Further, growing numbers of migrants to rural areas are retirees and mid-career families

with high levels of investment income (Nelson 1997, 1999; Nelson and Beyers 2002; Power 1996). While many individuals with mobile jobs may choose to live in nonmetro areas, most of these individuals will likely choose to live in select areas with high quality amenity resources (Albrecht 2004; Beyers and Nelson 2000; Boyle and Halfacree 1998; Cromartie and Wardwell 1999; Green 2001; Henderson and McDaniel 1998; Hunter, Boardman, and Saint Onge 2005; Jackson-Smith et al. 2006; Krannich, Petrzelka, and Brehm 2006; McGranahan 1999, 2009; McGranahan and Wojan 2007; Nord and Cromartie 1997; Otterstrom and Shumway 2003; Rudzitis 1999; Saint Onge, Hunter, and Boardman 2007; Shumway 1997; Shumway and Davis 1996; Shumway and Otterstrom 2001). Thus, it was hypothesized that there would be a strong and positive relationship between amenities and population change.

Economic Structure

At one time the natural resource industries, especially agriculture, were the most prominent employers of rural Americans. However, rapidly improving technology resulted in machines that replaced human labor in the production process, which meant that each individual producer could operate a much larger farm. As a result, the size of the average farm increased, and the number of farms diminished (Albrecht and Murdock 1990; Dorner 1983; Paarlberg 1980). Millions of people left the farm and migrated to the city to seek employment in what Calvin Beale (1993) described as the largest peacetime movement of people in U.S. history. Since the 1960s, employment and income in agriculture and the natural resource industries has been stable or declining (Power and Barrett 2001; Rasker 1995). At the same time, the booming manufacturing sector began to move to nonmetro areas where industry could employ displaced farm workers, avoid unionization and keep labor costs lower (Fuguitt et al. 1989). The increased availability of manufacturing jobs in rural areas slowed the pace of nonmetro to metro migration. Eventually manufacturing employment far exceeded agricultural employment in rural areas. By 2000, only five percent of the nonmetro labor force was employed in agriculture. In recent years, it has become increasingly apparent that rural America is in the midst of another significant economic structure transformation. Beginning in the 1970s, the number and proportion of manufacturing jobs began an initial decline (Bluestone and Harrison 1982; Sassen 1990) that has since increased in scope and magnitude (Morris and Western 1999). Some of the manufacturing jobs were lost as a result of technological advancement where machines replaced human labor in the production process. Many other manufacturing jobs have been outsourced to

foreign countries by multi-national corporations to take advantage of lower wages available in those countries (Bluestone and Harrison 2000; Harrison and Bluestone 1988; Morris and Western 1999). The loss of manufacturing employment and the continuing decline of natural resource jobs have been offset by extensive growth in service-sector employment, which has now become the largest employer of nonmetro Americans (Albrecht 2007).

This economic restructuring process has obvious demographic implications. Numerous communities that have been heavily dependent on agricultural, natural resources or manufacturing employment (the goods-producing industries) face demographic declines as the number of jobs in those fields continue to diminish or when manufacturing firms that once provided the major source of employment for community residents are closed (Falk, Schulman, and Tickamyer 2003; Johnson and Rathge 2006; Rathge 2005; Von Reichert 2006). On the other hand, communities that are successful in attracting service-sector employment should experience population growth. It was thus expected that there would be a positive relationship between service-sector employment and demographic change, and a negative relationship between employment in the goods-producing sector and demographic change.

Income Levels

Economic factors have long been recognized as playing an important role in demographic patterns. Communities with jobs that pay high wages tend to retain current residents and are better able to attract new migrants (Brown 2002). Communities with fewer jobs and lower income levels can expect the opposite. Metro areas have historically had faster-growing populations than nonmetro areas largely because they have had higher income levels and employment rates and lower poverty levels (Albrecht, Albrecht, and Albrecht 2000; Brown and Hirschl 1995; Fitchen 1981; Lichter and Eggebeen 1992; Lichter and McLaughlin 1995; Tigges and Tootle 1990). It was thus predicted that the present analysis would show a positive relationship between median household income and population change.

Education Levels

The traditional major employers of nonmetropolitan Americans (the natural resources industries and manufacturing) have not required large proportions of their workforce to have advanced educations. Manufacturing, in particular, provided the historically unique role of allowing relatively high levels of affluence for

ordinary workers. This was possible because of the high productivity of the American manufacturing sector and high demand for the subsequent products (Chevan and Stokes 2000; Danziger and Gottschalk 1995). In an industrial-based nation, millions of American workers with a high school degree, and at time even less, could find solid middle-class employment in the manufacturing sector. However, a decline in employment in the goods-producing industries represents a significant reduction in the number of middle-income jobs that workers can obtain without an advanced education.

In comparison to the largely middle income goods-producing sector, service jobs are much more diverse. Some of the new service jobs in information, health, education and other fields are high quality jobs that generally require an advanced education to obtain. Many other service jobs do not require an advanced education, but these jobs could generally be described as low-pay, low-skill, temporary, and/or seasonal. This low-wage service sector typically pays significantly lower wages than jobs in the goods-producing sector for similarly educated workers (Albrecht and Albrecht 2009). To a greater extent than ever before, communities with a skilled and educated workforce may be advantaged in attempts to attract the providers of high quality service jobs, the growth industry of the modern era (Gibbs 2005). It was thus expected that there would be a positive relationship between education levels and population change.

Urban Influence

A long line of rural demographic research has determined that nonmetro counties that have a larger community within their borders and those that are adjacent to metropolitan areas are much more likely to experience population growth than smaller and more remote nonmetro counties (Fuguitt et al. 1989; Johansen and Fuguitt 1984; Johnson 2006). Communities with larger populations and those that were more accessible to metropolitan areas tended to be more successful in attracting industry because those communities had a greater potential labor force and were closer to markets and supplies which reduced transportation costs. With the relevance of location being reduced in a globally connected world, the advantages of size and distance may be somewhat diminished. However, it was expected that having an urban center and being adjacent to a metropolitan area would remain positively related to population change.

METHODS

Data for this analysis were obtained from the Census of Population and Housing and other sources. Data from the Censuses of 1980, 1990 and 2000, along with the 2008 population estimates provided by the U.S. Census Bureau (U.S. Census Bureau 2009) were used. Although the accuracy of population estimates compared to the decennial census is of concern, if analysis between the censuses is to be conducted, there are no other options but to use population estimates data. The county was the unit of analysis and all nonmetropolitan counties (based on 2006 definitions) with available data on all of the variables utilized in the analysis were incorporated into the data analysis (n = 2,019). Certainly total metropolitan and nonmetropolitan population numbers are influenced by counties that were once nonmetro but became metro and vice versa. By utilizing 2006 definitions throughout the analysis, this study explored the same counties throughout the 28 year time frame of the analysis. The dependent variable was percent population change. I examined each decade (1980-1990; 1990-2000; and 2000-2008), as well as an overview of the entire 28-year study period. Among the independent variables used in this analysis was a composite of a natural amenity scale. This scale was developed by McGranahan (1999) and researchers at the Economic Research Service of USDA, and is intended to measure the presence or absence of amenity resources. The scale is based on the conception of environmental quality that most people prefer. Six variables were selected and a simple additive scale was implemented (see McGranahan 1999 for details). The first three measures included (1) warm winters based on average January temperature; (2) average number of days when the sun shines in January; and (3) temperate summers – a measure was developed by using the residuals of a simple regression of July temperature on January temperature. In effect, this measure determines how much lower the July temperature is – given what one would predict based on the January temperature. Because residuals are not correlated with independent variables, this measure is not redundant with the January temperature measure. The fourth and fifth measure included (4) summer – July – relative humidity, with the conjecture that high humidity adds to summer discomfort; and (5) topographical variation, with the assumption that the more varied the topography, the more appealing the setting. This measure was based on the "National Atlas of the United States of America," and considered twenty-one categories of five basic land formations that included plains, tablelands, hills, and mountains. The sixth measure included (6) water area determined by the percent

of the total county in water[1]. Individual county scores ranged from -6.40 to 11.17, with an overall mean of -0.056.

Economic structure was measured by determining the percent of the employed labor force in 1980, 1990 and 2000 working in the goods-producing and the service industries. The goods-producing industries are defined as the natural resource industries of forestry, fisheries, mining and agriculture, as well as manufacturing and construction. The service industries include professional, educational, medical, entertainment, recreational, personal and other services. Manufacturing and the natural resource industries were combined because employment in all of these industries is declining with a likely negative impact on demographic trends. Likewise, employment in the services industry is increasing and so the various service industries are combined into one measure. Not surprisingly, throughout the study period there was a steady decline in employment in the goods-producing industries and a steady increase in employment in the service industries. By 2000, employment in the service industries exceeded employment in the goods-producing industries in nonmetro counties.

Median household income in 1980, 1990 and 2000 for each county was utilized as the next independent variable. Education was operationalized as the percent of adults (age 25 or more) with a college degree. This measure was used because a college education is vital to obtaining many of the high quality service jobs in the current economic climate. There has been a steady increase in the proportion of college-educated adults. By 2000, 14.4 percent of adults had a college education in the average nonmetropolitan county. The final independent variable was a scale originally developed by USDA researcher Calvin Beale determining urban influence. The scale categorizes counties into nine categories based on the size of communities within the county and whether or not the county is adjacent to a metropolitan center. The first three categories are metropolitan and were thus not utilized in this analysis. The categories utilized in this study include (1) nonmetro counties with a medium-sized urban center with a population of 20,000 or more and that are adjacent to a metro area; (2) nonmetro counties with a medium-sized urban center with a population of 20,000 or more and that are nonadjacent to a metro area; (3) nonmetro counties with a small urban center with between 2,500 and 19,999 residents and that are adjacent to a metro area; (4) nonmetro counties with a small urban center with between 2,500 and 19,999 residents and that are nonadjacent to a metro area; (5) completely rural nonmetro counties that are

[1] Computations were conducted by the Economic Research Service of USDA, and individual county scores can be obtained from them.

adjacent to a metro area; and (6) completely rural nonmetro counties that are nonadjacent to a metro area. This measure was used as an interval variable in the regression analysis even though some assumptions are obviously violated.

In the findings section, I first provide a descriptive overview. .Next, I detail the results of the bivariate analysis and least squares regression models used to determine the relationship between the independent variables and population change for each decade and throughout the 28-year study period.

FINDINGS

Table 1 provides a descriptive overview of the relationship between the independent variables and population change. Overall, this table shows that the population of nonmetropolitan America increased by only 1.5 percent between 1980 and 1990. During the 1980s, there were actually more counties with declining populations (58.6 percent) than growing populations (41.4 percent). Much more positive population trends were apparent during the "rural rebound" decade of the 1990s. During that decade, over 70 percent of the nonmetro counties in the U.S. experienced population growth, and the total population of the counties in the study increased by 8.9 percent. The first eight years of the twenty-first century appear to have population trends that are only slightly more positive than the 1980s, and much less favorable than the 1990s. The percent of counties gaining population (43.6 percent) was exceeded by the percent losing population. Overall, the counties of nonmetropolitan America experienced a very slight (2.5 percent) population increase between 2000 and 2008. Adjusted for a 10-year decade, the nonmetro population grew by 3.1 percent during the early years of the twenty-first century.

An overview of the bivariate relationship between the independent variables and population change is also presented in Table 1. The analysis was conducted by categorizing each of the independent variables and then examining the relationship of each independent variable with population change. From Table 1, it is apparent that there is a strong and positive relationship between natural amenities and population change. For the total study period, the population in the counties in the lowest quartile on the natural amenity scale had a very slight population decrease. In contrast, counties in the second quartile grew by an average of 5.4 percent, those in the third quartile by 14.2 percent, and those counties in the highest natural amenity quartile grew by 36.2 percent. Only 32.1 percent of counties in the lowest quartile on natural amenities had population increases compared to 76.3 percent of counties in the highest quartile of natural amenities.

TABLE 1. OVERVIEW OF THE RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND POPULATION CHANGE IN THE NONMETROPOLITAN COUNTIES FROM 1980-2008 (N=2,019).

	1980-1990		1990-2000		2000-2008			1980-2008	
INDEPENDENT VARIABLES	PERCENT CHANGE	PERCENT GROWING	PERCENT CHANGE	PERCENT GROWING	PERCENT CHANGE	ADJUSTED	PERCENT GROWING	PERCENT CHANGE	PERCENT GROWING
Natural Amenity Scale Score									
Lowest Quartile (N=502).	-3.2	22.5	4.4	57.4	-1.2	-1.4	23.9	-0.1	32.1
Second Quartile (N=505).....	-1.0	32.7	5.7	65.2	0.7	0.9	36.6	5.4	45.7
Third Quartile (N=506).....	1.9	45.6	8.7	74.1	3.1	3.9	50.4	14.2	60.5
Highest Quartile (N=506).	9.2	64.6	16.9	87.2	6.7	8.4	63.4	36.2	76.3
Percent Employed in Goods Producing Industries (2000)									
Lowest Quartile (N=502).	5.0	54.9	10.5	75.4	4.6	5.8	56.7	21.4	63.2
Second Quartile (N=507).....	0.5	37.5	7.4	67.1	1.8	2.2	40.4	9.9	49.5
Third Quartile (N=508).....	-1.1	34.1	7.7	67.1	1.2	1.5	35.8	7.8	46.5
Highest Quartile (N=501).	0.2	39.3	9.3	74.5	1.3	1.6	41.7	10.9	55.7
Percent Employed in Service Industries (2000)									
Lowest Quartile (N=502).	0.0	38.2	9.6	75.7	1.3	1.6	40.6	11.0	55.6
Second Quartile (N=510).....	-0.5	38.0	8.5	68.1	1.7	2.2	40.9	9.8	50.5
Third Quartile (N=503).....	0.5	35.6	7.9	65.8	2.5	3.1	39.6	11.2	48.1
Highest Quartile (N=504).	4.6	53.9	9.3	74.4	3.6	4.6	53.5	18.6	60.6

Median Household Income (2000)									
Lowest Quartile (N=504).	-3.5	27.2	5.1	63.3	-1.3	-1.6	33.9	0.2	44.3
Second Quartile (N=505).	1.1	37.2	8.8	67.9	1.9	2.4	38.8	12.1	49.7
Third Quartile (N=505).	0.7	43.1	8.4	69.9	2.4	3.0	46.1	11.8	54.1
Highest Quartile (N=505).	5.1	58.0	11.3	82.8	4.7	5.9	55.6	22.4	66.7
Percent of Adults with College Degrees									
Lowest Quartile (N=488).	-1.3	37.3	8.3	77.7	0.5	0.6	42.2	7.3	58.8
Second Quartile (N=529).	0.3	40.6	8.3	72.8	1.8	2.2	42.5	10.5	52.7
Third Quartile (N=490).	0.4	34.3	7.3	60.0	1.6	2.0	36.3	9.4	41.6
Highest Quartile (N=512).	5.6	52.9	11.1	73.2	5.1	6.4	53.1	23.3	61.3
Urban Influence									
Medium Urban Adjacent (N=216).	5.4	65.7	10.4	87.0	4.7	5.9	65.7	21.9	72.7
Medium Urban Nonadjacent (N=101).	2.6	54.5	7.5	74.3	3.6	4.5	61.4	14.3	63.4
Small Urban Adjacent (N=606).	1.3	49.8	10.2	82.7	2.7	3.4	54.0	14.6	64.5
Small Urban Nonadjacent (N=440).	-2.0	35.9	6.0	65.7	-0.2	-0.3	39.3	3.6	48.0
Rural Adjacent (N=232).	0.2	40.5	10.6	76.3	1.1	1.3	40.1	12.0	56.0
Rural Nonadjacent (N=424).	-5.5	20.1	4.0	47.9	-3.2	-4.0	19.8	-4.8	30.9
Total (N=2,019).	1.5	41.4	8.9	71.0	2.5	3.1	43.6	13.2	53.7

The relationship between economic structure and population change is much less straightforward. At the bivariate level, the relationship appears to be bimodal. Counties in the highest and lowest quartiles of percent employed in both the goods-producing industries and services seem to have more positive population trends than counties in the middle two quartiles. There also appears to be a substantial relationship between median household income and population change where population growth was more extensive in counties with higher median incomes. Similarly, there appears to be a significant and positive relationship between the percent of adults with a college education and population change. Finally, as expected, there is an obvious relationship between urban influence and population change. Counties with a larger urban center and those that are adjacent to a metropolitan county had more positive population change patterns than counties without an urban center and those that are not adjacent to a metro area.

Table 2 provides a correlation matrix of all of the variables in the analysis. The strong and positive relationship between amenities and population change is reaffirmed. For the total 28-year study period, the correlation coefficient between the natural amenity scale score and population change was .44. Table 2 also shows that there was an inverse relationship between the percent employed in the goods-producing industries and population change, and a positive relationship between the percent employed in the service sector and population change. Both of these relationships were in the predicted direction. Also, there was a positive relationship between both median household income and the percent of adults with a college degree and population change. For income, this relationship became noticeably stronger in the later years of the study period. There was a relatively strong inverse relationship between the urban influence scale and population change indicating that population growth was more extensive in counties with a larger urban center and counties that were adjacent to a metro area.

In examining the relationships among independent variables, Table 2 shows that there was a very strong inverse relationship between the percent employed in the goods-producing industries and the percent employed in services. In effect, these two variables are almost the inverse of one another. Thus, to avoid multicolinearity only one of these variables was be used in the regression models. Also of interest, the percent of adults with a college degree is positively related to percent employed in services and inversely related to percent employed in the goods-producing sector. Finally, there is a relatively strong and positive relationship between education and income.

TABLE 2. CORRELATION MATRIX OF THE VARIABLES USED IN THE ANALYSIS (N=2,019)

VARIABLE	POPULATION CHANGE				NATURAL AMENITY SCALE SCORE	PERCENT EMPLOYED IN GOODS PRODUCING INDUSTRIES			PERCENT EMPLOYED IN SERVICES			MEDIAN HOUSEHOLD INCOME			PERCENT OF ADULTS WITH COLLEGE DEGREE		
	1980-1990	1990-2000	2000-2008	1980-2008		1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000
Population Change																	
1990-2000	.62																
2000-2008	.60	.72															
1980-2008	.86	.88	.83														
Natural Amenity Scale Score	.41	.44	.32	.44													
Percent Employed in Goods Producing Industries																	
1980	-.23	-.16	-.17	-.21	-.18												
1990	-.14	-.08	-.13	-.14	-.18	.87											
2000	-.22	-.13	-.18	-.20	-.29	.81	.87										
Percent Employed in Services																	
1980	.15	.09	.12	.13	.10	-.80	-.75	-.67									
1990	.14	.11	.14	.15	.17	-.79	-.86	-.78	.82								
2000	.17	.09	.15	.15	.24	-.73	-.78	-.85	.76	.83							
Median Household Income																	
1980	.08	.01*	.12	.08	.01*	-.11	-.12	-.09	.02*	.16	.08						
1990	.32	.15	.25	.27	.01*	-.10	-.05*	-.03*	.06	.12	.03*	.83					
2000	.32	.26	.29	.33	-.05*	-.13	-.07	-.02*	.08	.15	.02*	.76	.91				
Percent of Adults with College Degree																	
1980	.19	.18	.16	.21	.27	-.54	-.52	-.45	.58	.57	.54	.39	.43	.42			
1990	.19	.15	.16	.20	.23	-.51	-.52	-.44	.56	.58	.54	.38	.47	.45	.94		
2000	.19	.17	.17	.22	.22	-.47	-.48	-.43	.52	.56	.54	.37	.46	.48	.91	.94	
Urban Influence	-.31	-.20	-.36	-.29	-.06*	.27	.23	.21	-.21	-.23	-.19	-.33	-.33	-.28	-.14	-.15	-.10

The regression models presented in Table 3 are the most crucial part of the data analysis. These data show a strong, positive and consistent relationship between the natural amenity scale score and population change. For each decade and for the total study period, counties with more extensive amenity resources experienced greater levels of population growth than counties with fewer amenity resources. During each segment of the study period, the natural amenity scale was the most important independent variable. The next independent variable was economic structure. During the 1980s, the 2000s and the total study period, there was a weak but significant inverse relationship between the percent employed in the goods-producing industries and population change, as expected. The relationship between median household income and population change became stronger during the later years of the study period. This relationship between income and population change was insignificant during the 1980s, was significant but weak during the 1990s, and then was relatively strong and positive from 2000 to 2008.

The percent of adults with a college degree was not significantly related to population change during the first two decades of the study period. However, from 2000 to 2008 population change was most extensive in counties where the proportion of college graduates was smaller. While this relationship was relatively weak, it was opposite of what was expected and opposite of what was found when looking at the bivariate relationship. Thus, when controlling for the effects of the other independent variables, it seems that counties with lower proportions of college graduates are more likely to experience population growth than counties with a better educated populace. High amenity counties have a higher educated populace, and the higher income counties are also growing more rapidly. Perhaps the effects of education are accounted for by these other variables in the research models. More research is obviously needed to better understand this phenomenon. Finally, urban influence was significantly related to population change. As expected, counties with a larger urban center and those adjacent to a metro county were more likely than other counties to experience population growth. Generally, this was the second most important of the independent variables. Overall, the independent variables used in this study explained between 23 and 27 percent of the variation in population change.

CONCLUSIONS

Between 1980 and 2008, population patterns in nonmetropolitan counties in the United States varied rather extensively from one time period to another. There was also some variation as to which independent variables were the best predictors of

TABLE 3. REGRESSION MODELS SHOWING UNSTANDARDIZED (b) AND STANDARDIZED (β) COEFFICIENTS OF THE RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND POPULATION CHANGE FOR DIFFERENT TIME PERIODS (N=2,019).

	DEPENDENT VARIABLE : POPULATION CHANGE							
	1980-1990		1990-2000		2000-2008		1980-2008	
INDEPENDENT VARIABLE	b	β	b	β	b	β	b	β
Natural Amenity Scale Score.	0.021*	0.37	0.026*	0.43	0.013*	0.32	0.065*	0.40
Percent Employed in Goods Producing Industries.	-0.108*	-0.08	0.045	0.03	-0.071*	-0.06	-0.141	-0.04
Median Household Income ($1,000).	0.001	-0.02	0.003*	0.10	0.004*	0.27	-0.006	-0.04
Percent of Adults with College Degree.	0.056	0.02	0.000	0.00	-0.132*	-0.09	0.530	0.06
Urban Influence.	-0.022*	-0.27	-0.013*	-0.15	-0.015*	-0.26	-0.061*	-0.26
Intercept.	0.204*		0.081*		-0.009		0.587*	
F-value.	137.3*		121.1*		150.6*		148.7*	
Model R^2.	0.25		0.23		0.27		0.27	

*Statistically significant at the .01 level.

population change. Population growth was very sluggish during the 1980s, and there were more nonmetro counties losing population than experiencing population growth during this decade. Counties most likely to experience population growth were those with greater amenity resources and those with a greater urban influence. Population growth was much more robust during the 1990s as over 70 percent of the nonmetro counties experienced population increases. The independent variable with by far the strongest relationship with population change was the natural amenity scale score. Finally, from 2000 to 2008, nonmetro population growth was minimal and again there were more counties experiencing population declines than population increases. In the early years of the 21st century, counties most likely to experience population growth were those rich with natural amenities, those that had higher median household incomes and those counties with a greater urban

influence. It appears that the first decade of the 21st century could be labeled as the "rural rebound reversal" decade.

The primary conclusion that can be drawn is that the presence or absence of natural amenities has become the best predictor of nonmetro population change in recent decades. With declining employment in the goods-producing industries, many more individuals and businesses are free to locate where they choose. Under these circumstances, many who choose to live in nonmetro areas choose communities with high-quality amenity resources. It also may be conjectured from this analysis that amenity-driven nonmetro growth is more likely to occur during times of economic growth when more families can afford to move to nonmetro areas. Thus, nonmetro growth was much more extensive during the economic boom years of the 1990s than during periods of economic uncertainty, such as the early years of the 21st century. Also, when the economy is more sluggish, the more traditional variables predicting nonmetro population trends, such as urban influence, again become more important. Additional research will help to clarify and expand upon the findings of the present research.

AUTHOR BIOGRAPHY

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