Natural Amenities and Employment

Rural development efforts and measurement often focus on job creation. Changes in county employment and population over the past 25 years are related, but the correspondence is less than complete. The correlation between employment change during 1969-96 and population change during 1970-96 (both measures in $\log_e$ terms) was 0.86 for nonmetro counties, indicating that they have been subject to somewhat different influences.

Over the past 25 years, employment, like population, has tended to expand more rapidly in nonmetro counties with higher scores on the natural amenities scale (fig. 7). Employment growth was particularly large at the highest end of the amenities scale—three standard deviations above the mean. Employment in the 25 rural counties at this amenity level grew an average of over 350 percent over this period, far exceeding this group's average population growth of 150 percent.

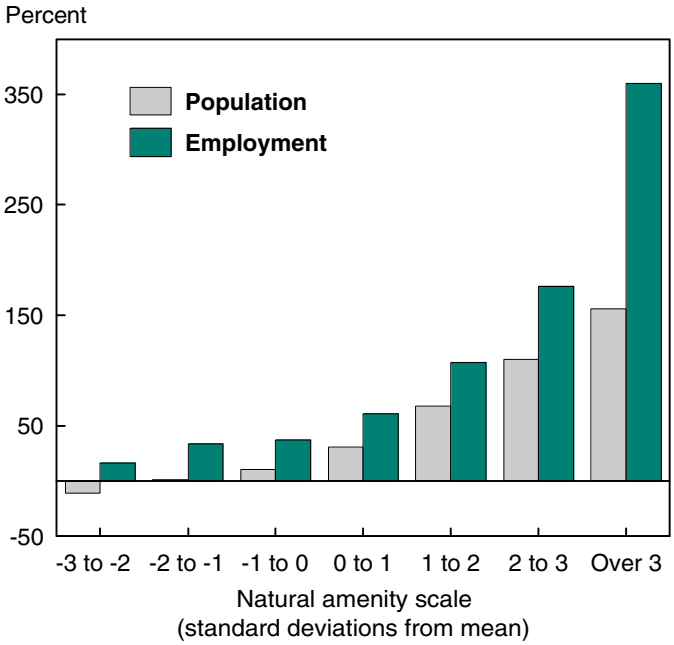
But not all high-amenity counties experienced these rates of growth. Employment change was quite uneven across counties, much more so than population change (see appendix fig. 2).[5] At any amenity level, no matter what the prevailing employment growth rates, 10 percent or more of the counties either had almost no growth or had lost jobs. The variation was particularly high at the highest end of the amenities scale. Summit and Gilpin, two Colorado recreation counties immediately west of Denver, had around 20 times as many jobs in 1996 as in 1969. Over the same period, employment in Lake County, a mining county adjacent to Summit County, fell by a quarter.

More generally, major rural employers—manufacturers, mining concerns, and, recently, prisons and casinos—are motivated by a number of factors in choosing their locations, including the availability of low-cost labor, natural resources, and access to cities. The opening and closing of these enterprises may create major changes in county employment without commensurate changes in population. People may enter or drop out of the labor force depending on job availability. And workers may commute rather than move to the counties where their jobs are.

Consistent with the wider variation in employment change, regression analysis of 1969-96 employment change (log-transformed) shows it to have a weaker association with the amenity measures than does population change (table 7). The addition to the variance explained by the individual measures is 0.17 for employment change, compared with 0.24 for population change (table 5). The (unstandardized) regression coefficients for the amenity index, however, are 0.74 in the population change analysis and 0.66 in the employment change analysis, a difference of only about 11 percent. This indicates that the weaker association with amenities found for employment stems largely from the greater variability in employment growth across rural counties.

Contributing to the weaker overall association between natural amenities and employment change is a lack of association of warm winters with employment change.

Figure 7
Mean changes in nonmetro county employment, 1969-96, and population, 1970-96, by natural amenity level



[5] This variability extends across time as well. Employment change in the 1970's, 1980's, and 1990's had intercorrelations of 0.30–0.35, meaning that knowing a county's employment change in one decade is of little help in predicting its employment change in another. In contrast, the corresponding coefficients for population change were all above 0.60, indicating much greater continuity.

In this, the results are similar to those for the recreation counties, and may reflect the development of recreation activities in many counties high in natural amenities except for their cold winters. Thus, counties attractive to visit in the winter or to spend the summer, but not the most comfortable to live in year-round, have had considerable job growth (although much of the job growth is likely to be seasonal). As a result, the natural amenities scale explains 17 percent less of the additional variance than the set of individual amenities measures. If we drop the warm winter measure from the scale, the resulting shorter scale has a stronger association with employment growth.[6]

The natural amenity measures, whether combined in a scale or not, are only weakly related to employment change during 1989-96. Although removing warm winter from the scale makes it more reflective of employment-amenities relationships, natural amenities (and the other measures in the analysis) still had little bearing on employment change in the early 1990's, much less than for the entire 1969-96 time period. These results are particularly perplexing, as the relationships are not correspondingly weak for population change in the 1990's.

One factor that may help explain why natural amenities do not seem to influence recent employment change is the development of casinos and prisons in rural counties in the early 1990's. These operations could add a great deal of employment without immediately affecting population. Tunica County (MS) is perhaps the most extreme case. It lost population between 1990 and 1996, but the development of a casino complex caused county employment to rise from 3,000 in 1989 to 16,000 in 1996. It seems likely that rural county employment statistics are generally more affected by individual casinos, manufacturers, and mines in a short time period (1989-96) than over a longer period. Employment related to population growth and natural amenities-based recreational activities is likely to accrue, in this region and others like it, over the long run.

[6] The same effect is obtained for the recreation county analysis, reducing the gap in explained variance between the scale and individual measures from 44 percent to 16 percent.

Table 7–Regional regression results for employment change, 1969-96 and 1989-96 (log_e)

Statistic	Formula	1969-96		1989-96	
		All measures	Exclude warm winter	All measures	Exclude warm winter
A. Adjusted R^2:					
1 Base measures only[1]		0.162	0.162	0.058	0.058
2 Six amenity items added to base		0.327	0.327	0.135	0.133
3 Amenity scale added to base		0.297	0.322	0.098	0.124
B. Addition to adjusted R^2:					
1 All measures individually	(A2-A1)	0.165	0.165	0.076	0.075
2 Amenity scale	(A3-A1)	0.135	0.160	0.039	0.066
3 Difference	(B1-B2)	0.030	0.005	0.037	0.009
C. Percent loss in additional variance explained when scale is used rather than individual items	(100xB3/B1)	18.1	2.9	48.3	11.6
D. Standardized coefficients[1]:					
Warm winter		0.01		-0.05	
Winter sun		0.13	0.19	0.06	0.04
Temperate summer		0.20	0.28	0.17	0.16
High humidity		0.14	0.18	0.16	0.17
Water area		0.17	0.18	0.13	0.13
Topographic variation		0.14	0.16	0.08	0.09

[1] In addition to the amenity measures, the analyses include county economic type, high poverty, population density and its square, and the urban influence code.

But this does not appear to be the whole story. Even if we use the median county employment growth, which gives a better picture of central tendencies than the mean when there are extreme outliers, it is apparent that the natural amenities scale, with or without the warm-winter measure, is much less related to employment change during 1989-96 than to population change over the same period (fig. 8).

Another development that probably weakened the relationship between amenities and employment growth in the 1990's was a greater shift of manufacturing to high-education areas than in the previous decades. These high-education areas—many of them in the Midwest—are typically low in natural amenities. The change in jobs in these areas has not been associated with a commensurate gain in population.

Finally, Beale (1998), in conversations with local officials in Western counties beginning to gain population in the 1990's, found that people were moving in without any commensurate gain in jobs. This is consistent with the greater growth rates for population than employment near the high end of the amenities scale (although not at the highest end, where high housing costs discourage unemployed inmigration). The correlation coefficient between population and employment change (both in $\log_e$ terms) dropped from over 0.75 in the 1970's and 1980's to 0.58 in the 1990's, suggesting a general disjuncture between population growth and employment change in the 1990's that deserves further investigation.

Figure 8
Median average annual rates of change in nonmetro county employment and population, by natural amenity level