The amenity measures do not have equally strong relationships with population change. Temperate summer is consistently the most highly correlated with population change, with coefficients ranging from 0.31 (1980-90) to 0.38 (1970-96) (table 4). On the other hand, winter sun generally is related only weakly to population change. We saw earlier, however, that the amenities themselves are interrelated and that often there are tradeoffs, with high values on one measure often associated with lower values on another. The question is then whether a given measure is related to population change when differences in the other amenity measures—and the economy and settlement pattern measures—are taken into account statistically.

Each of the amenity measures is related to population growth when other measures are held constant through statistical controls. Winter sun is important in the context of other variables. Winters tend to be sunniest where summers are least temperate and water area is lowest. For any given summer climate and extent of water area, however, population has tended to move to where winters are sunnier. In several cases, the standardized coefficients are strongest for change over the entire 1970-96 period, suggesting that the long-term influence of amenities is dissipated in the short term by episodic disturbances that may be related to general business cycles and booms and busts in particular sectors, such as agriculture, mining, and manufacturing. As shown in the next section, the amenity measures together add considerably to our understanding of where population is growing in rural areas and where it is declining.

Table 4–Correlations and standardized regression coefficients reflecting relationships of amenity measures to population change [1]

Statistics and measures	1970-80	1980-90	1990-96	1970-96
Correlations:				
Warm winter	0.22	0.29	0.19	0.27
Winter sun	-0.03	0.07	-0.02	0.01
Temperate summer	0.36	0.31	0.34	0.38
Low summer humidity	0.10	-0.01	0.13	0.08
Water area	0.16	0.21	0.12	0.20
Topographic variation	0.28	0.12	0.25	0.24
Standardized coefficients: [2]				
Warm winter	0.23	0.24	0.23	0.27
Winter sun	0.12	0.24	0.11	0.18
Temperate summer	0.28	0.32	0.29	0.33
Low summer humidity	0.27	0.23	0.31	0.30
Water area	0.19	0.19	0.13	0.20
Topographic variation	0.18	0.07	0.16	0.16

[1] Population change computed as $\log_e$ (100*population t1/population t0).

[2] From OLS regression analysis, controlling for county economic type, high poverty, and urban influence code (expressed as dummy variables) as well as the other amenity measures.