Section III. Associations between Socioeconomic Conditions and Disparities in Premature Mortality

This section examines associations between premature mortality and selected indicators of socioeconomic condition. Individual analyses were performed for each socioeconomic indicator with premature all-cause mortality as well as disease-specific premature mortality for major causes of death. Two regional-level analyses were performed for each case, one for the U.S. and one for the Appalachian region (see Section I). Because the LISAs are partly dependent on the global mean for each distribution, this was done in order to determine associations relative to both the national and regional averages. In each case key associations were identified for two levels of statistical significance; .05 and .01, although for brevity's sake only the .05 levels are shown.

Some care must be taken in the interpretation of these results. As outlined in Section I, the unit of analysis is a neighborhood defined by a county and its contiguous neighbors. Therefore associations assigned to each county reflect its position relative to surrounding counties, e.g. a high-high value indicates that a county is high in one variable and surrounded by counties with high values on the other variable. In addition, a consistent method was used to depict these associations, i.e. reds indicate high-high associations regardless of the expected direction of the association. For example, the theoretical expectation is that high levels of poverty will be associated with high levels of premature mortality. However for income, the theoretical expectation is that high levels of income will be associated with low levels of premature mortality. (see Appendix III for tables indicating associations derived from national and regional analyses.)

III. A. National Associations

III. A.1 Premature All-cause Mortality

The national distribution of premature all-cause mortality is dominated by high death rates in the Southeastern U.S. and Central Appalachia, and low death rates in the Upper Mid-West, Pacific Northwest, and Northeastern U.S (see Section II, Figure 2). Statistically significant associations between socioeconomic indicators and premature all-cause mortality are consistently found among counties in the Southeastern, Upper-Midwest, and Pacific Northwest regions of the country (see Figures 10-14.). However the nature of these associations appears to be in sharp contrast. The strong and persistent gradient in rates of all-cause mortality at the national level may limit the ability of the method used here to identify significant associations in areas that fall between the extremes in the distribution (highest and lowest rates of mortality).

Among the general regions of the U.S. three standout as significant associations with the Southeast (including the Mississippi Delta Region) and Upper Midwest as the most prominent. In many cases, however, the direction of association varies between these dominant regions. For example, in the Southeastern U.S. low levels of income, high poverty rates, high unemployment, and high percentages without health insurance are generally associated with high rates of premature all-cause mortality, whereas in the

Upper Midwest comparable socioeconomic conditions are primarily associated with low rates of premature all-cause mortality.

Few statistically significant associations are apparent for all-cause mortality in the Appalachian Region when compared with the rest of the U.S. Exceptions include counties in the extreme Southern portion of the region in Alabama, Mississippi, and Georgia and in Central Appalachian counties in West Virginia and Kentucky. Among Appalachian counties with significant associations, low levels of income, high poverty rates, high unemployment, and high percentages without health insurance are generally associated with high rates of premature all-cause mortality.

Figure 10. National Associations between Premature All-cause Mortality and Percent Urban Population.

Association between Percent Urban Population (2000) and Premature All Cause Mortality (1995-2001)

LISA Clusters at .05 Significance Level

Counties with Insufficient Data
LISA Clusters at .05 Significance
High % Urban - High Death Rate
Low % Urban - Low Death Rate
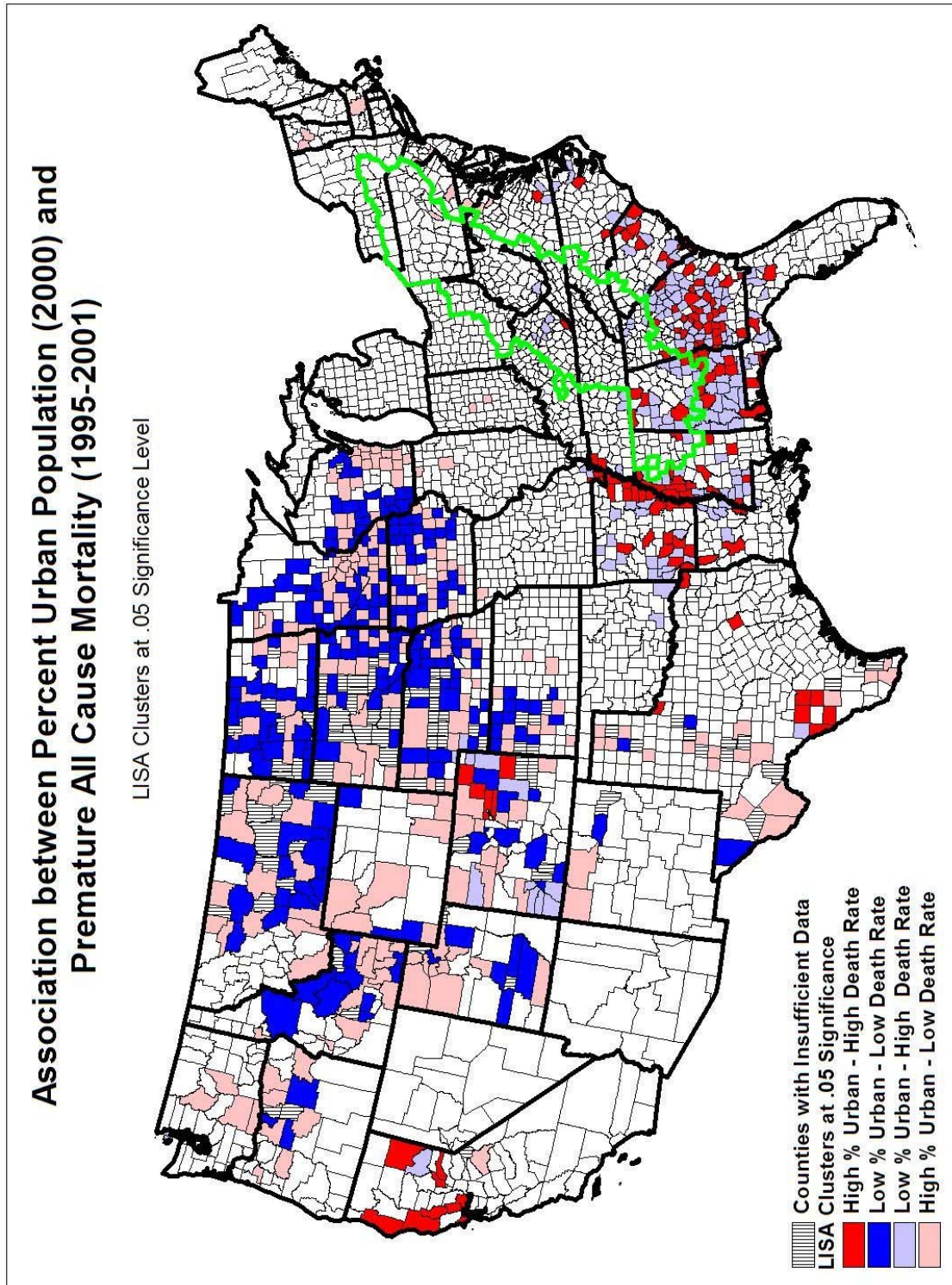Low % Urban - High Death Rate
High % Urban - Low Death Rate

Figure 11. National Associations between Premature All-cause Mortality and Median Family Income.

Figure 12. National Associations between Premature All-cause Mortality and Poverty Rate.

Associations Between Poverty Rate (2000) and Premature All Cause Mortality (1995-2001)

LISA Clusters at .05 Significance Level

Counties with Insufficient Data
LISA Clustes at .05 Significance
High Poverty - High Death Rate
Low Poverty - Low Death Rate
Low Poverty - High Death Rate
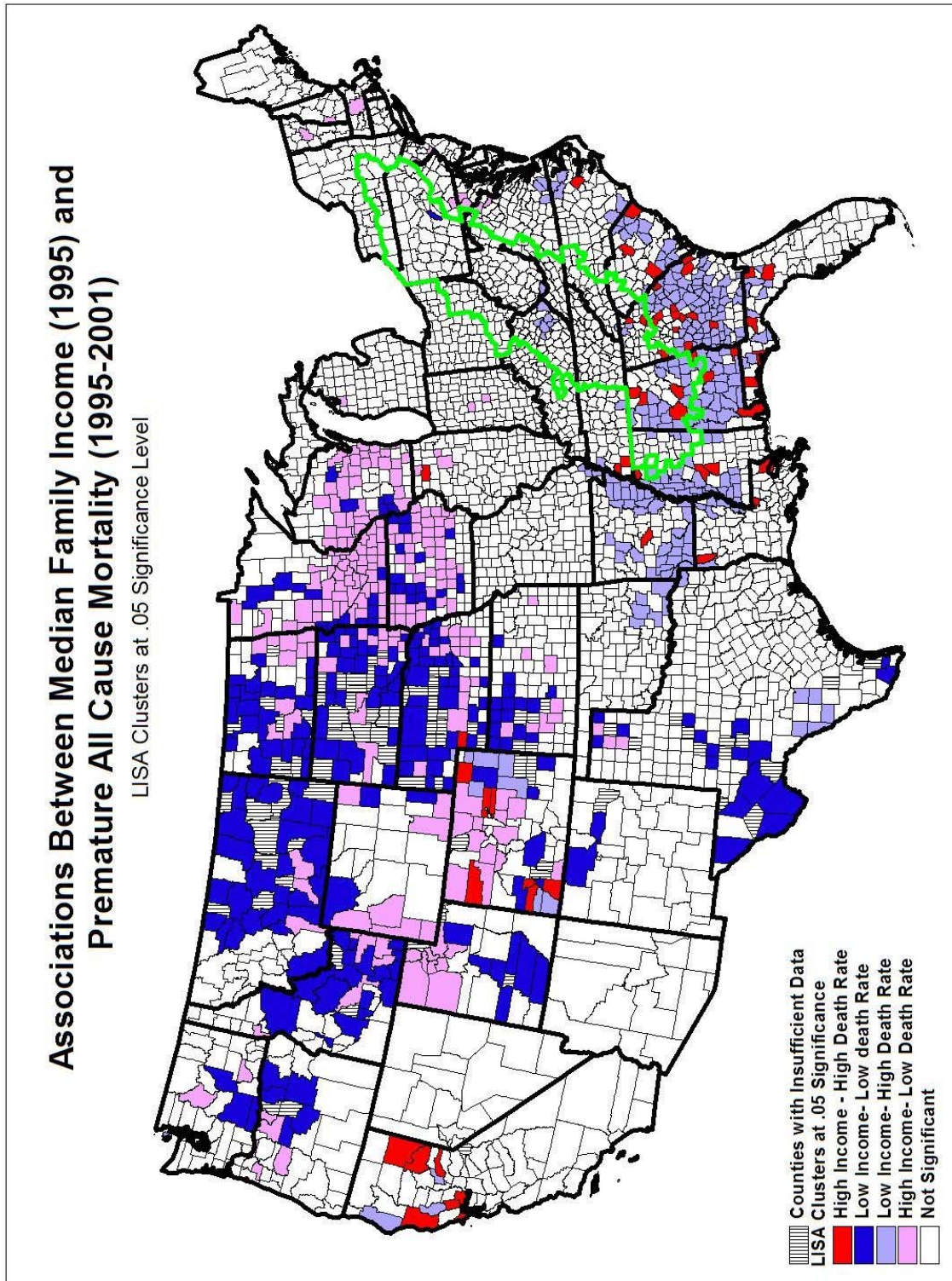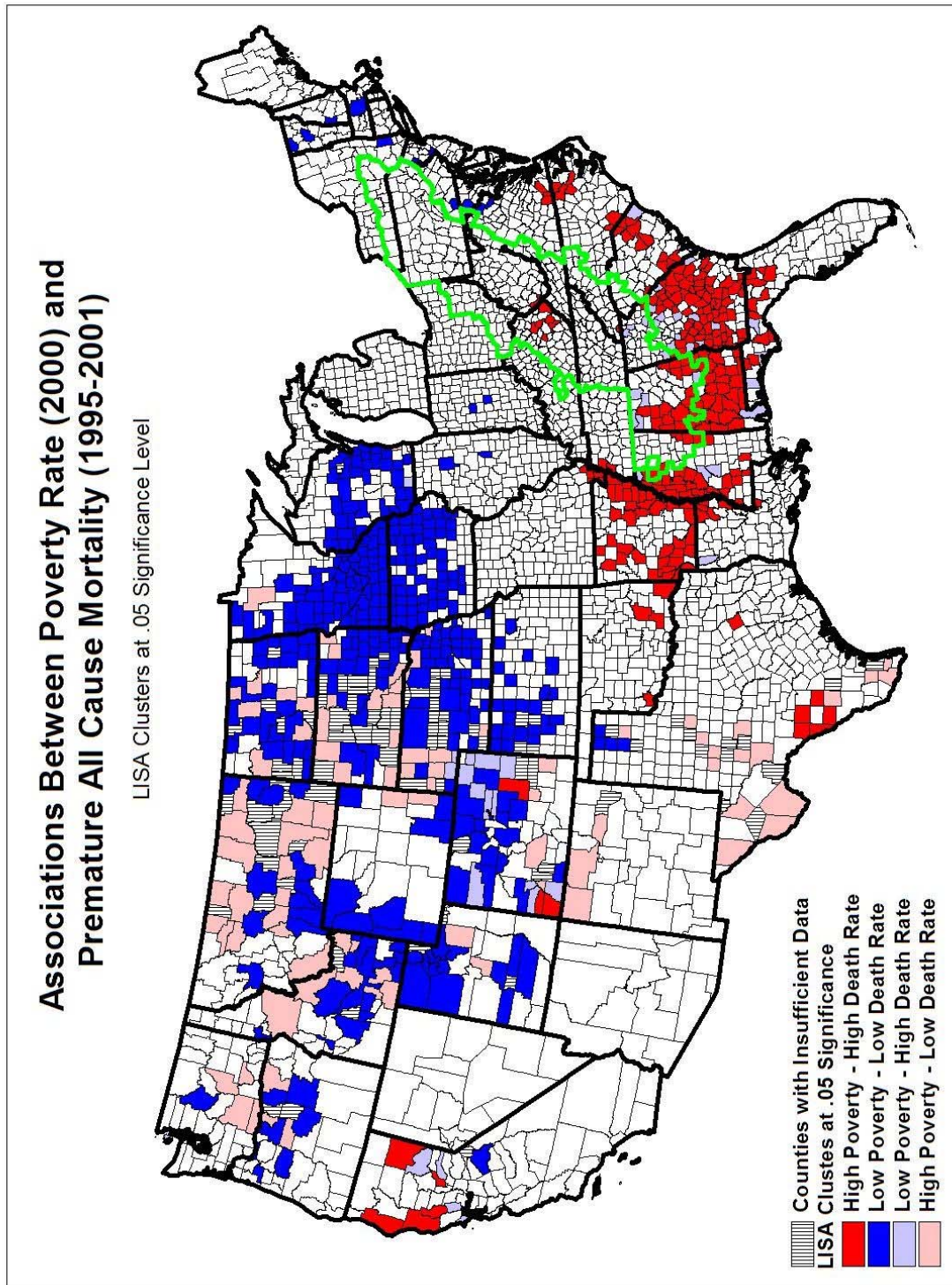High Poverty - Low Death Rate

Figure 13. National Associations between Premature All-cause Mortality and the Unemployment Rate.
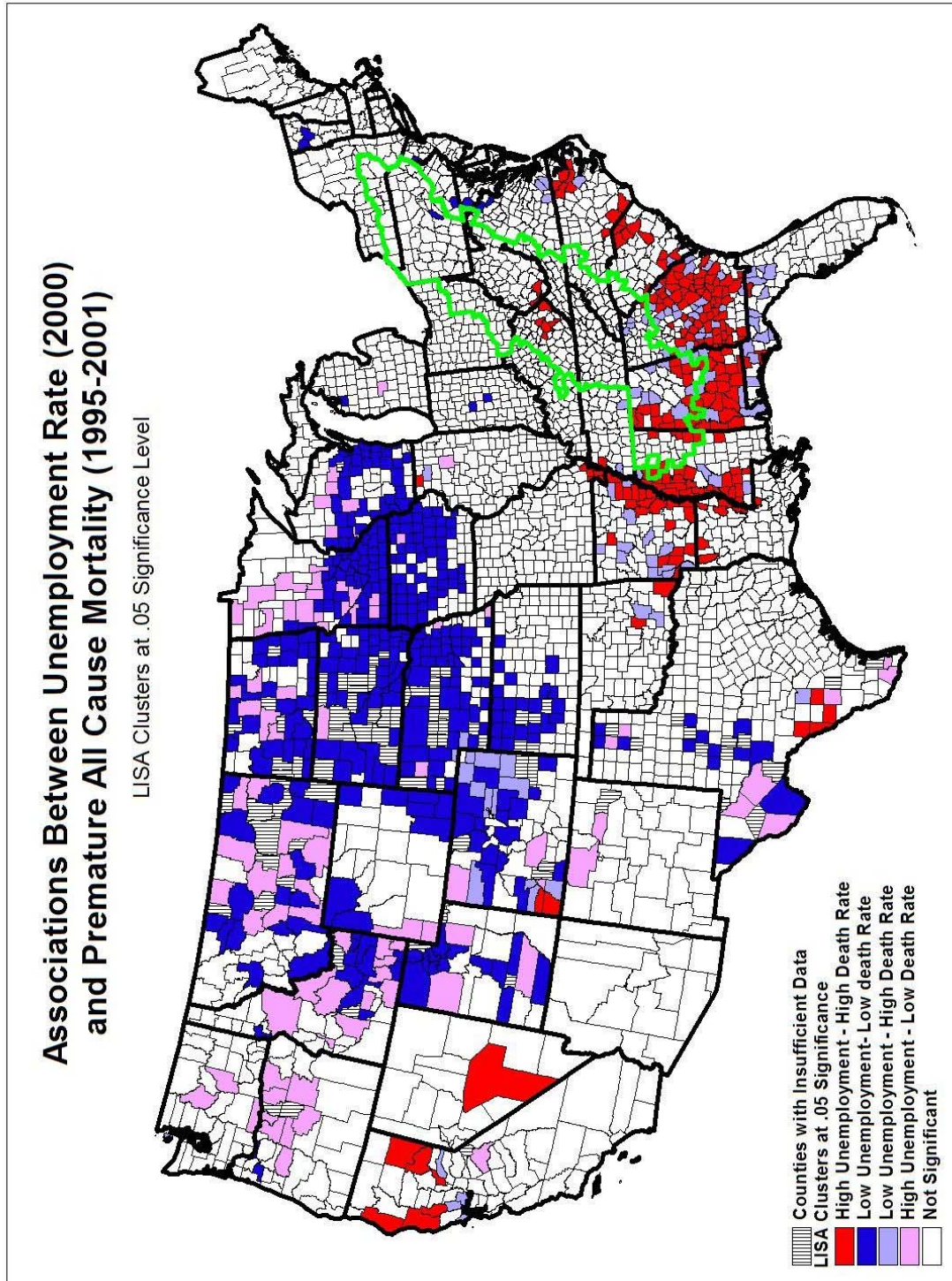
Figure 14. National Associations between Premature All-cause Mortality and the
Percentage of Persons without Health Insurance.

**Associations Between Percentage of Persons Without Health
Insurance (2000) and Premature All Cause Mortality (1995-2001)**

LISA Clusters at .05 Significance Level

Counties with Insufficient Data
LISA Clusters at .05 Significance
High % w/o Insurance - High Death Rate
Low % w/o Insurance - Low Death Rate
Low % w/o Insurance - High Death Rate
High % w/o Insurance - Low Death Rate