Appendix for: Race, Income, and Environmental Inequality in the U.S. States, 1990-2014

Below we present supplementary analysis of our measures of environmental inequality. The following tables and graphs display results for individual states in more detail than in the body of the paper. More specifically we show that even as the poverty and race ratios are not highly correlated there is considerable overlap in states with largest decline in both dimensions of environmental inequality over the study period (Appendix Table 1). The states with the highest 90th percentile exposures tend to have inequality ratios above the median (Appendix Table 2). There was a moderate correlation, with a clear geographic pattern in the change in the two inequality ratios between 2000 and 2014 (Appendix Figures 1 and 2). There is also a clear correlation and geographic pattern linking the highest levels of exposure and race-based inequality (Appendix Figures 3 and 4). Change in income inequality and poverty-based environmental inequality also share a geographic pattern (Appendix Figures 5 and 6). Finally in Appendix Table 3 we see the relations among gross state product, the role of manufacturing in state economies, income inequality, and environmental inequality.

Appendix Table 1. Ten States with Largest Decline in Poverty or Race Ratios from 1990 to 2014

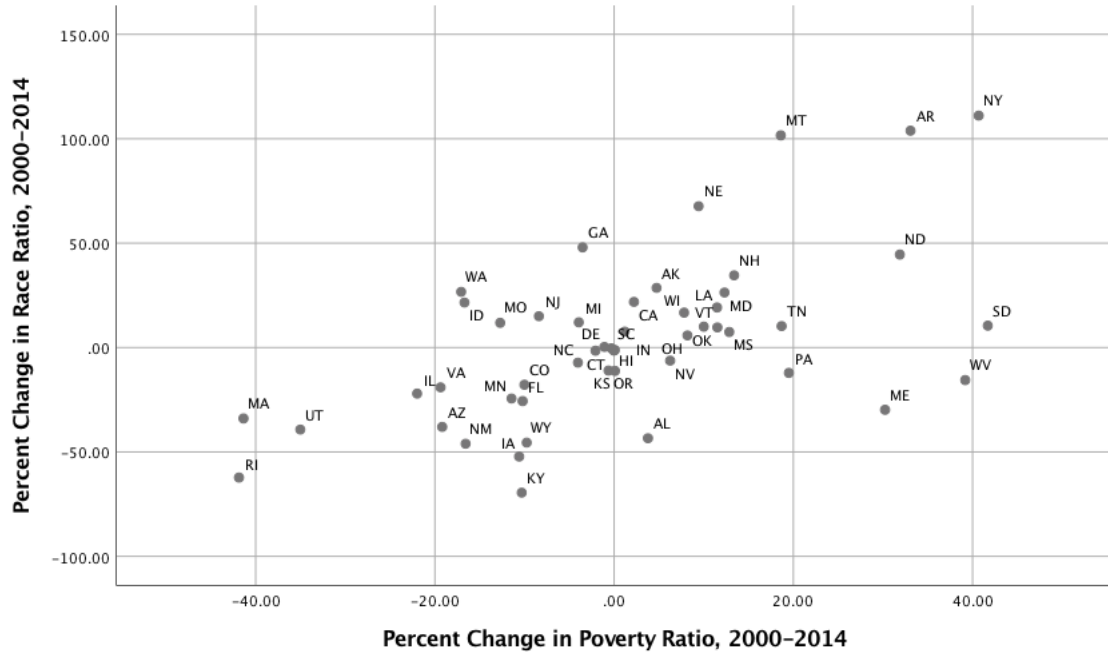| Poverty Ratio		Race Ratio	
Maryland	-0.99	Kentucky	-6.38
Nebraska	-0.73	**Nebraska**	-2.47
Tennessee	-0.68	**Alabama**	-2.16
Vermont	-0.59	**Tennessee**	-2.13
Colorado	-0.56	**Indiana**	-1.74
New Mexico	-0.51	**New Mexico**	-1.11
Alabama	-0.43	Ohio	-0.94
Washington	-0.39	**Colorado**	-0.88
Rhode Island*	-0.39	**Maryland***	-0.80
Indiana	-0.39	Virginia*	-0.80

* Denotes ratio is below median. **The seven bolded states landed in the top ten for declines in both poverty and race ratios.**

Appendix Table 2. Ten States with Highest Exposure Rates at 90th Percentiles, 2010-2014
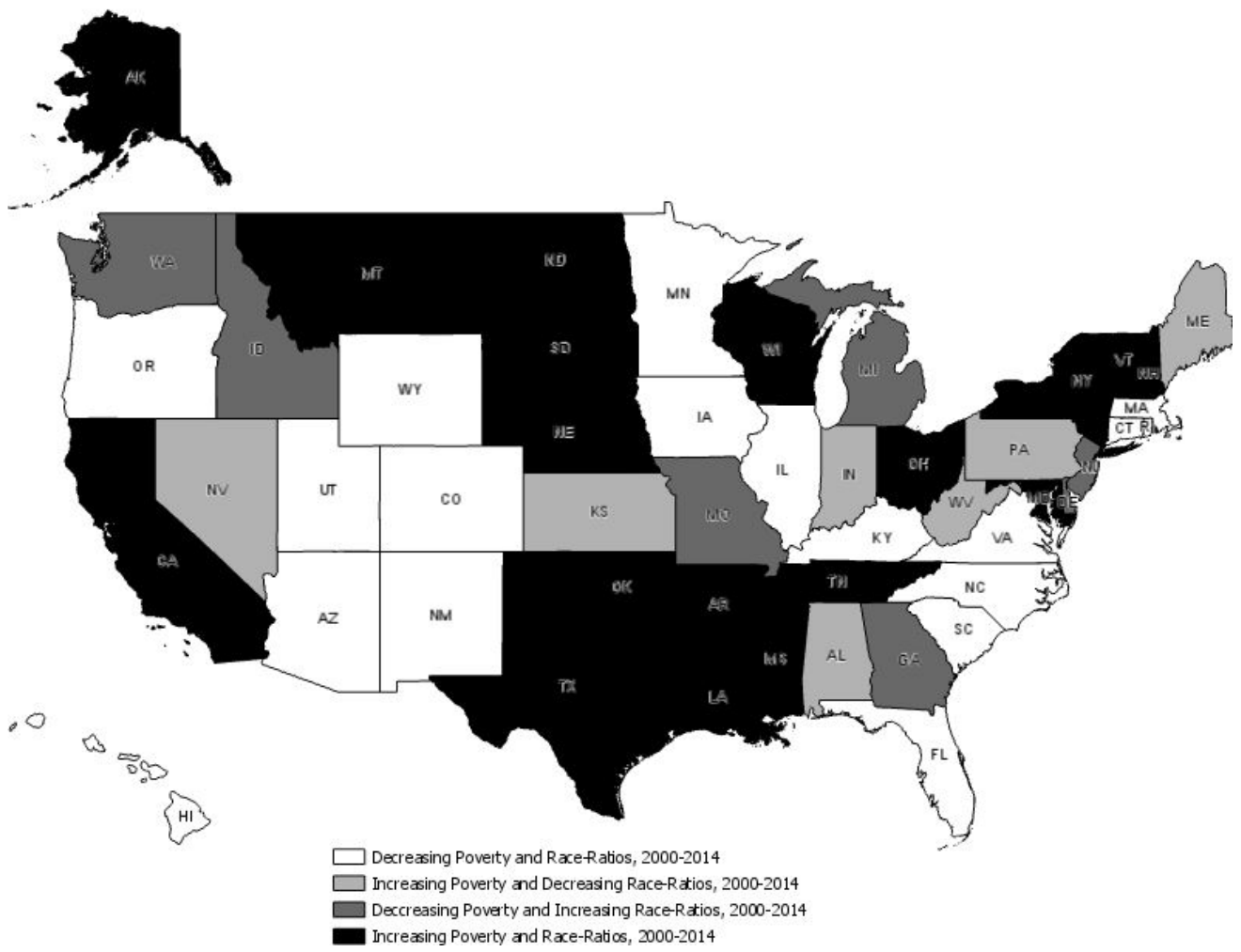
State	2010-2014 90th Percentile Exposure	2010-2014 Poverty Ratio	2010-2014 Race Ratio
Louisiana	37,208.39	1.09*	1.45
Texas	34,992.96	1.20	1.67
Ohio	34,683.16	1.76	2.09
Kansas	32,659.37	1.42	1.62
Missouri	27,228.59	1.34	1.99
Kentucky	26,742.92	1.25	2.65
Illinois	24,557.65	1.26	1.75
Iowa	20,442.26	1.20	1.37
Pennsylvania	18,974.70	1.23	1.08*
Alabama	15,918.46	1.13*	1.01*

*Denotes ratio is below median.

Appendix Figure 1. Change in Poverty and Race Ratios, 2000-2014

Appendix Figure 2. Geographic Distribution of Change in Poverty and Race Ratios, 2000-2014

☐ Decreasing Poverty and Race-Ratios, 2000-2014
☐ Increasing Poverty and Decreasing Race-Ratios, 2000-2014
☐ Deccreasing Poverty and Increasing Race-Ratios, 2000-2014
■ Increasing Poverty and Race-Ratios, 2000-2014

Appendix Figure 3. Exposure and Race-Based Inequality, 2010-14

Appendix Figure 4. Geographic Distribution of Exposure and Race-Based Inequality, 2010-14

Below 90th Percentile Exposure and Race Ratio Median, 2010-2014
Above 90th Percentile Exposure and Below Race Ratio Median, 2010-2014
Below 90th Percentile Exposure and Above Race Ratio Median, 2010-2014
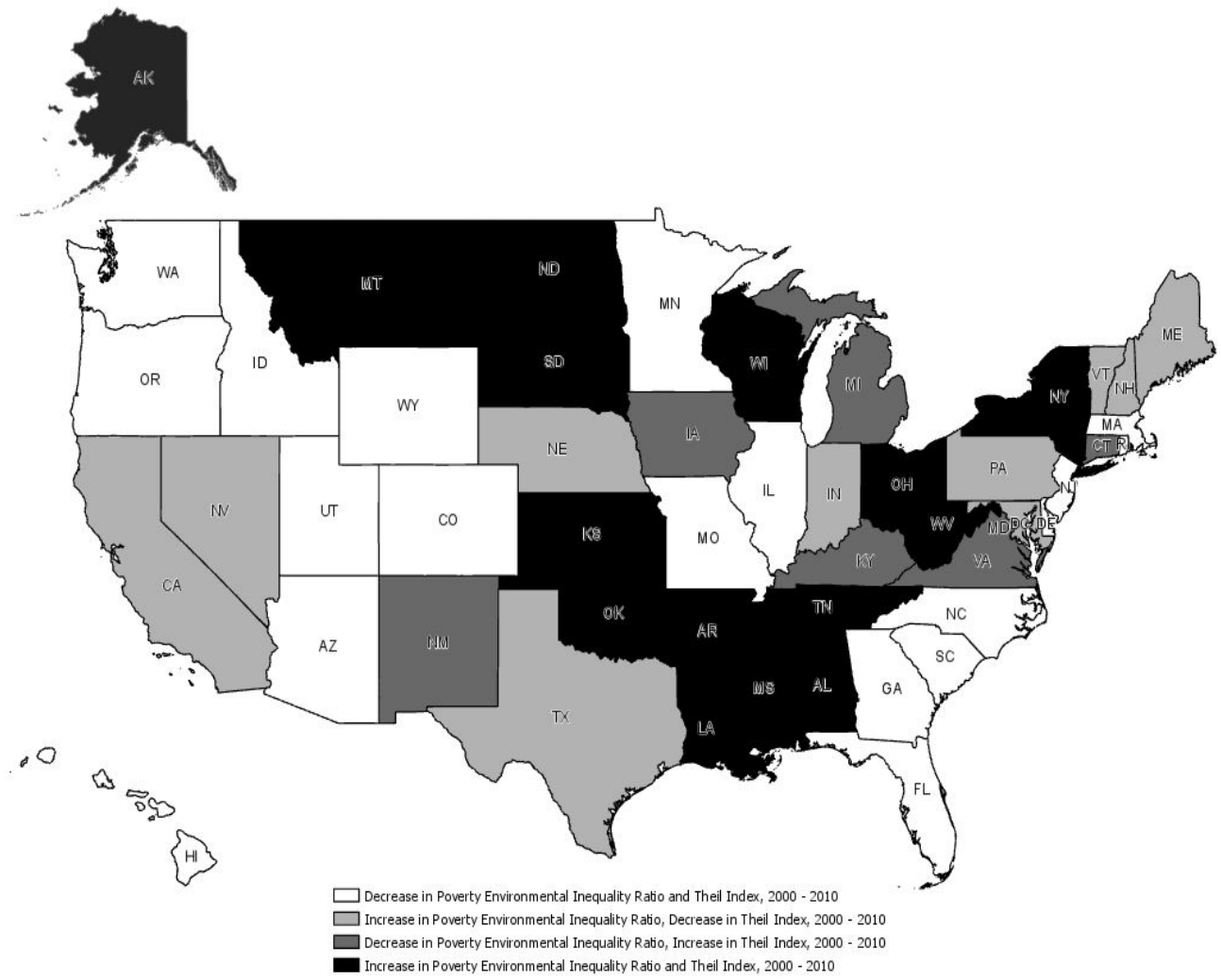Above 90th Percentile Exposure and Race Ratio Median, 2010-2014
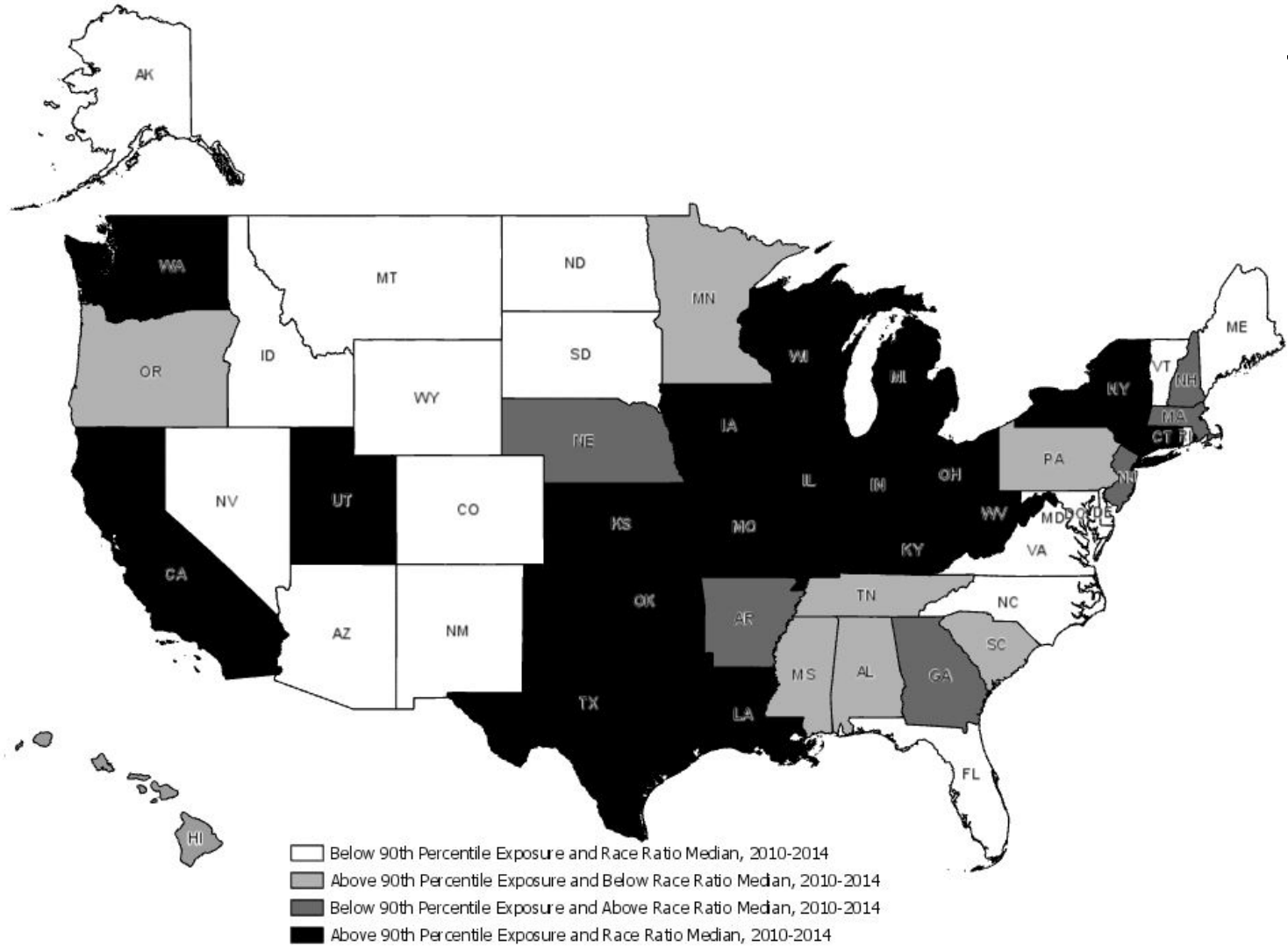
Appendix Figure 5. Percent Change in Income and Environmental Inequality, 2000-2014
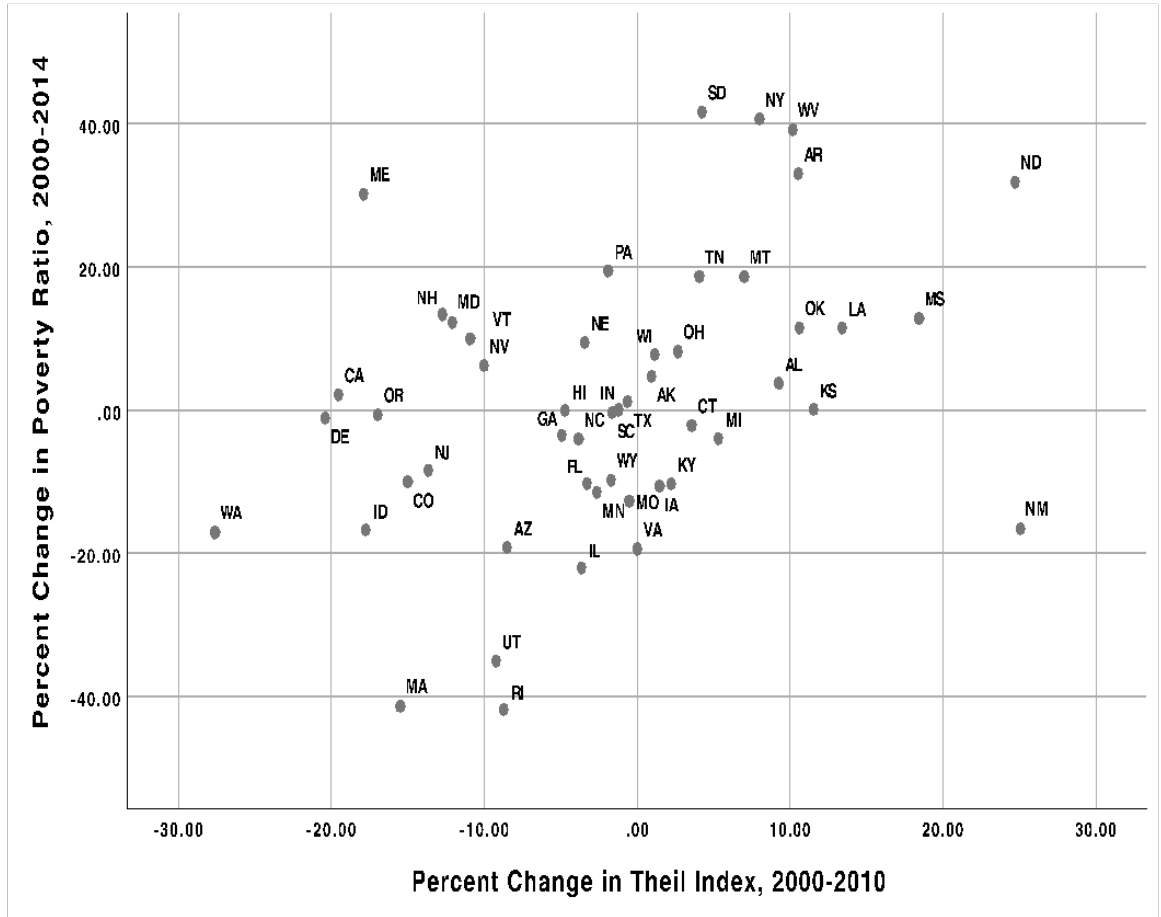
Appendix Figure 6. The Geographic Distribution of Change in Environmental and Income Inequality, 2000-2014

Decrease in Poverty Environmental Inequality Ratio and Theil Index, 2000 - 2010
Increase in Poverty Environmental Inequality Ratio, Decrease in Theil Index, 2000 - 2010
Decrease in Poverty Environmental Inequality Ratio, Increase in Theil Index, 2000 - 2010
Increase in Poverty Environmental Inequality Ratio and Theil Index, 2000 - 2010

Appendix Table 3. Correlations Between Gross State Product and Inequality, 1990-2014

Pearson's r	Per Capita GSP			Manufacturing as Proportion of Total GSP		
	1990	2000	2010	1990	2000	2010
Income Theil 1990	.52**			-.36*		
Poverty Ratio 1990-94	.02			.15		
Race Ratio 1990-94	-.18			.36*		
90th Percentile Exposure 1990-94	-.13			.39*		
Income Theil 2000		.60**			-.34*	
Poverty Ratio 2000-04		.15			-.03	
Race Ratio 2000-04		-.13			.23	
90th Percentile Exposure 2000-04		-.07			.24	
Income Theil 2010			.48**			-.28
Poverty Ratio 2010-14			.21			-.08
Race Ratio 2010-14			-.12			.27
90th Percentile Exposure 2010-14			-.11			.50**
N	50	50	50	50	50	50

*p<.05, **p<.01 (two-tailed)