

Appendix - Chapter 3

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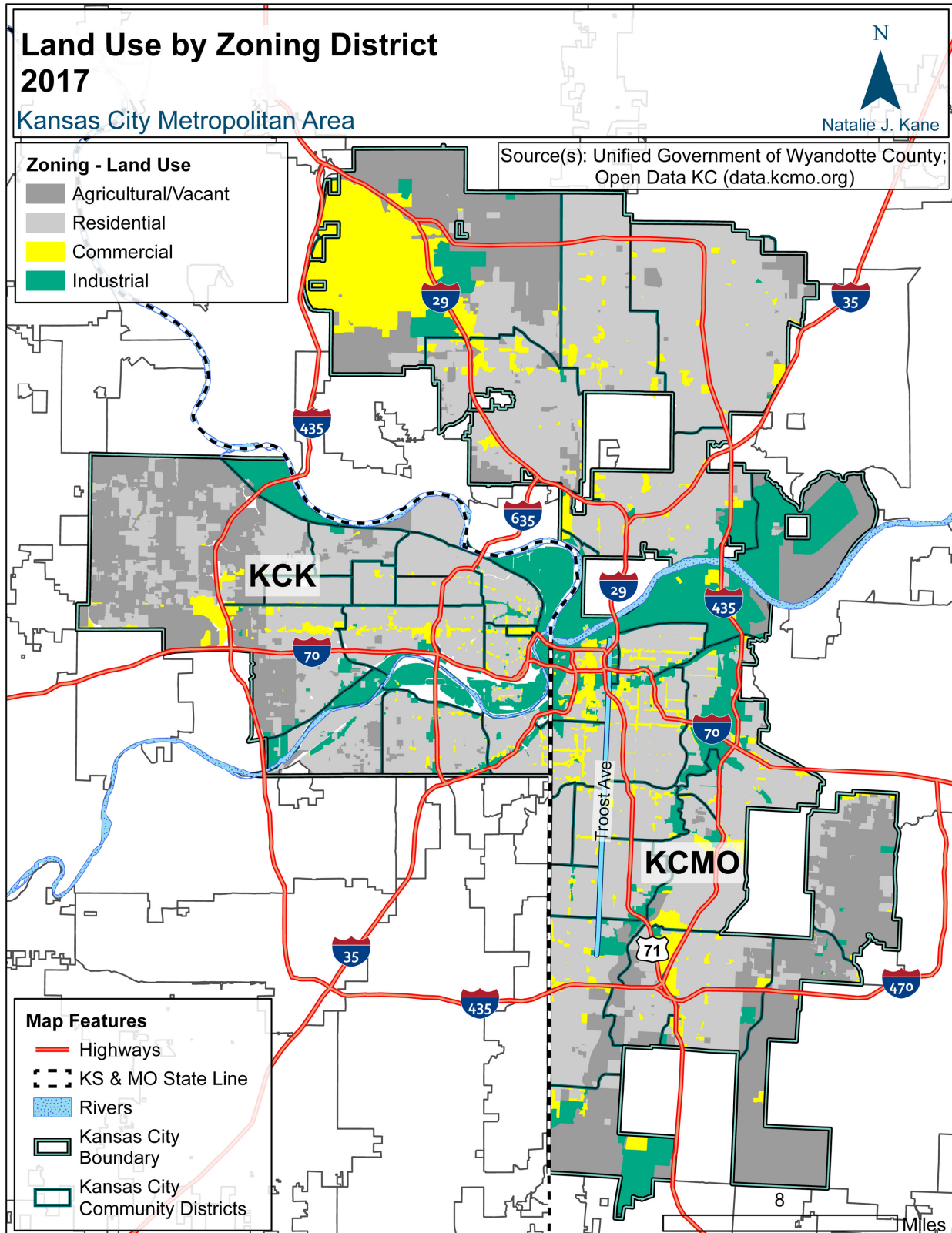
Dissertation: *An Interdisciplinary Health Disparities Research & Intervention Strategy Applied to the Problem of Pediatric Asthma in Kansas City*

Author: Natalie June Kane

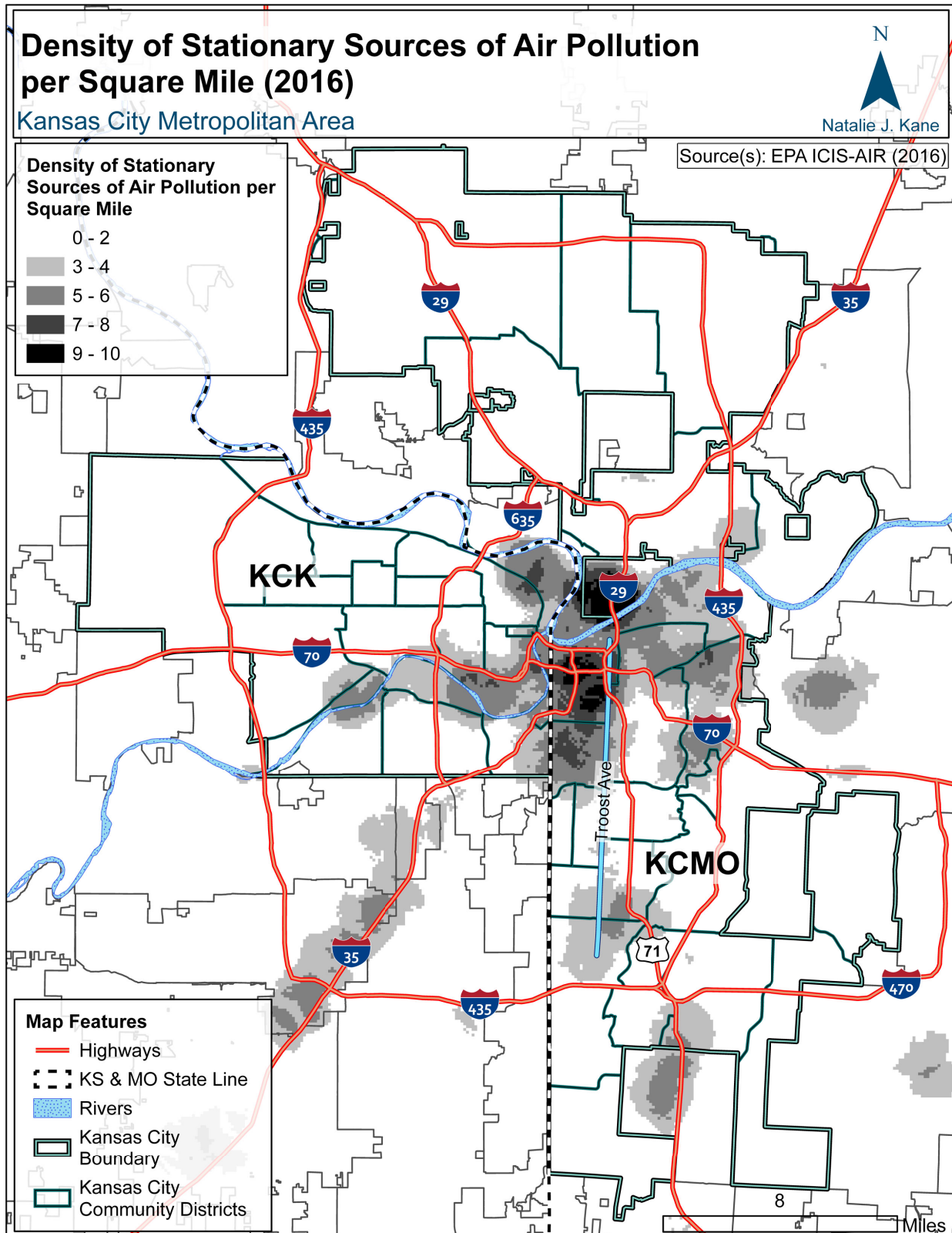
Year: 2020

Section 1: EJSM Scanning Exercise & Descriptive Analysis

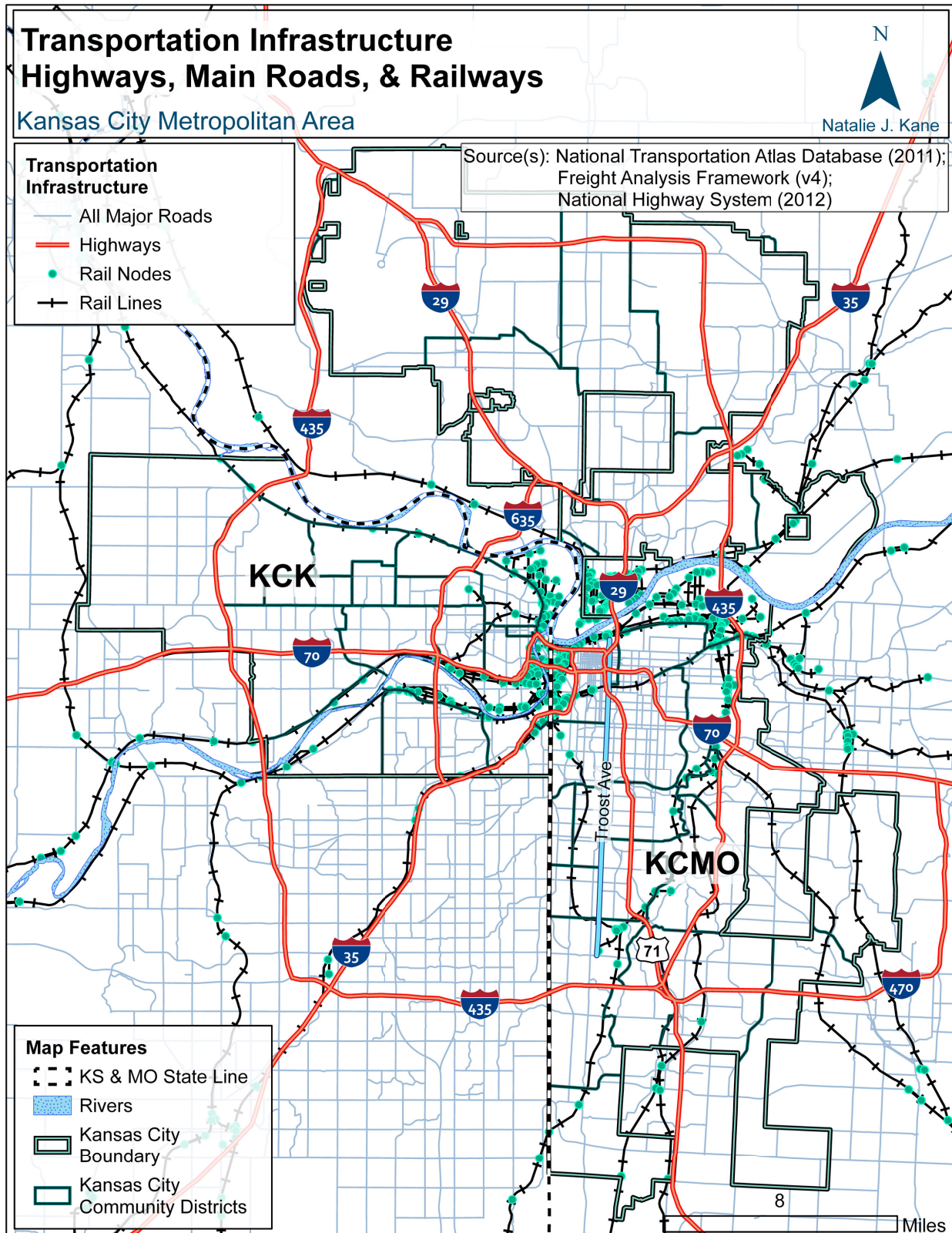
Map A.3.1. Land Use by Zoning District, 2017



Map A.3.2. Density of Stationary Sources of Air Pollution, 2016



Map A.3.3. Transportation Infrastructure



Section 2: Bayesian Profile Regression (BPR)

BPR Cluster Summaries (Full Study Area)

Table A.3.4. Mean Asthma Risk & EJSM Covariate Values by Cluster (Continuous Variable Selection)

Asthma Risk and Covariates by EJSM Domain	Relative Risk by Cluster-90% Credible Interval							
	Below Avg.			Contains Avg.			Above Avg.	
	C1	C2	C3	C4	C5	C6	C7	C8
Pediatric Asthma Acute Care Visits per Capita	3	5	7	9	11	11	22	28
Number of Census Tracts	81	74	42	26	36	67	69	35
Sensitive Land Use and Hazard Proximity								
Traffic Proximity and Volume	2.2	2.6	3.2	3.7	3.6	3.3	3.5	2.9
Proximity to Risk Management Plan Sites	3.1	1.7	3.2	4.2	3.5	2.1	4.6	2.5
Proximity to Treatment Storage and Disposal Facilities	2.4	1.6	2.9	4.5	3.4	2.3	4.8	3.7
Walkability Proximity to Transit Ranking	2.4	1.4	3.3	4.1	2.8	2.8	4.6	4.3
Health Risk and Exposure								
Individual Lifetime Cancer Risk	2.4	1.2	4.1	5	3.4	2.5	4.6	2.8
Diesel Particulate Matter Level in Air	1.9	1.6	3.6	4.8	3.6	2.9	4.6	3
Respiratory Hazard Index	2.3	1.3	4.1	4.7	3.6	2.7	4.6	2.6
Social and Health Vulnerability								
Percent Age 24 and Over without High School Edu.	1.4	2.3	2.2	2.2	4	3.4	4.8	4.4
Percent Living in Linguistically Isolated Households	2.8	2	2.8	3.3	4.5	2.5	4.2	2.7
Percent Living at or below 200 Percent Poverty	1.3	1.9	2.5	3.2	3.9	3.3	4.8	4.6
Percent Identified as Minority	1.7	1.9	2.3	3	3.8	3.1	4.7	4.9
Percent Living in Renter Occupied Housing Units	1.8	1.7	2.8	4.4	4.1	3	4.2	4.4
Median Home Value (Inverse)	1.3	2.1	2.7	2.3	3.6	3.7	4.6	4.7
Percent Age 6 and Under	2.6	2.7	2.9	1.8	3.8	3	3.7	3.4
Percent Age 60 and Over	3.3	2.9	3.8	2.6	2	3.6	2.4	2.9

Note:

Average Pediatric Asthma ACVs per Capita (all tracts) = 11.2

Table A.3.5. Rho Parameter Summary (Continuous Variable Selection)

Covariates by EJSM Domain	Median	Mean	Confidence Interval
Sensitive Land Use and Hazard Proximity			
Traffic Proximity and Volume	0.595	0.603	(0.456, 0.77)
Proximity to Risk Management Plan Sites	0.985	0.973	(0.903, 1)
Proximity to Treatment Storage and Disposal Facilities	0.996	0.991	(0.965, 1)
Walkability Proximity to Transit Ranking	0.994	0.987	(0.953, 1)
Health Risk and Exposure			
Individual Lifetime Cancer Risk	0.997	0.994	(0.977, 1)
Diesel Particulate Matter Level in Air	1	0.994	(0.973, 1)
Respiratory Hazard Index	1	0.997	(0.981, 1)
Social and Health Vulnerability			
Median Home Value	0.997	0.995	(0.98, 1)
Percent Age 24 and Over without High School Edu.	0.997	0.993	(0.975, 1)
Percent Living in Linguistically Isolated Households	0.972	0.956	(0.86, 1)
Percent Living at or below 200 Percent Poverty	0.998	0.996	(0.985, 1)
Percent Identified as Minority	0.997	0.993	(0.975, 1)
Percent Living in Renter Occupied Housing Units	0.994	0.987	(0.953, 1)
Percent Age 6 and Under	0.531	0.537	(0.392, 0.7)
Percent Age 60 and Over	0.622	0.624	(0.427, 0.827)

Figures & Graphs - BPR Results

Figure A.3.6. Risk Profile Box Plots (Group 1)

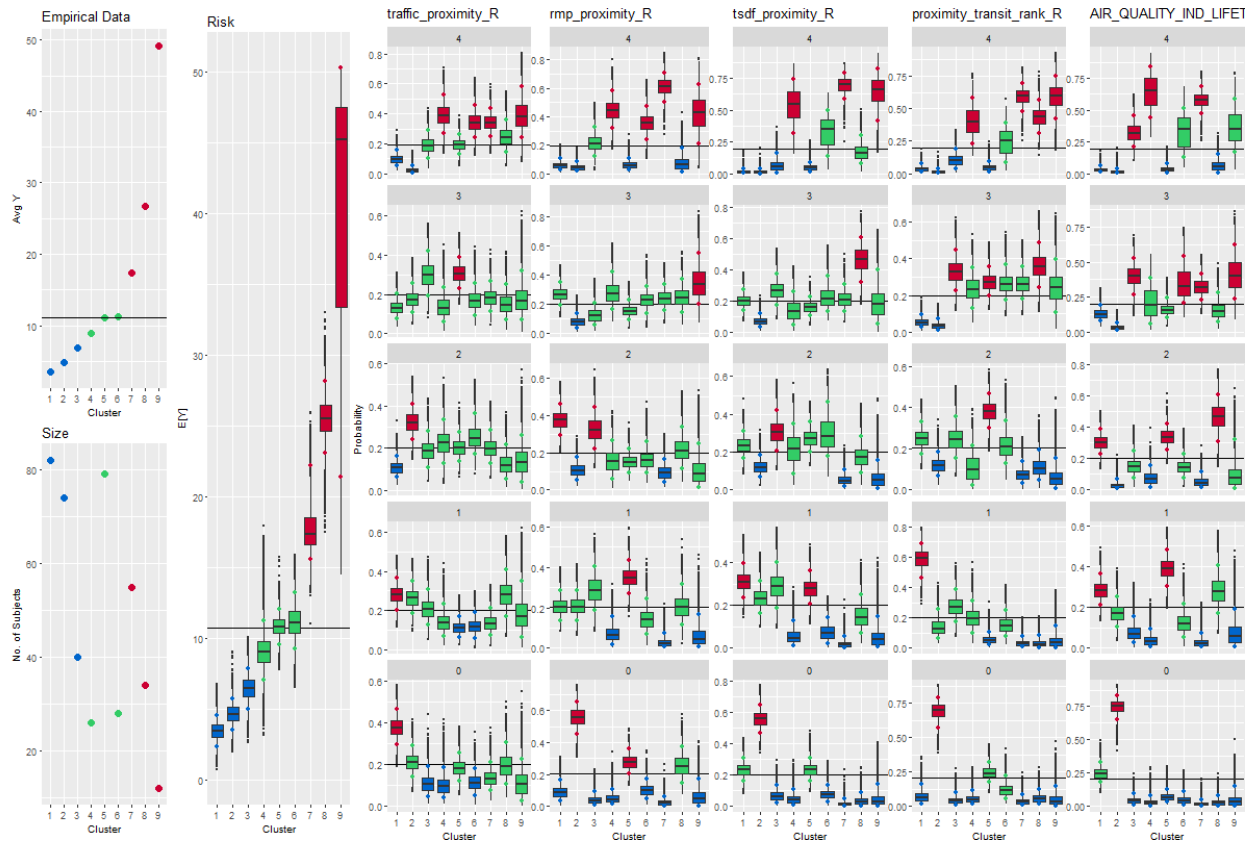


Figure A.3.7. Risk Profile Box Plots (Group 2)

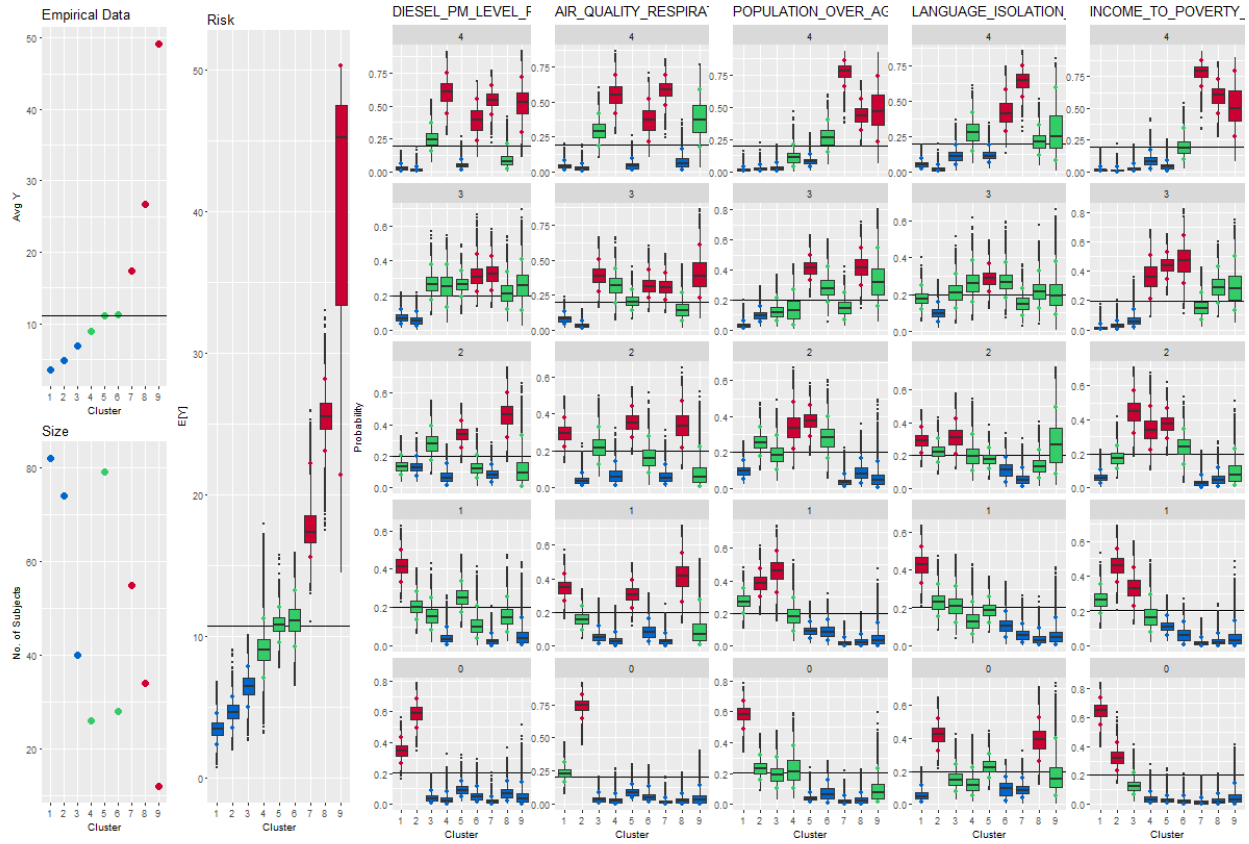


Figure A.3.8. Risk Profile Box Plots (Group 3)

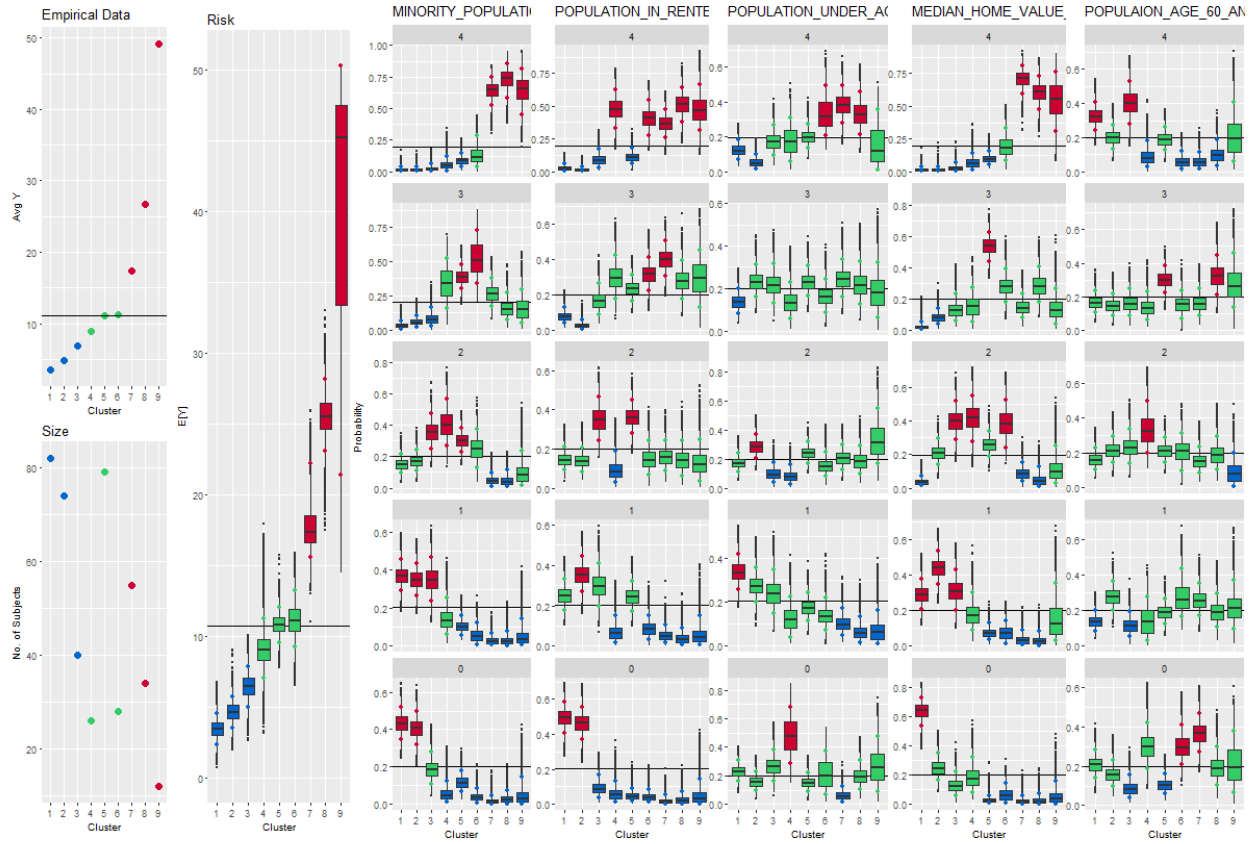


Figure A.3.9. Trace Plot - Alpha

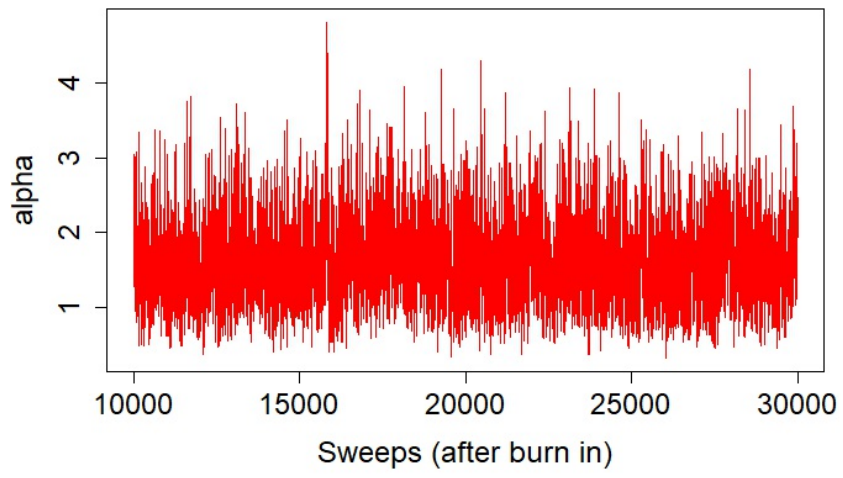
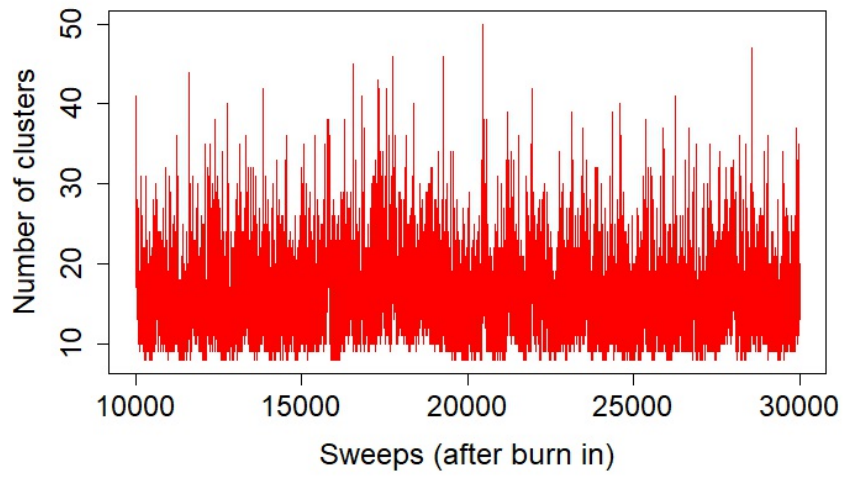


Figure A.3.10. Trace Plot - Number of Clusters



Figures & Graphs - BPR Results (Continuous Variable Selection)

Figure A.3.11. Risk Profile Box Plots (Group 1)

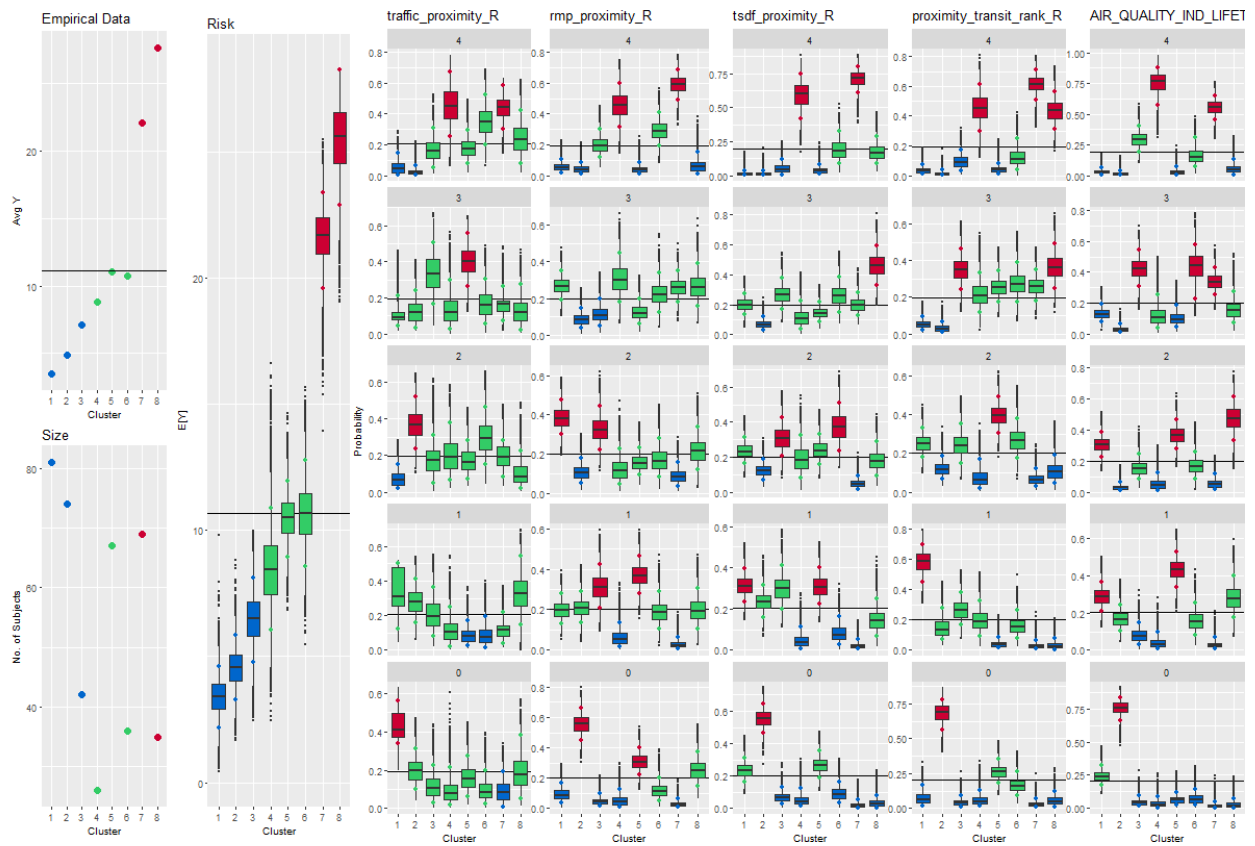


Figure A.3.12. Risk Profile Box Plots (Group 2)

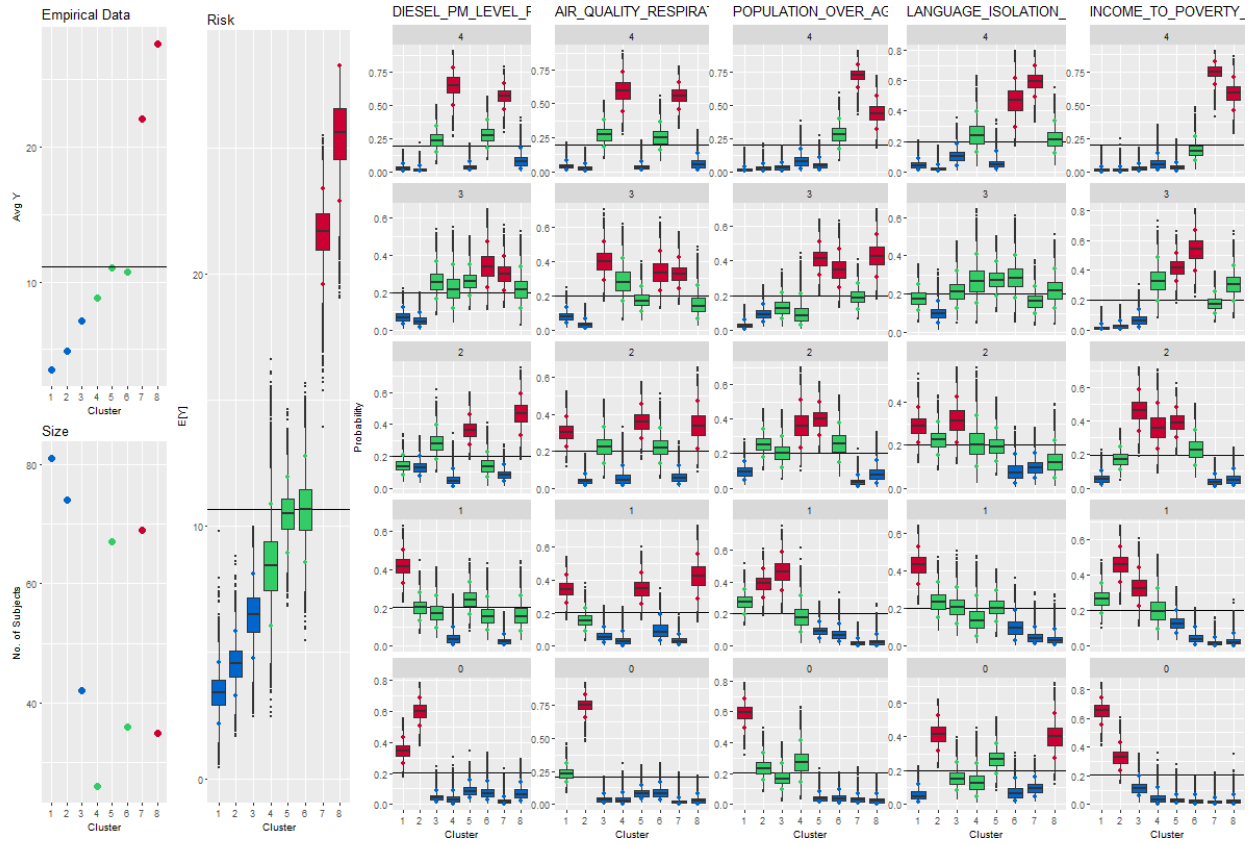


Figure A.3.13. Risk Profile Box Plots (Group 3)

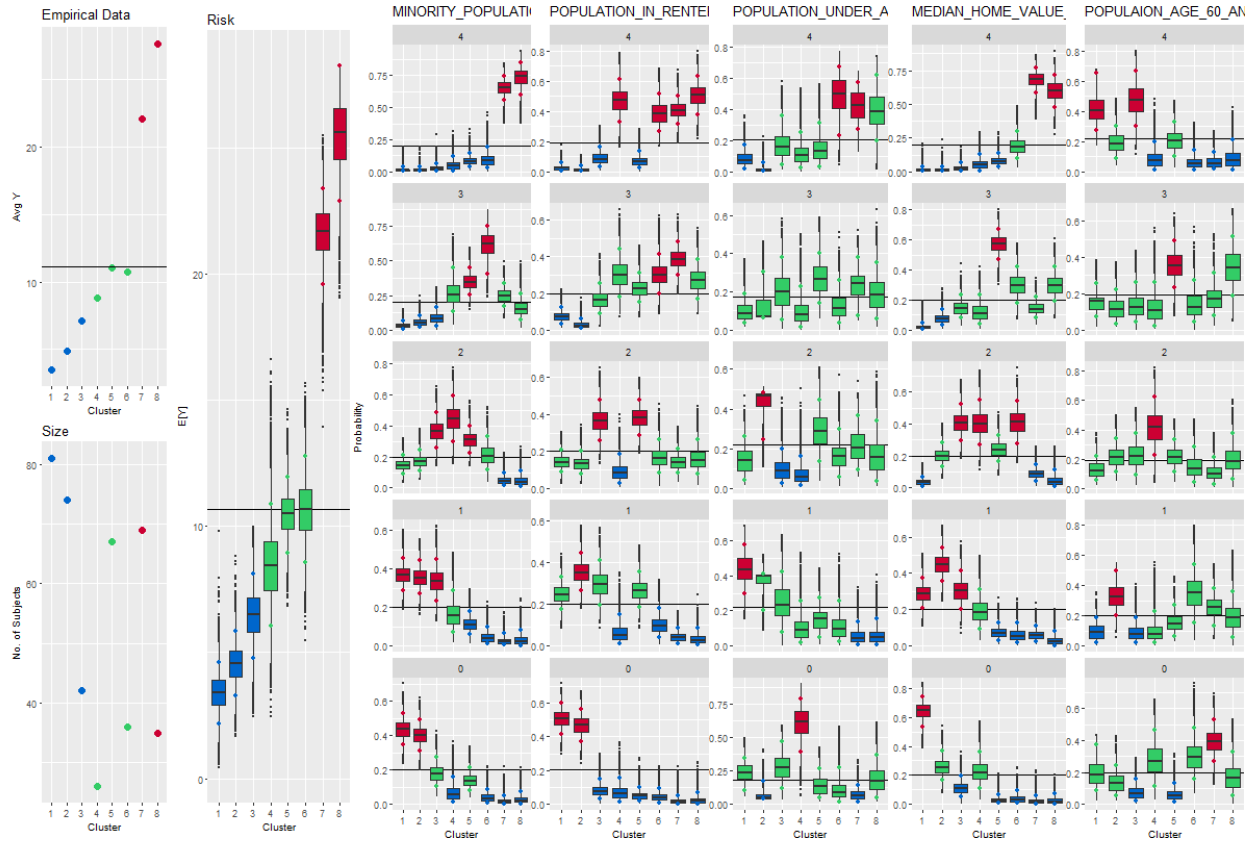


Figure A.3.14. Trace Plot - Alpha

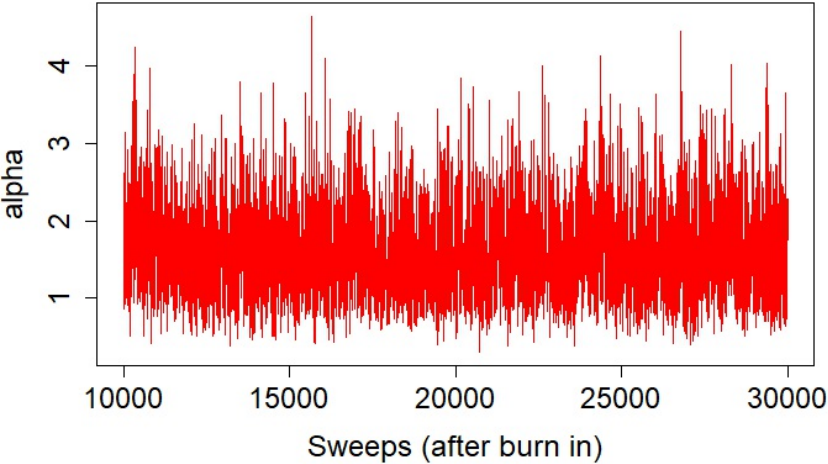
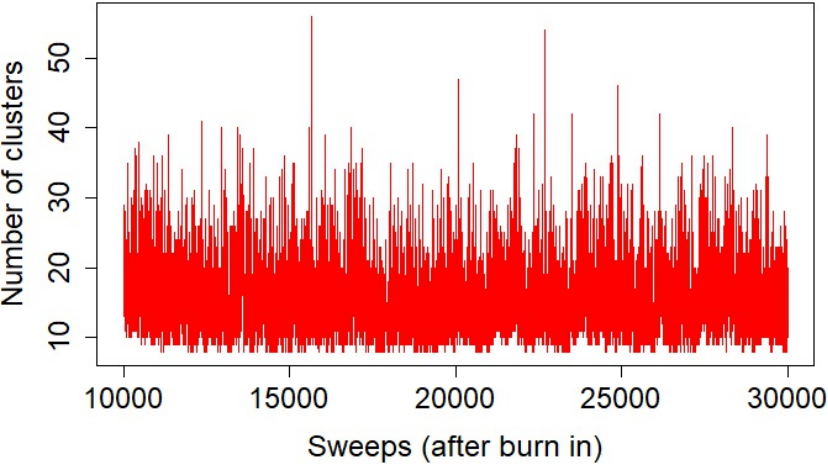
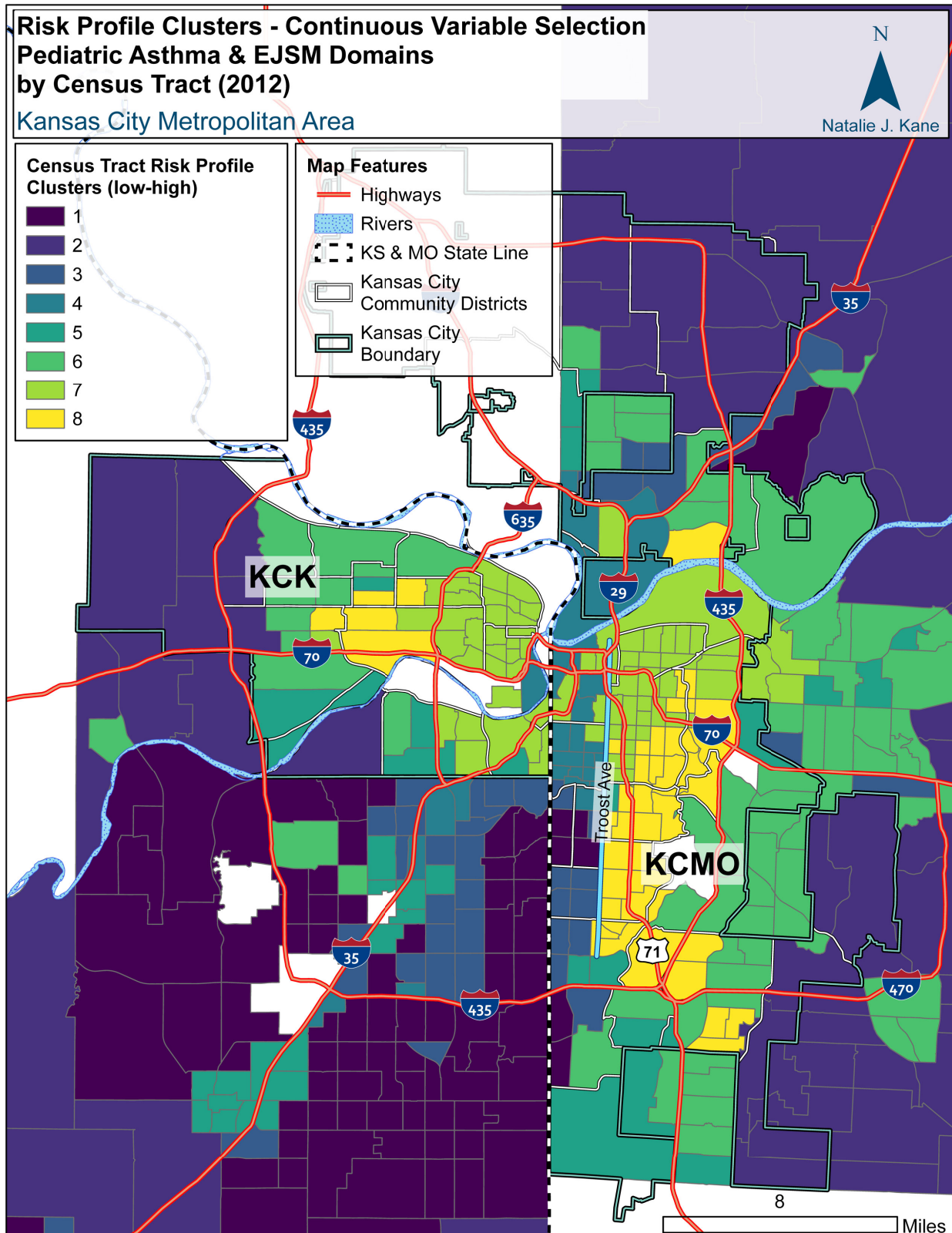


Figure A.3.15. Trace Plot - Number of Clusters

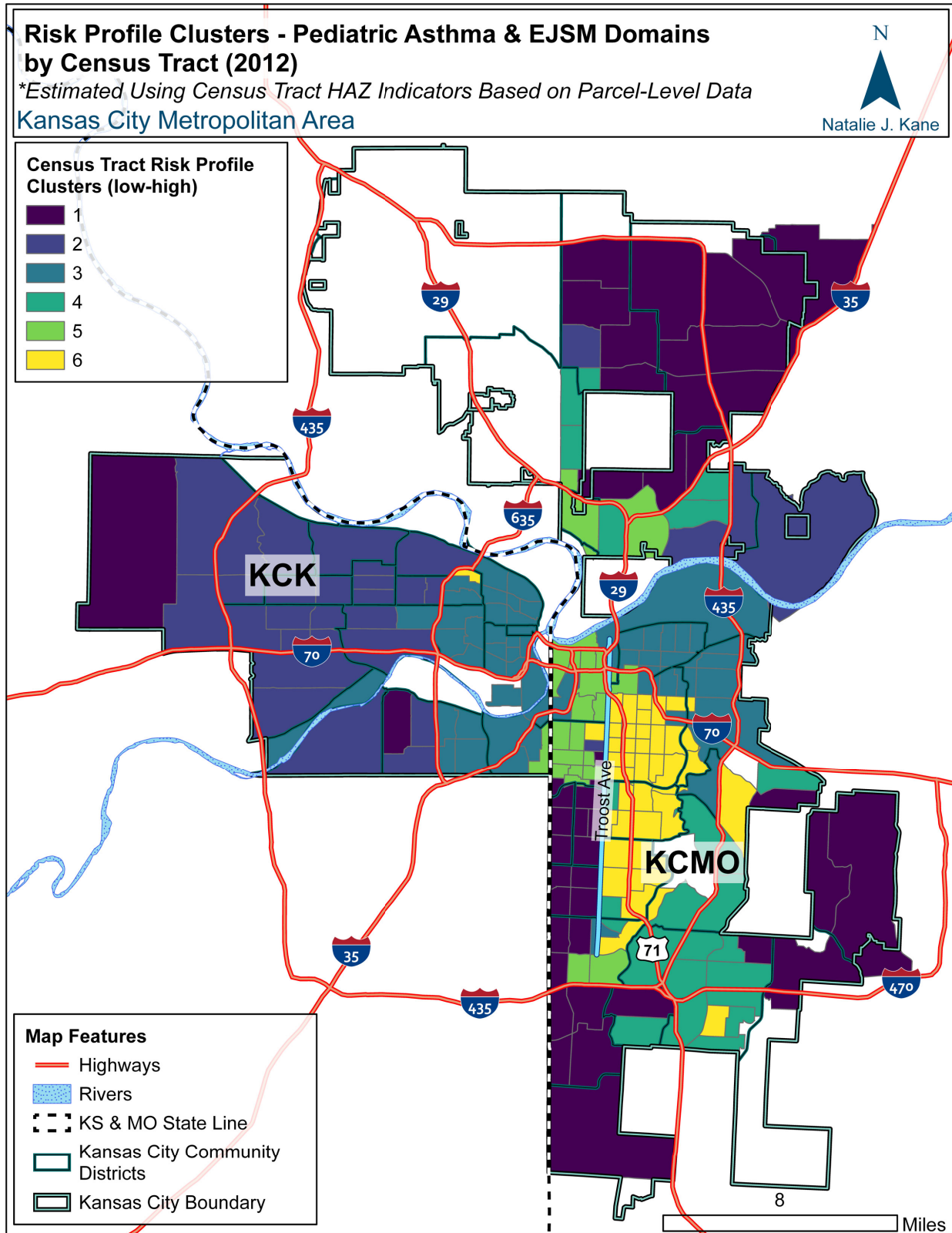


Maps

Map A.3.16. Census Tract Risk Profile Clusters (Continuous Variable Selection)



Map A.3.17. Census Tract Risk Profile Clusters - BPR Model with High-Resolution HAZ Domain Indicators



Map A.3.18. Census Tract Risk Profile Clusters - BPR Model with Primary HAZ Domain Indicators

