Spatial Regression:

Log likelihood: -841.9814 for lag model

## ML residual variance (sigma squared): 44.108, (sigma: 6.6414)

## Nagelkerke pseudo-R-squared: 0.51535

## Number of observations: 254

## Number of parameters estimated: 19

## AIC: 1722, (AIC for lm: 1725.2)

## LM test for residual autocorrelation

## test value: 1.2125, p-value: 0.27083

local

Global

| **Spatial Durbin Model** | **Spatial Durbin Error Model** |
| --- | --- |
| y=ρWy+Xβ+WXθ+εy=ρWy+Xβ+WXθ+ε | y=Xβ+WXθ+uy=Xβ+WXθ+u,   u=λWu+εu=λWu+ε |
| *Simplified to…* | *Simplified to…* |
| **SLX**   y=Xβ+WXθ+εy=Xβ+WXθ+ε | **Spatial Error**   y=Xβ+uy=Xβ+u,   u=λWu+εu=λWu+ε |
| *Simplified to…* | *Simplified to…* |
| **Spatial Lag**   y=ρWy+Xβ+εy=ρWy+Xβ+ε | **SLX**   y=Xβ+WXθ+εy=Xβ+WXθ+ε |
| *Simplified to…* | *Simplified to…* |
| **Spatial Error**   y=Xβ+uy=Xβ+u,   u=λWu+εu=λWu+ε | **OLS**   y=Xβ+ε |

ll.dist.k1 <- knn2nb(knearneigh(all.xy, k=1, longlat = **TRUE**))

all.dist.k3 <- knn2nb(knearneigh(all.xy, k=3, longlat = **TRUE**))

all.dist.k5 <- knn2nb(knearneigh(all.xy, k=5, longlat = **TRUE**))

closest 1, 3, and 5 neighbors + max distance to get 1,3, and 5

lag is

look for significant variables in the states and then use to create bivariate map to display socioeconomic information