Homework #3
Spatial Analysis

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TSCS Data Analysis

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1 Make a Map

Using the provided shapefiles (MEX_adm1_shp.zip) and population data (MEX_population_adm1.csv), produce a map of Mexico that shows the populations of its 32 (administrative) states.

2 Do Some Spatial Analysis

(a) Using the provided dataset and weights matrix, PRACTICAL1.csv and W1.csv respectively, test to see whether there is spatial clustering in the outcome variable (y), and report your results.

(b) If there is spatial clustering, determine whether it is attributable outcome interdependence, clustering in observables (x) or clustering in unobservables. Justify your conclusion using appropriate tests.

(c) Calculate the effect of x on y (dy/dx) and decompose this effect into its direct and indirect components.

(d) Which model is more appropriate for analyzing these relationships? Explain.

3 Democracy and Development

(a) Using the provided dataset and weights matrix, pwt2010.csv and Wpwt.csv respectively, test to see whether there is spatial clustering in the polity2 variable (y), and report your results.

(b) If there is spatial clustering, determine whether it is attributable outcome interdependence, clustering in rcpc (x) or clustering in unobservables. Justify your conclusion using appropriate tests.

(c) Calculate the effect of x on y (dy/dx) and, if there is outcome dependence, decompose this effect into its direct and indirect components.