

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.