

Parallel PySAL

Autoregression and Complex System Framework Integration

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August 11, 2014

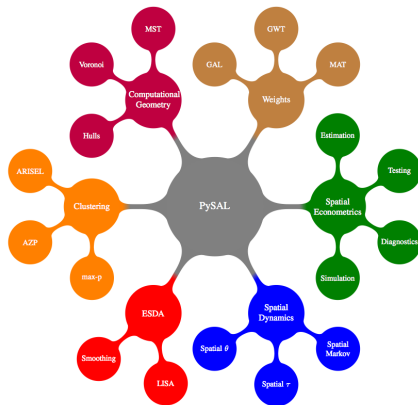
PySAL

Substantive Application: Spatial Econometrics

Implementation

PySAL

- ▶ Spatial analysis library
- ▶ Big data world
- ▶ v 1.8 July 2014



- ▶ contiguity builder
- ▶ max-p region
- ▶ p-lisa
- ▶ fisher jenks
- ▶ spatial regimes



Lessons Learned

- ▶ Hardware dependence
- ▶ No holy grail of automatic parallelization
- ▶ Need a roadmap = Taxonomy
 - ▶ Guidance on "best practice"
 - ▶ Identify dead ends

Spatial Econometrics



GeoDaSpace

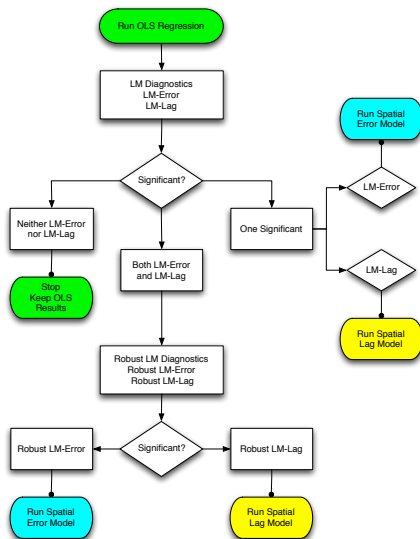
- ▶ GUI ontop of spreg
- ▶ Subset of spreg functionality
- ▶ Cross-platform



Specification Searches

- ▶ Specific to General
 - ▶ $y = X\beta + \epsilon$
 - ▶ OLS + Lagrange Multiplier Tests
- ▶ General to Specific
 - ▶ $y = \rho Wy + X\beta + (I - \lambda W)^{-1}\nu$
 - ▶ ML + Restrictions

LM Based Specification



ArcGIS Toolbox

Hardware

Parallel Strategy

Complex Systems Framework

Components for Autoreg