Zoning, Land-use Fragmentation And Environmental Justice In Early Phoenix, AZ

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Background

• Euclidean Zoning adopted by Phoenix in 1930 to promote urban health/efficiency through rigid separation of land-uses
• Effects of zoning have often run counter to this. Posited that zoning decisions in Phoenix have over time created "random" (fragmented) land-use designations (Talen 2011)
• Building from this: does the early onset of zoning in Phoenix promote fragmented land-uses within zones themselves?
• Comparison of land-use in Phoenix pre (1915) and post- (1949) zoning using parcel-level land-use coverages generated from Sanborn Fire Insurance Maps
• Environmental Justice emphasis: identifying community exposure to nuisances and hazards

Analysis

• Case study area: 1915 Sanborn Map Coverage of Phoenix
• Digitization/editing/analysis performed using ESRI ArcGIS
• Metrics: Variety (LU Heterogeneity): unique LU's/cell; Range (LU Incompatibility): Distance between LU classification scores. Higher Range = greater land-use conflict
• Aggregated to two 1/20 mile fishnets to capture block and corridor-level interaction effects

Results

• LU Heterogeneity and Incompatibility each spread with the onset of zoning in Phoenix
• Spread of nuisance LU's along major thoroughfares (Van Buren, Grand, Central) and clustering around CBD
• Increase 1915-1949 in residential exposure to nuisance land-uses: dispersion of nuisances
• Slight decrease 1915-1949 in residential exposure to environmental hazards: concentration of hazards
• Net decrease in LU homogeneity/compatibility: decrease in perfect homogeneity; increase of relative LU compatibility (i.e. along N. Central Ave corridor, RR-oriented land-uses)

Discussion

• Permissiveness of nuisance LU's (esp. automotive services, warehouses & wholesale) under Phoenix's original zoning ordinance
• Persistence of older minority neighborhoods within areas rezoned Gen. Commercial and Light Industrial
• Multifamily Residential zones as buffers between homogeneous, racially-restrictive single-family neighborhoods and disamety zones
• Homebuilding boom, automobile dependency 1920s+: distancing of Phoenecian suburbs from expanding industry and problems of CBD; Boosterism thrives
• Onset of postwar Phoenix sprawl amid decaying CBD

Future Directions

• Incorporation of a larger time series of Sanborn Maps for future research (1890s-1960s)
• Spatial modeling of parcel-level land-use change in central Phoenix
• Assessment of zoning change (re zoning and variances) in Phoenix from the postwar era to present

Sources

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