

Migration vs. Commuting as Poverty Reduction Strategies: Applications of Social Network Analysis to US County Data

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Today's Agenda

- Review of earlier county-level research, hypotheses and policy implications
- County Commuting and Migration as Social Networks
- Social Network Effects on Poverty Change
- Policy Implications: Preliminary

Brief Review of Earlier Results: Effects on poverty rate change

- Big-Box Retailers (+)
- Self-employment/Proprietorships (-)
- Migration (?)
- Social Capital (-)
- Political Competition (-)



Goetz, S.J. and H. Swaminathan, "Wal-Mart and County-Wide Poverty," *Social Sciences Quarterly*, 83, 2 (2006): 211-225.

Rupasingha, A. and S.J. Goetz, "Social and Political Forces as Determinants of Poverty," *Journal of Socio-Economics*, 36, 4 (Aug. 2007): 650-671.

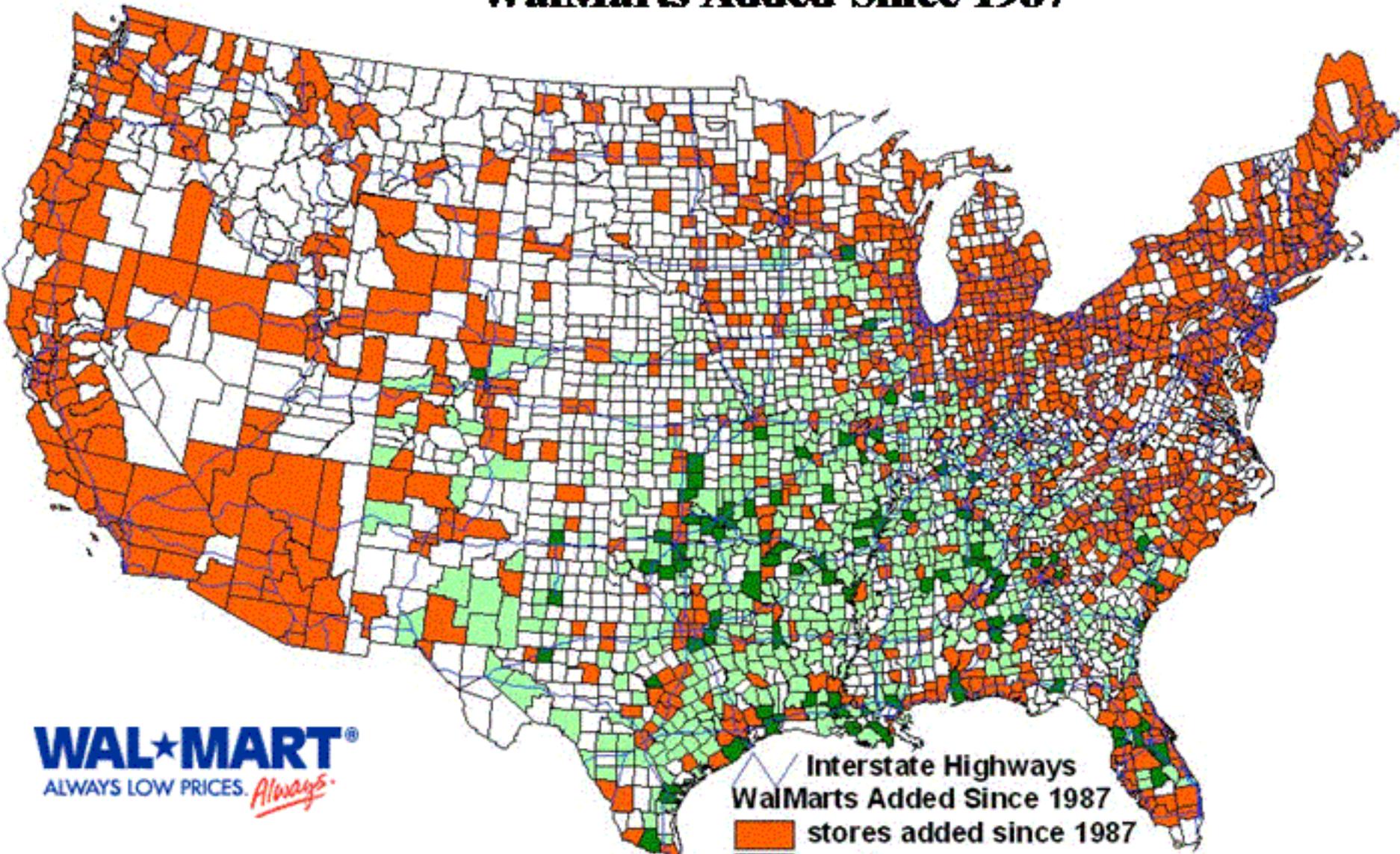
Goetz, S.J. and S.S. Shrestha, "Explaining Self-Employment Success and Failure: Wal-Mart vs. Starbucks or Schumpeter vs. Putnam," *Social Science Quarterly*. 91, 1 (2009):22-38.

Earlier Results: Big-Box Retailers

- Presence of big-box retailers associated with higher poverty rates, and a smaller reduction in poverty during the 1990s
- True after controlling for selection effects (Wal-Mart locates in poorer communities)
- Assumption re: price effects
- Public policy implications?



WalMarts Added Since 1987



WAL★MART®
ALWAYS LOW PRICES. *Always.*

- Interstate Highways
- WalMarts Added Since 1987
- stores added since 1987
- no stores
- 1987 WalMart Locations
- 1 store
- 2 or more



Earlier Results: Self-Employment

- More self-employment (entrepreneurship) in 1990 associated with lower poverty rates in 2000; counter to expectations
- Policy implication: provide more awareness-building and training opportunities
- ARC has recognized this



Earlier Results: Migration

- Having more non-movers (1985-90) associated with higher poverty rates in 2000
- In- and out-migration is beneficial
- Out-migration does not concentrate poverty

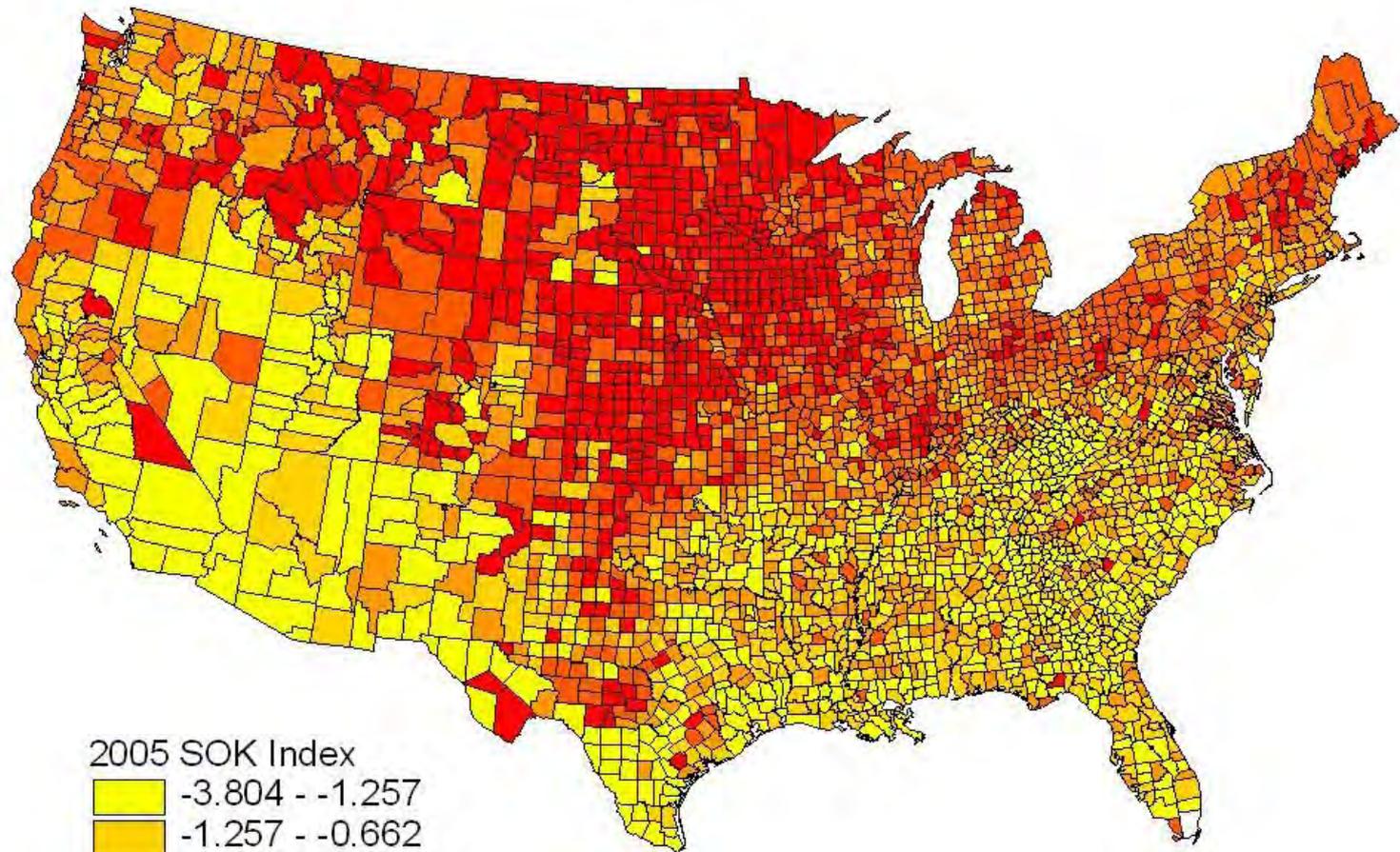


Earlier Results: Social Capital

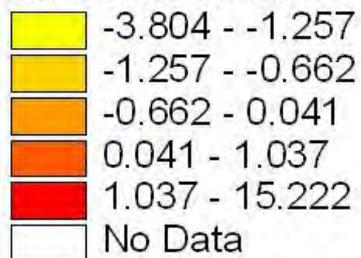
- Communities with higher stocks of social capital have lower poverty rates
- Social capital = glue that holds society together, reduces transactions costs
- Policy recommendations?
Soc. Cap. difficult to “create”



County-Level Social Capital, 2005



2005 SOK Index

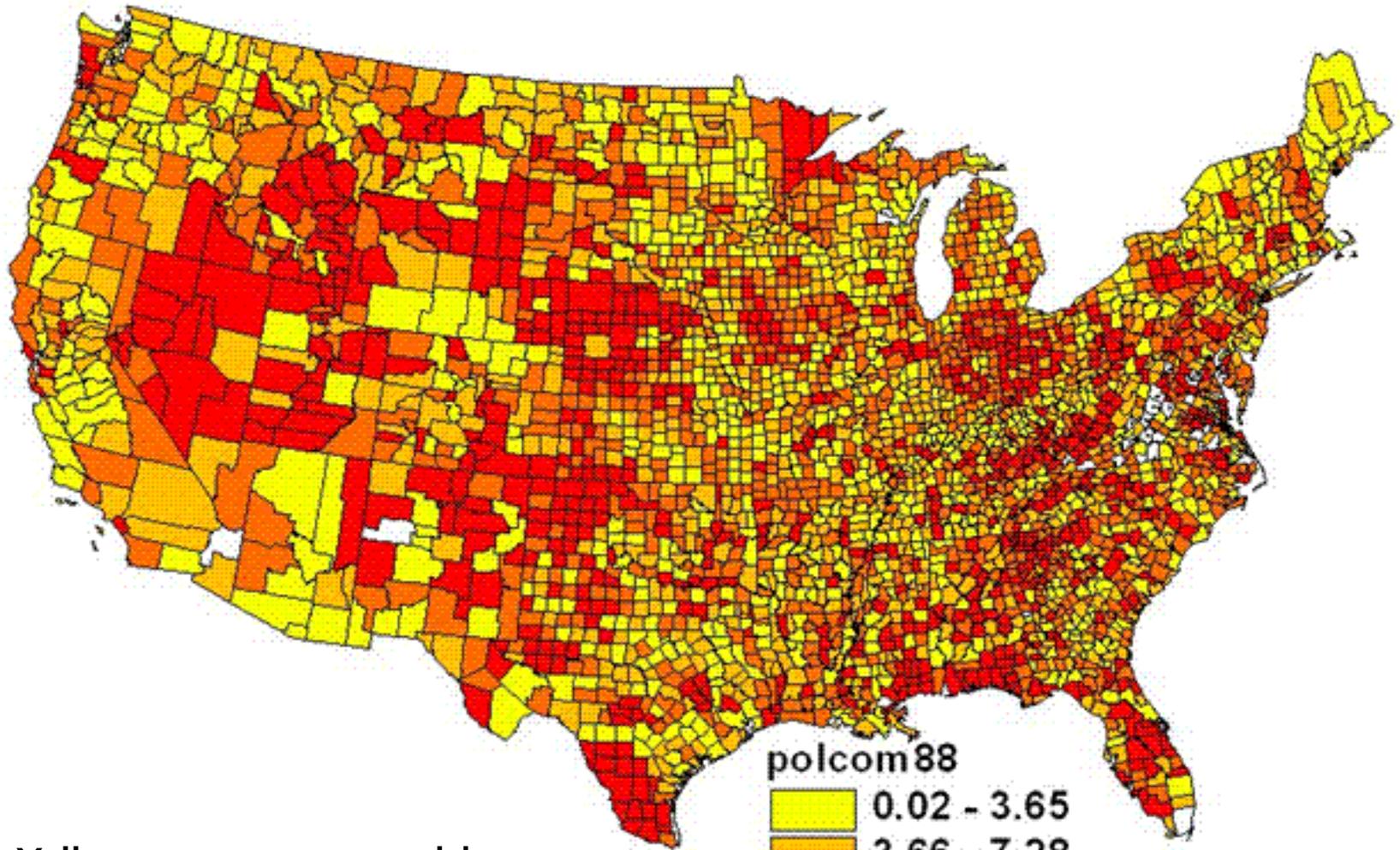


Earlier Results: Political Competition

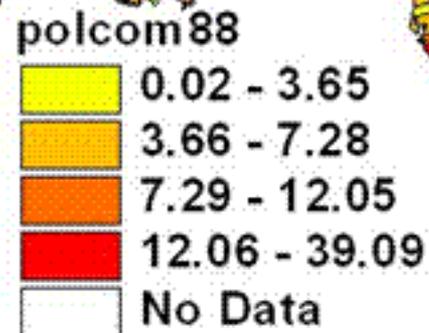
- Greater competition between political parties in 1988, 1992 associated with lower poverty rates in 2000
- NOT a question of Dems vs. Reps, but of competition (markets) for ideas
- Support more local leadership programs?



Political Competition Index, 1988



Yellow = strong competition
Red = weaker competition



Social Network Analysis

- Motivation: Growing recognition that social networks are important and that they can affect economic activity, and growth
- Economic vs. Social Man
- From Granovetter's job seeker to aggregate, county-level analysis
- Can social networks be measured at county-level, and do they make a difference?

Extensions/work in progress, and co-author acknowledgements

- Goetz, S.J., Y. Han, J. Findeis and K.J. Brasier, U.S. “Commuting Networks and Economic Growth: Measurement and Implications for Spatial Policy,” NE-RCRD and Penn State Univ., University Park, PA. *in progress*.
- Goetz, S.J., Y. Han and K.J. Brasier, “Migration vs. Commuting as Poverty Reduction Strategies: Applications of Social Network Analysis to US County Data,” NE-RCRD and Penn State Univ., University Park, PA. *in progress*.

Social Network Analysis

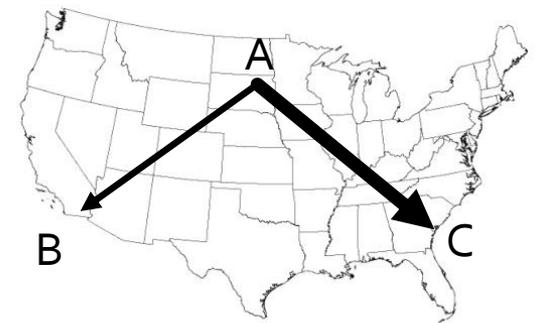
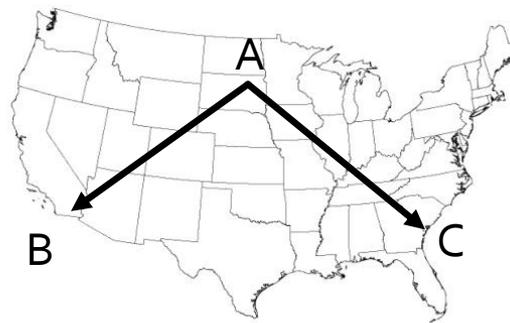
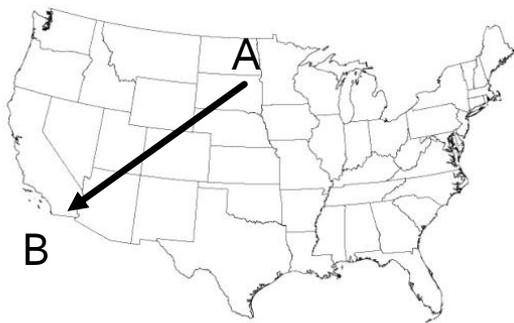
- Hypotheses: Greater county centrality within migration and commuting networks leads to lower poverty/greater poverty reduction
- Tacit information spillovers (commuters)
- Reverse knowledge flows from migration target
- Data: 3,000 by 3,000 matrix of counties with gross in- and out-flows
 - Migration: 1995-2000
 - Commuting: 2000

Network Centrality Measures

- Entropy
 - Increases with the number of destination (origin) counties and variation in the number traveling to each destination (origin)
- Closeness
 - How directly a county can send info to another county without relying on others
- Betweenness
 - To what extent does a county serve to relay info between two or more other counties (brokers)

Entropy centrality measure

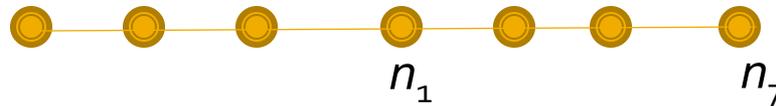
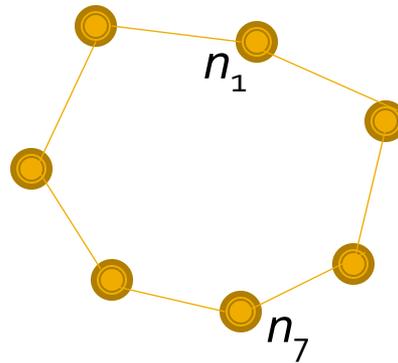
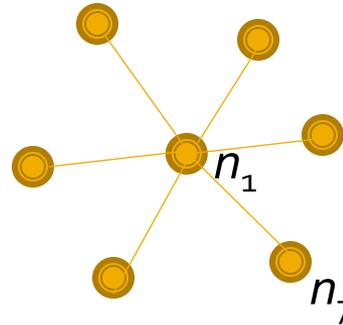
- Increases with more targets, more diverse numbers migrating or commuting



Lower Entropy  Higher Entropy

Social Network Basics

- Star graph
- Circle graph
- Line graph



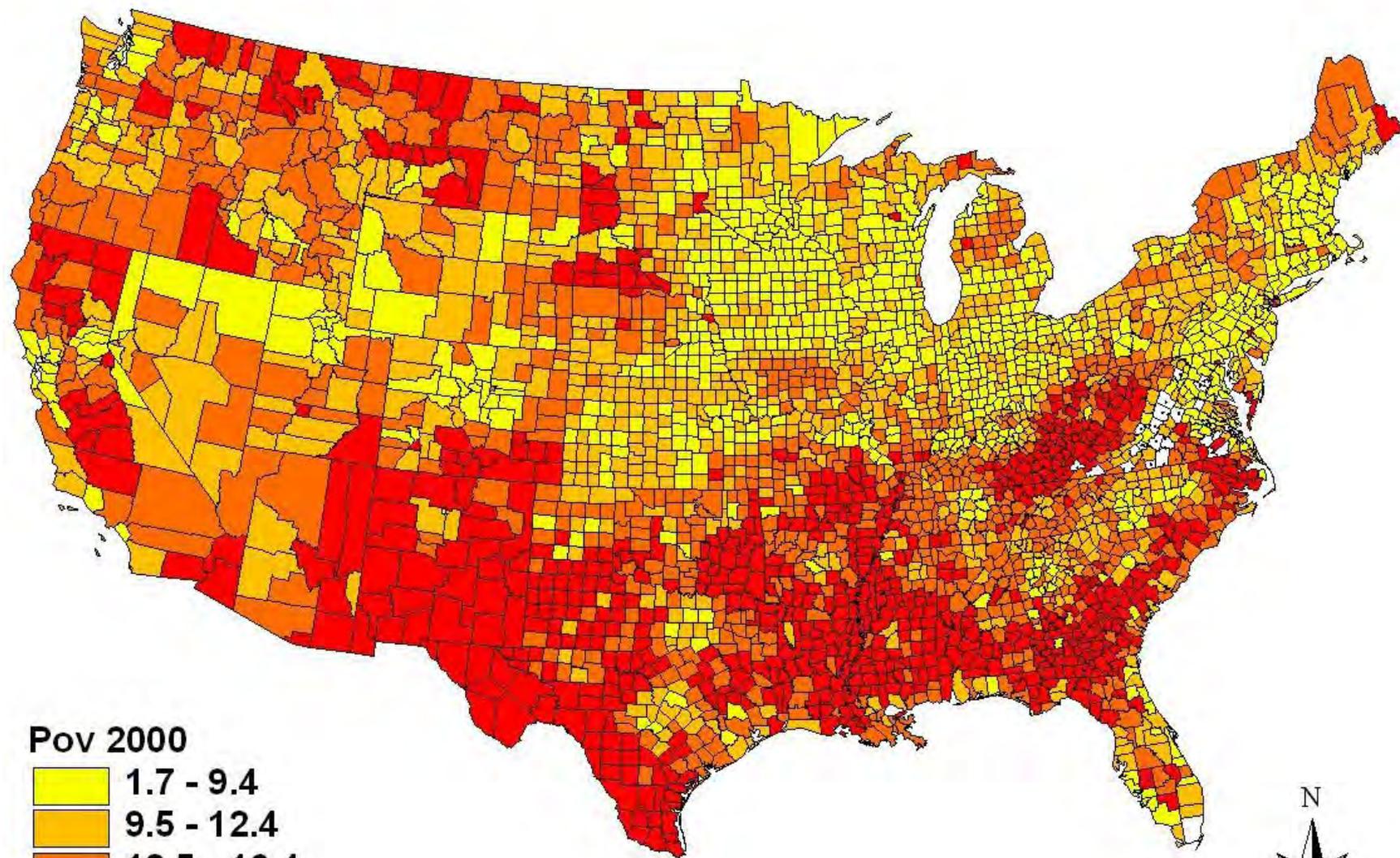
*Closeness vs.
Betweenness*

Regression Model

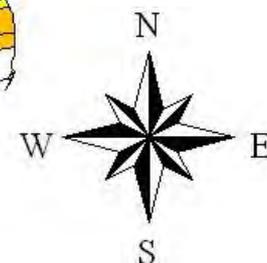
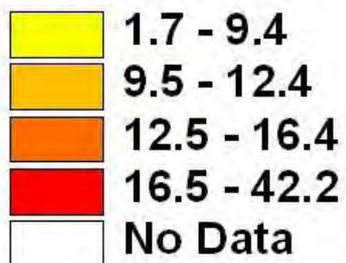
$$\Delta\text{Pov} = \beta\text{Pov}_t + \gamma\Omega_t + \zeta\text{Mig}_t + \vartheta\text{Com}_t + \lambda\text{SFE}_t$$

- ΔPov = change in poverty rate, 2000-2007
- Pov_t = poverty rate in 2000
- Ω_t = other measurable causes of poverty, 2000
- Mig_t = migration measures, 1995-2000
- Com_t = commuting measures, 2000
- SFE_t = State fixed effects; 3,000+ US counties
- *Changes* more difficult to model than *levels*

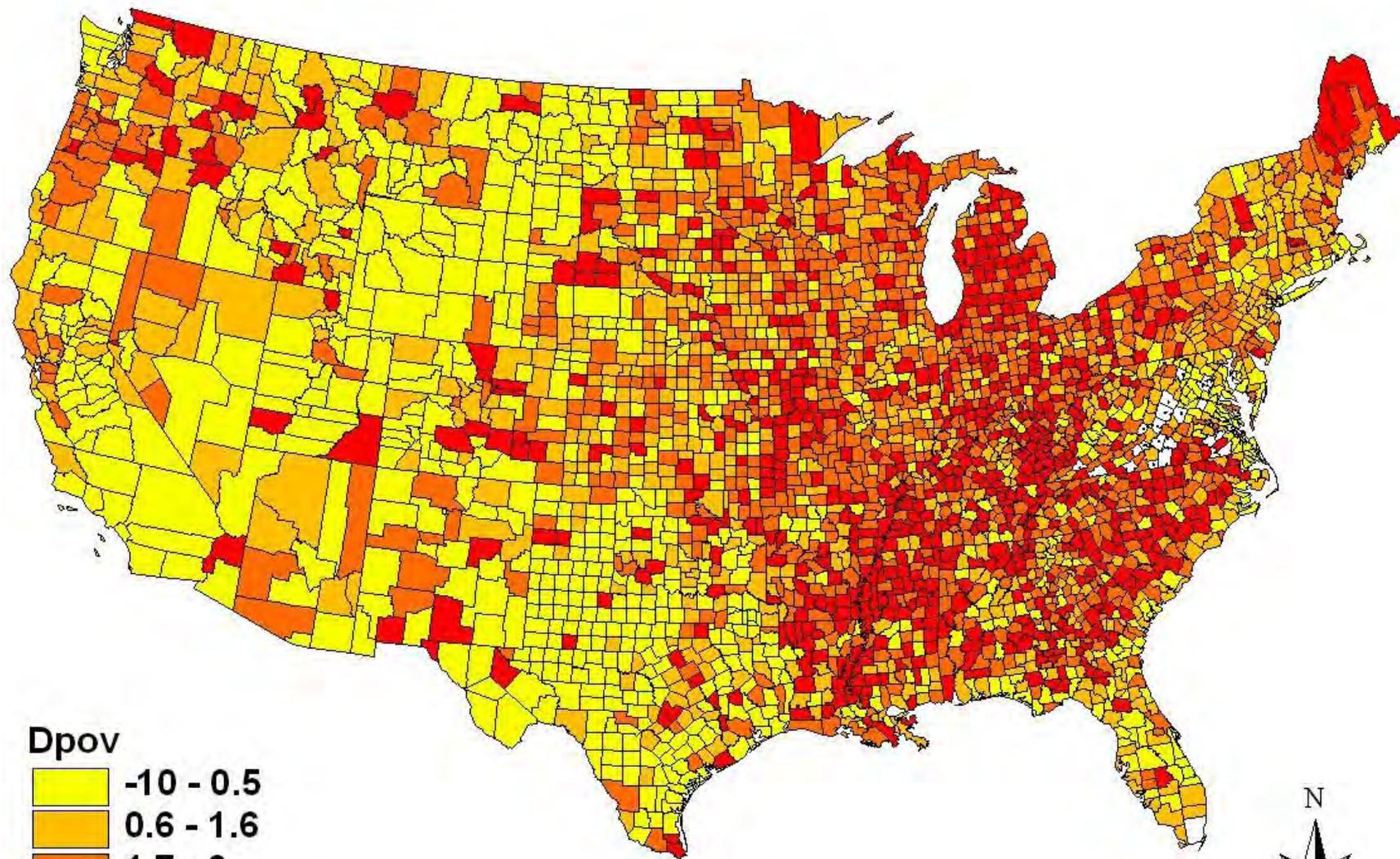
Poverty Rate, 2000



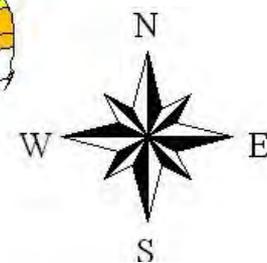
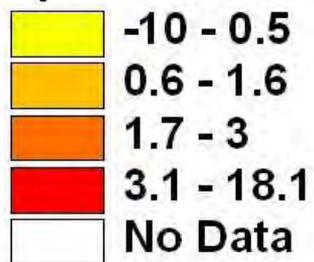
Pov 2000



Change in the poverty rate, 2000-2007



Dpov

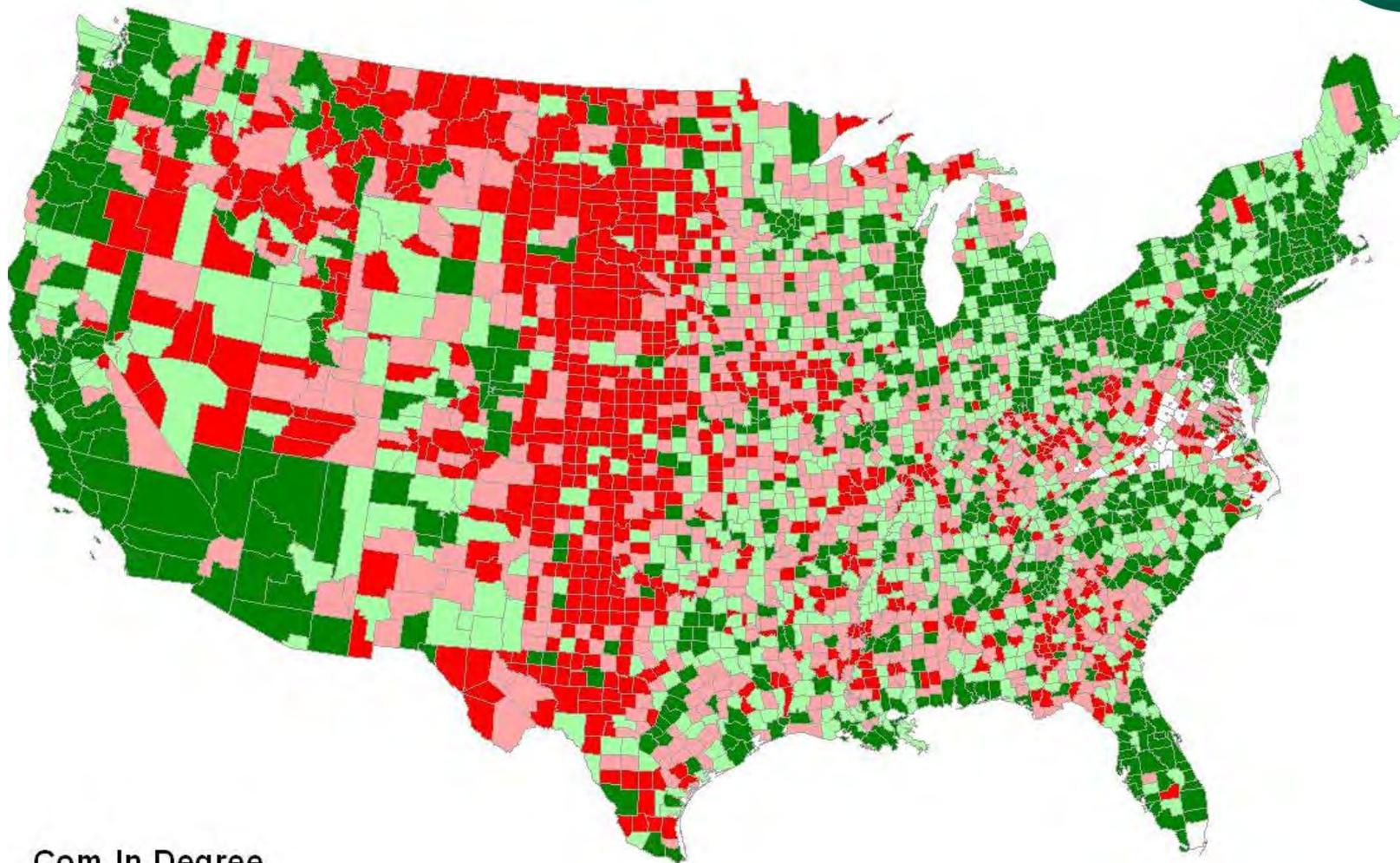


Regression Model: Key Results

What Matters (effect on poverty rate change):

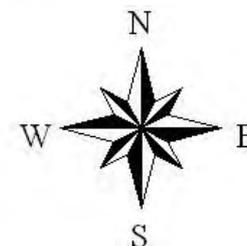
- Recent (lagged) employment growth (–)
- Higher employment-to-population ratio (–)
- Share of workers who live where they work (+)
- College attainment (–)
- Share of population 18-24 years old (+)
- Higher stocks of social capital (–) *weak effect*

Commuting In-Degrees (number of commuters), 2000

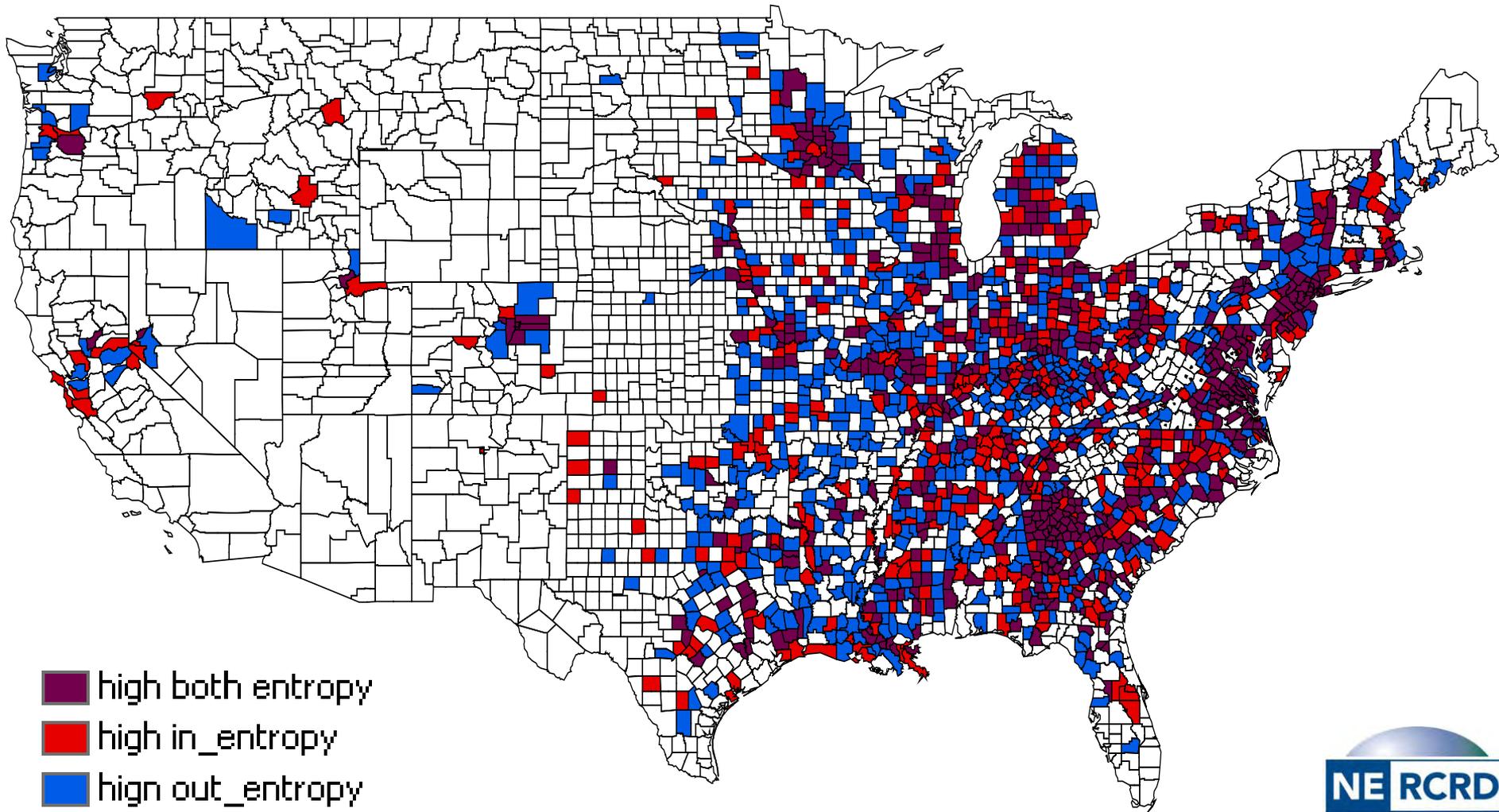


Com In Degree

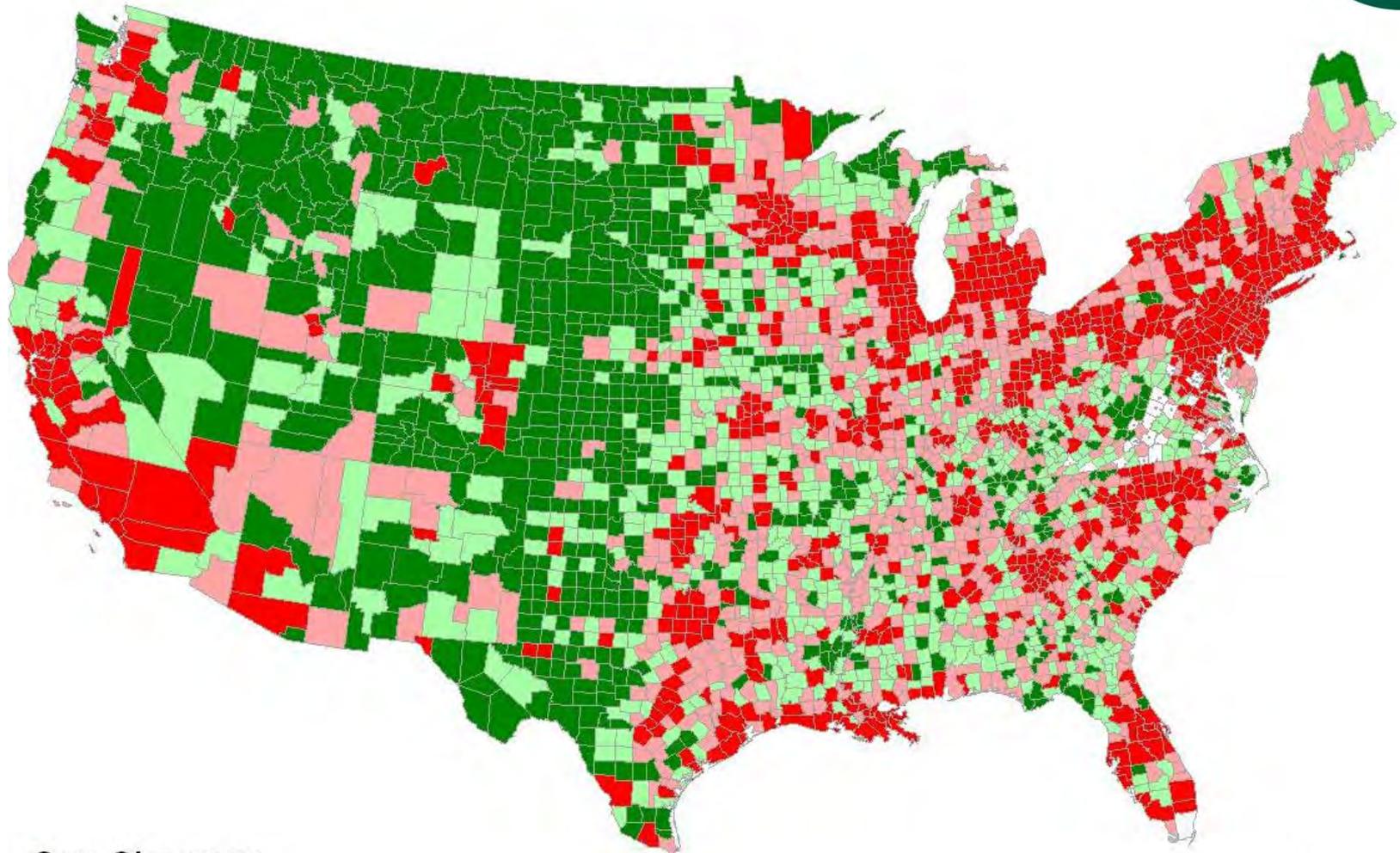
	0.015 - 1.15
	1.15 - 2.849
	2.849 - 7.715
	7.715 - 1302.788
	No Data



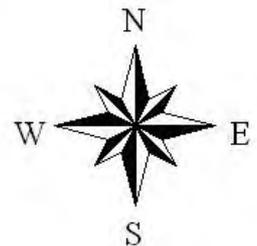
Counties with High Commuting Entropies (in and out), 2000



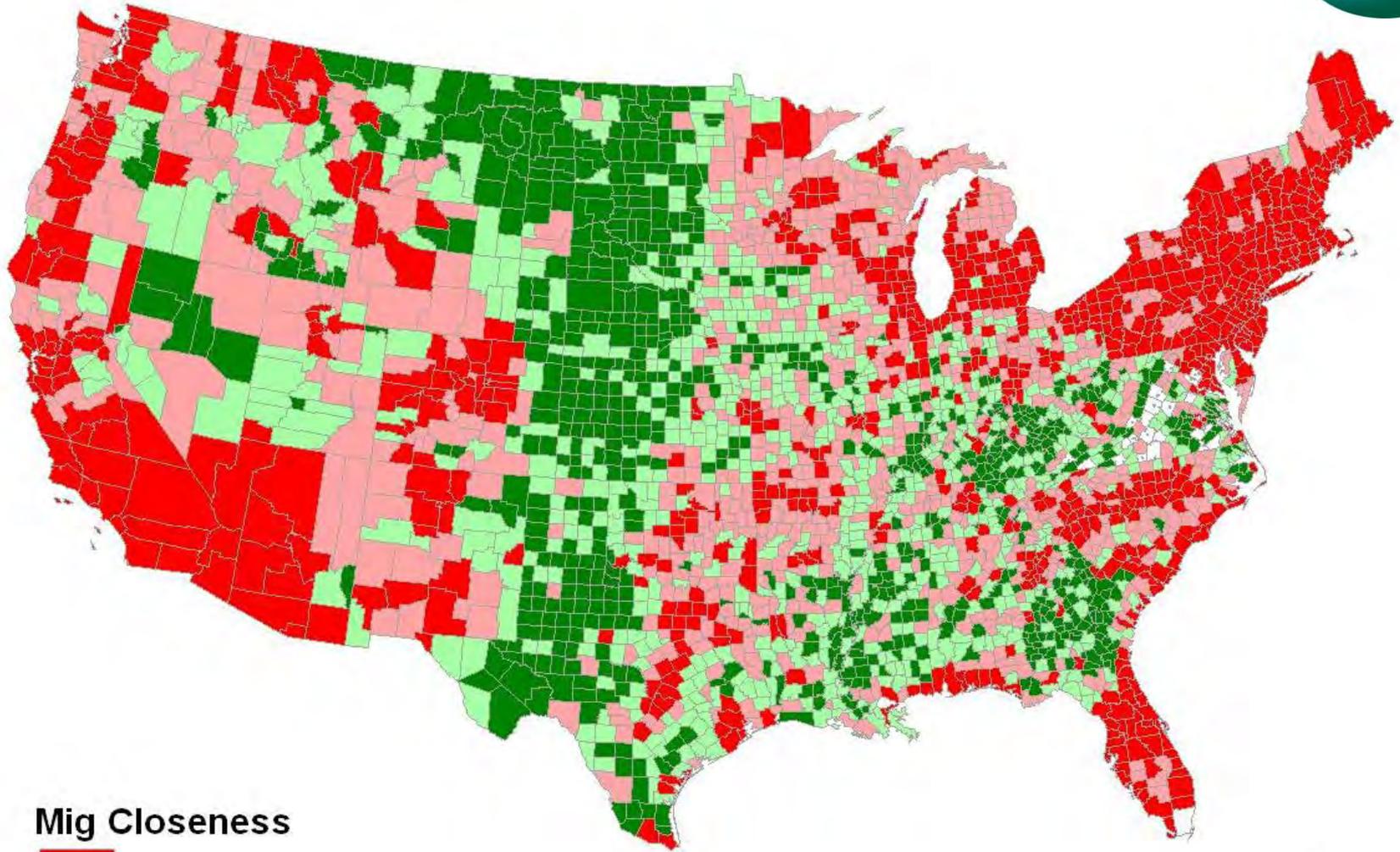
Commuting Closeness, 2000



Com Closeness

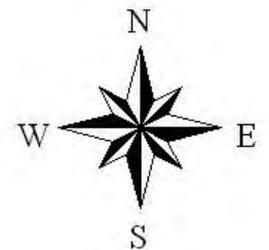


Migration Closeness, 2000

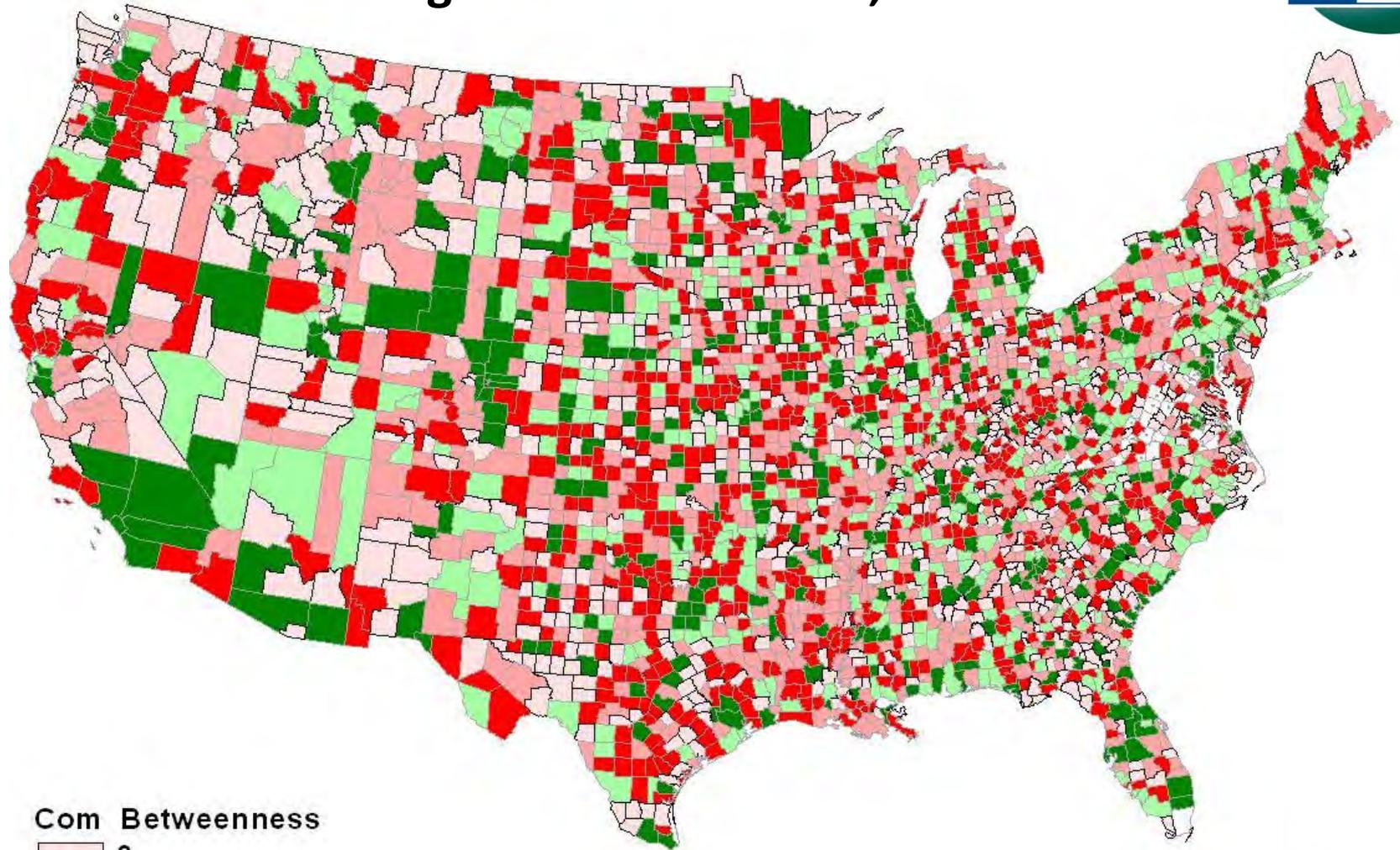


Mig Closeness

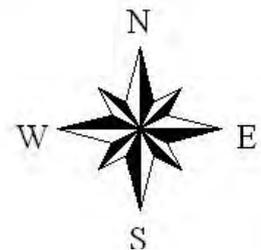
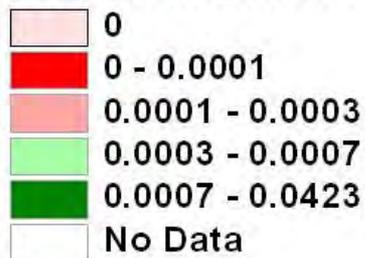
-  Very high
-  Higher
-  Lower
-  Very low
-  No data



Migration Betweenness, 2000



Com Betweenness



Regression Model: Network Results

Dependent variable = change in poverty rate

<i>Measure</i>	Migration	Commuting
In-degree (number)	+	-
Out-degree (no.)	-	+
In Entropy	+	+
Out Entropy	-	
Closeness	-	
Betweenness		+

Summary and Conclusion *Preliminary*

- Networks seem to matter, but effects are not always in expected direction
- Perspective is important: one county's solution to poverty becomes another's problem (more refined, regional analysis is needed – e.g., for Appalachia only)
- Sub-regional, neighborhood analyses needed
- Improved information flows, including about labor markets, may be important