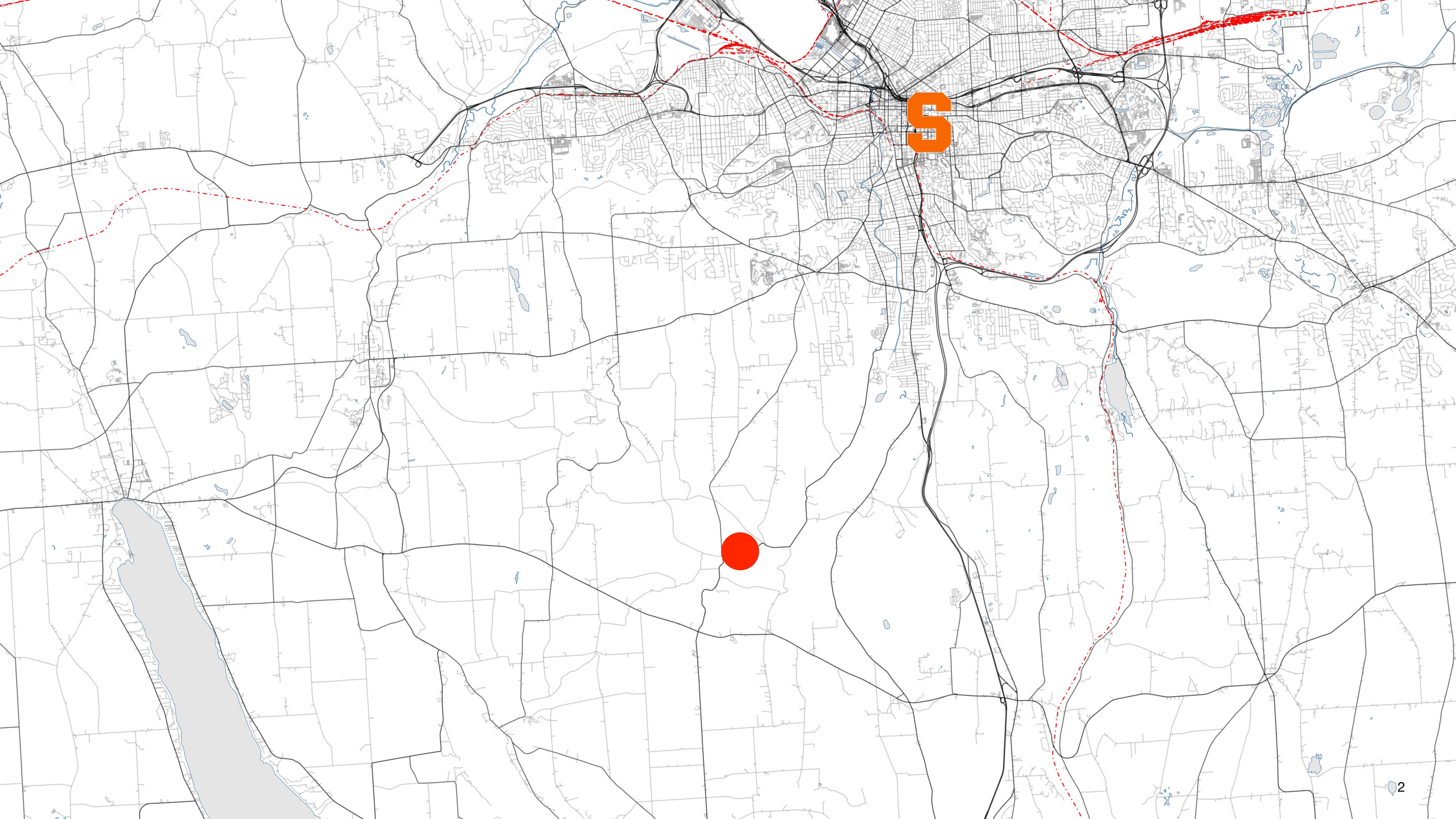


Geography, Rurality, Politics, and Public Policy

Jack Reilly



Educational Background

- **Reed College** (BA, 2005)
 - *Philosophy of Mind, Ethics, Artificial Intelligence*
- **University of California, Davis** (PhD, 2013)
 - *American Politics, Computational Social Science, Social Networks*
- **New College of Florida** (Assistant/Associate Professor)
 - *Courses for Quantitative Social Science, Political Science, Urban Studies, Public Policy areas of study*

What am I interested in?

- **Policy Attitudes:** How the contexts (geographic, social, racial, and political) in which actors make decisions influence their opinions, behavior, and policy choices
- **Policy Responsiveness, Congruence, and Representation:** How policy attitudes in the population are reflected by policy choices of their representatives
- I particularly like models and methodology in teaching and research. *How do we know what we know?*

Core areas of teaching

(example courses, workshops, and tutorials)

Research Methodology

Research Design Workshop

*Senior Seminar/
Honors Thesis*

Political Behavior Lab

Survey Methods

Experimental Methods

Modeling in Social Science

Statistics & Computation

Applied Quantitative Analysis I

Applied Quantitative Analysis II

Intro to Statistical Programming in R

Intro to R for Social Networks & Social Network Analysis

Intro to R for GIS & Political Geography

Data Visualization & Presentation

Substantive US Politics & Policy

Policy Attitudes & Public Opinion

Representation, Policy Processes, & Policy Congruence

Behavioral Political Economy

*Artificial Intelligence:
Theory, Politics, and Policy*

Rural Politics & Policy

Campaigns & Elections

Political Behavior Lab

- **Student Research**
 - Focus on collaborative, reproducible quantitative data projects in politics & policy
 - 18 undergraduate students have given 32 presentations of collaborative or sponsored research at professional conferences since lab start in 2016
- **Outcomes**
 - Seven former students at PhD Programs in Politics and/or Policy (Northwestern, Michigan, Cornell, UC Davis, Florida State, Georgia State); one more has been accepted and begins next year or the year after
 - Several in MA or MS programs in quantitative areas; several others in JD programs
 - Others: data engineers, data analysts, GIS analysts, business analysts, policy analysts, schoolteachers

My career

- Committed teacher and instructor
 - Especially in research methods and analysis, presentation, and communication
- Teaching has driven me towards liberal arts settings
 - However: I miss the richness and intellectual stimulation of a larger institutional environment
- Balance of a teaching-centric position in a school like Maxwell: yes, please!

Geography, Rurality, Politics, and Public Policy

“for all the research on urban politics, there is no remotely comparable body of accumulated wisdom on rural populations”

Gimpel and Karnes (2006)

“research on agrarian political behavior is scant [. . .] the comprehensive treatment that farm politics receive in *The American Voter* has not been approached elsewhere.”

Lewis-Beck (1977)

“political geographers should not be so concerned with demonstrating that context matters”

King (1996), “Why Context Should Not Count”

and then . . .
2016

Revenge of the rural voter

Rural voters turned out in a big way this presidential cycle – and they voted overwhelmingly for Donald Trump.

By HELENA BOTTEMILLER EVICH | 11/13/2016 07:08 AM EST



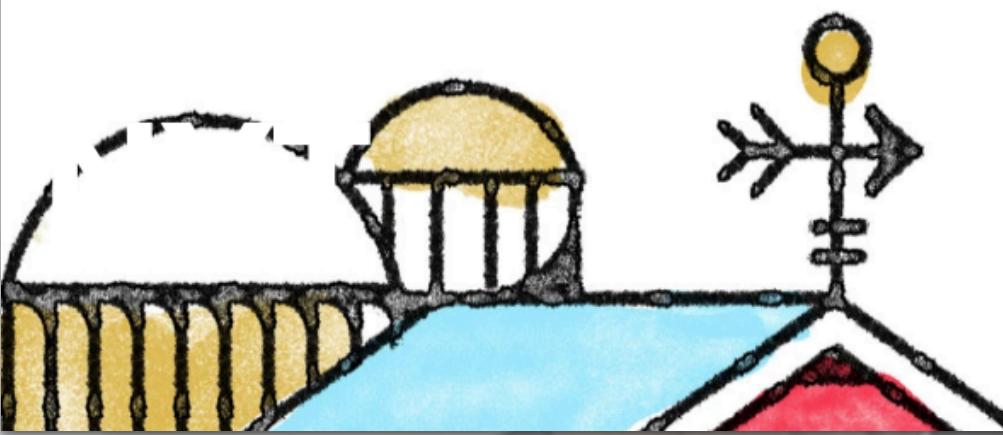
Opinion

LETTERS

How the Democrats Can Win in Rural America

Readers suggest the ephemeral and the concrete.

Nov. 22, 2018



Pew Research Center

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PUBLICATIONS TOPICS DATASETS METHODS INTERACTIVES

FACTANK
NEWS IN THE NUMBERS

NOVEMBER 17, 2016

Behind Trump's win in rural white

AGRICULTURE

npr set station news arts & life music programs

shop

POLITICS

Rural Voters Played A Big Part In Helping Trump Defeat Clinton

November 14, 2016 · 10:32 AM ET

DANIELLE KURTZLEBEN



The New York Times

OPINION
GUEST ESSAY

A Policy Renaissance Is Needed for Rural America to Thrive

Dec. 27, 2022



**It's not just the
popular press**

Outline

Highlights

1. Election numbers: the predictable and the unexpected

2. Landscapes of despair

3. Despair and the Election

4. Conclusion

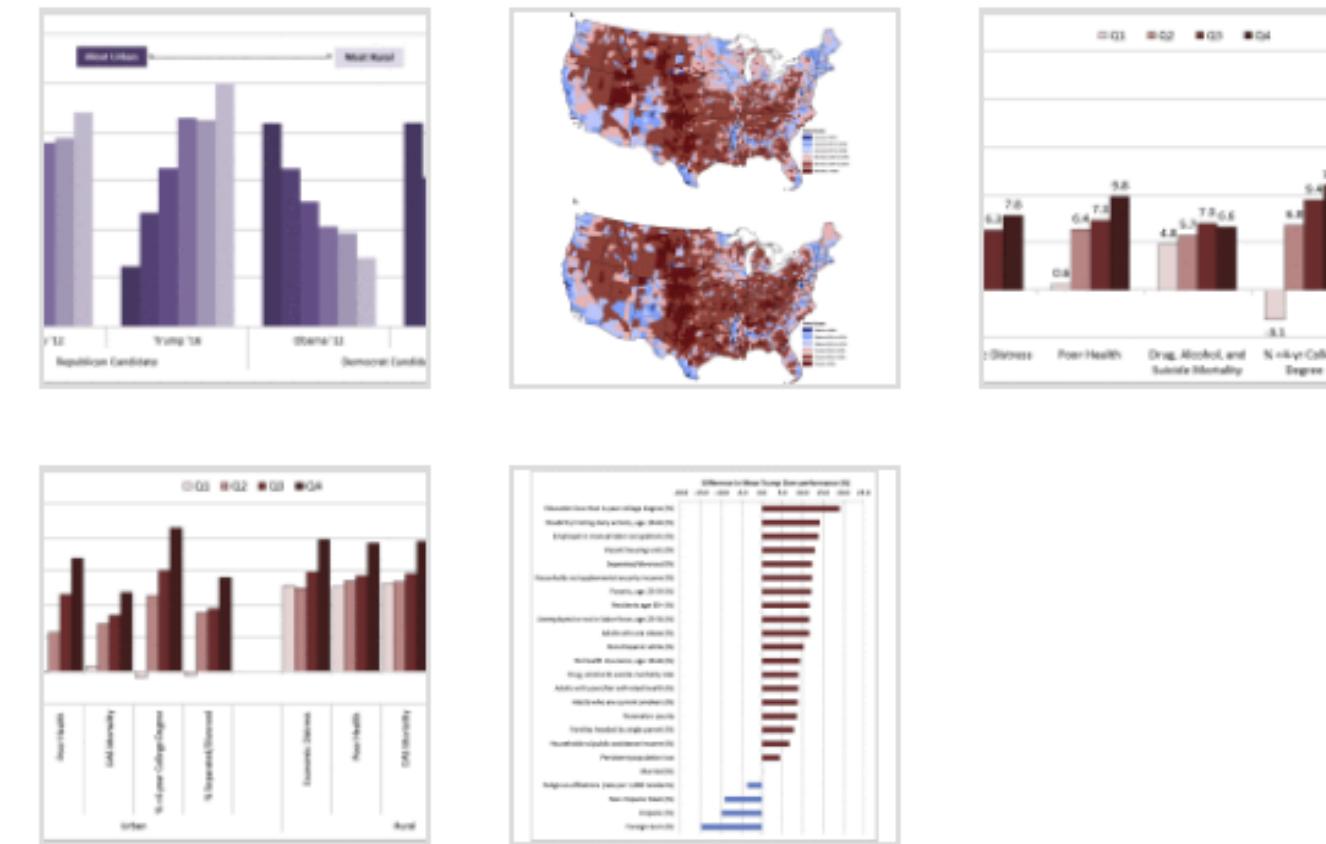
5. Annex: data and methods

Acknowledgements

References

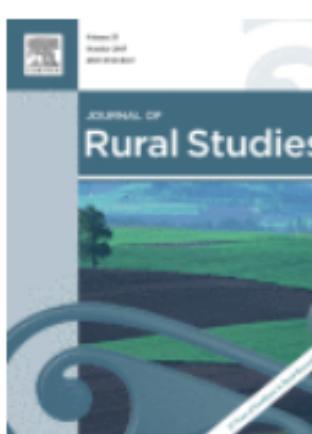
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Figures (5)



Journal of Rural Studies

Volume 55, October 2017, Pages 227-236



More than a rural revolt: Landscapes of despair and the 2016 Presidential election

Shannon M. Monnat ^a , David L. Brown ^b

Show more

<https://doi.org/10.1016/j.jrurstud.2017.08.010>

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Highlights

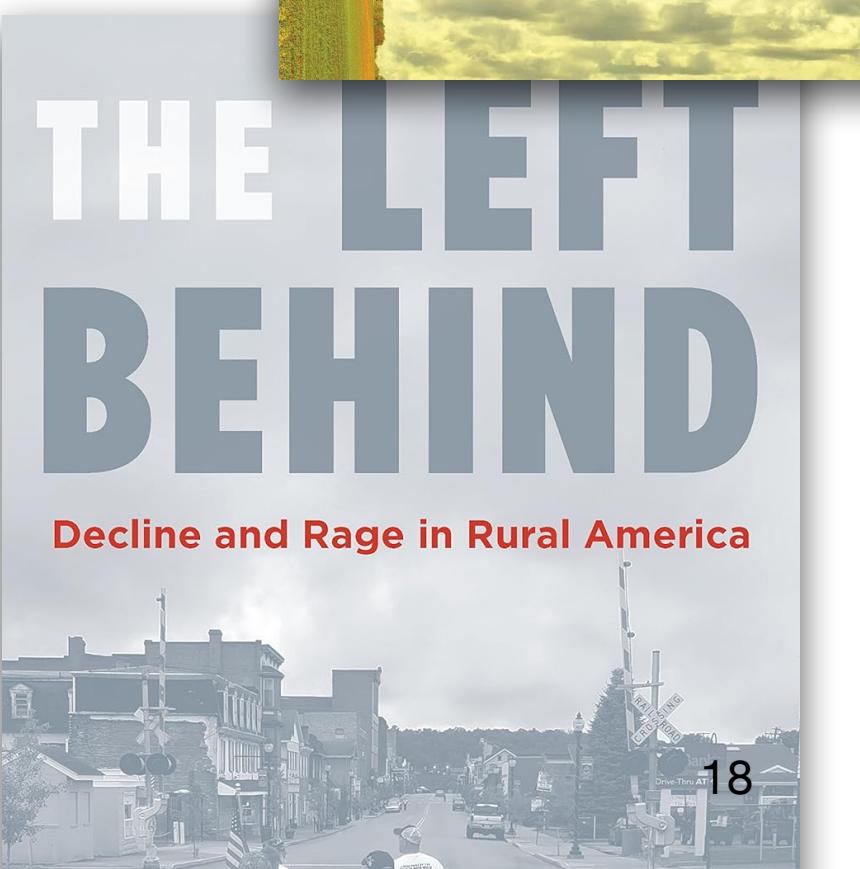
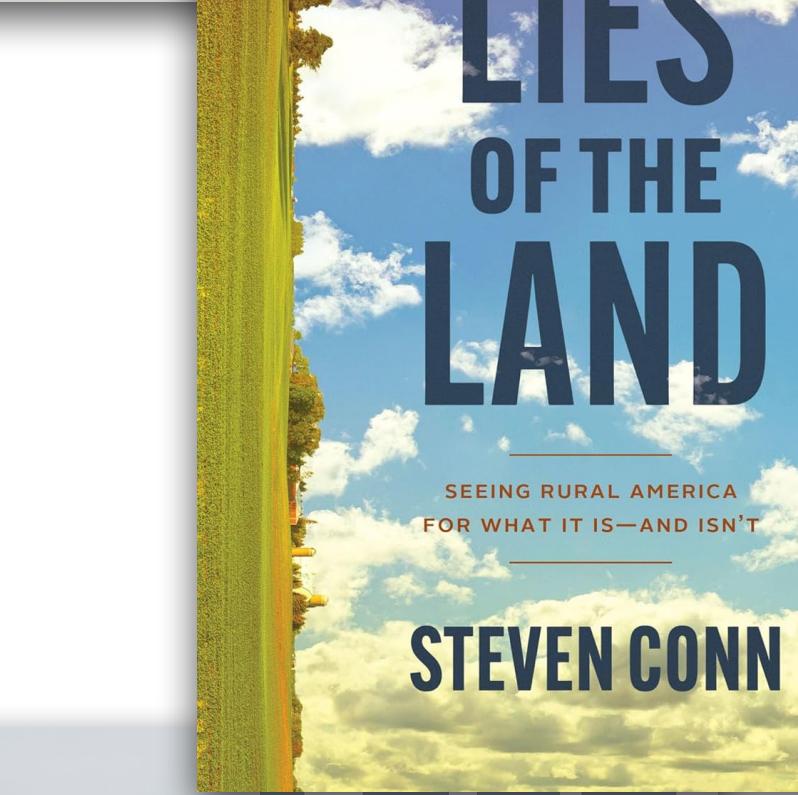
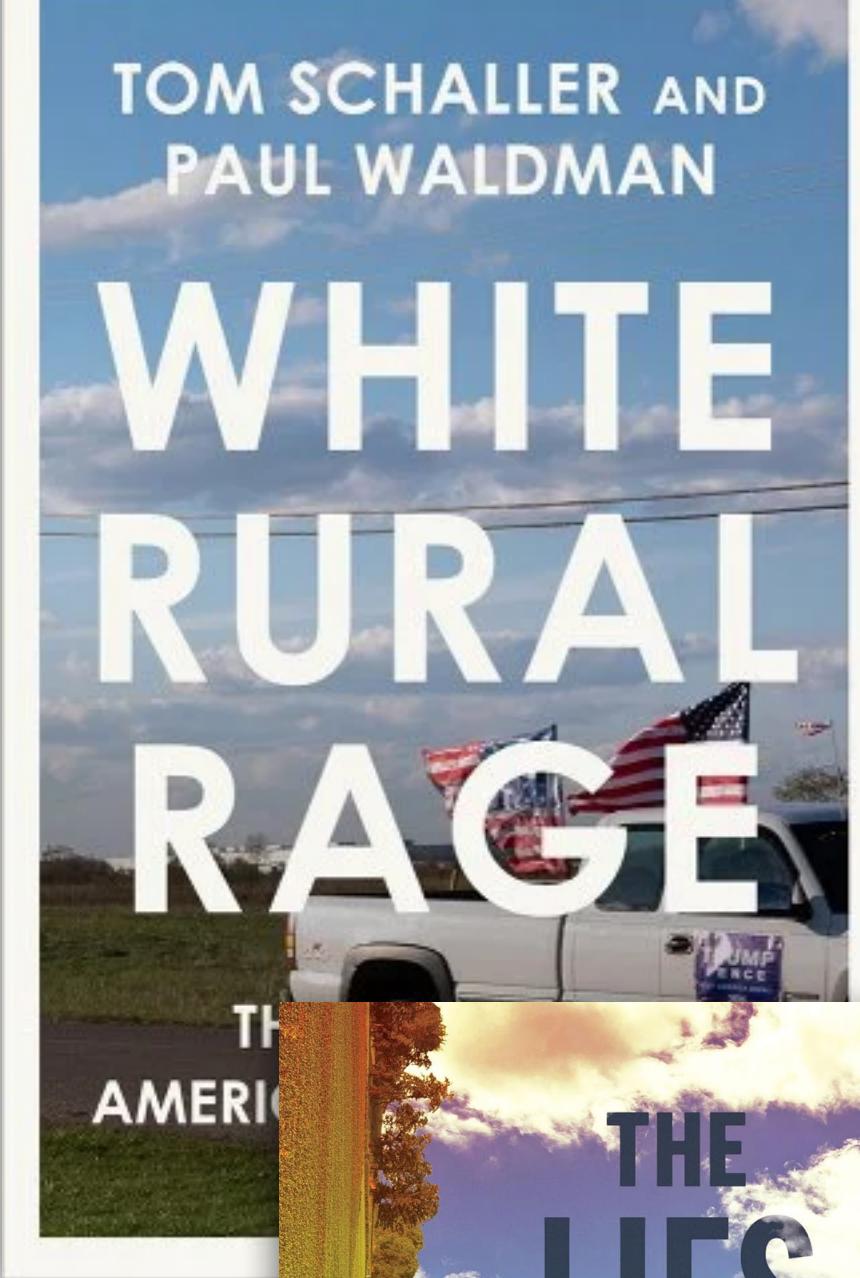
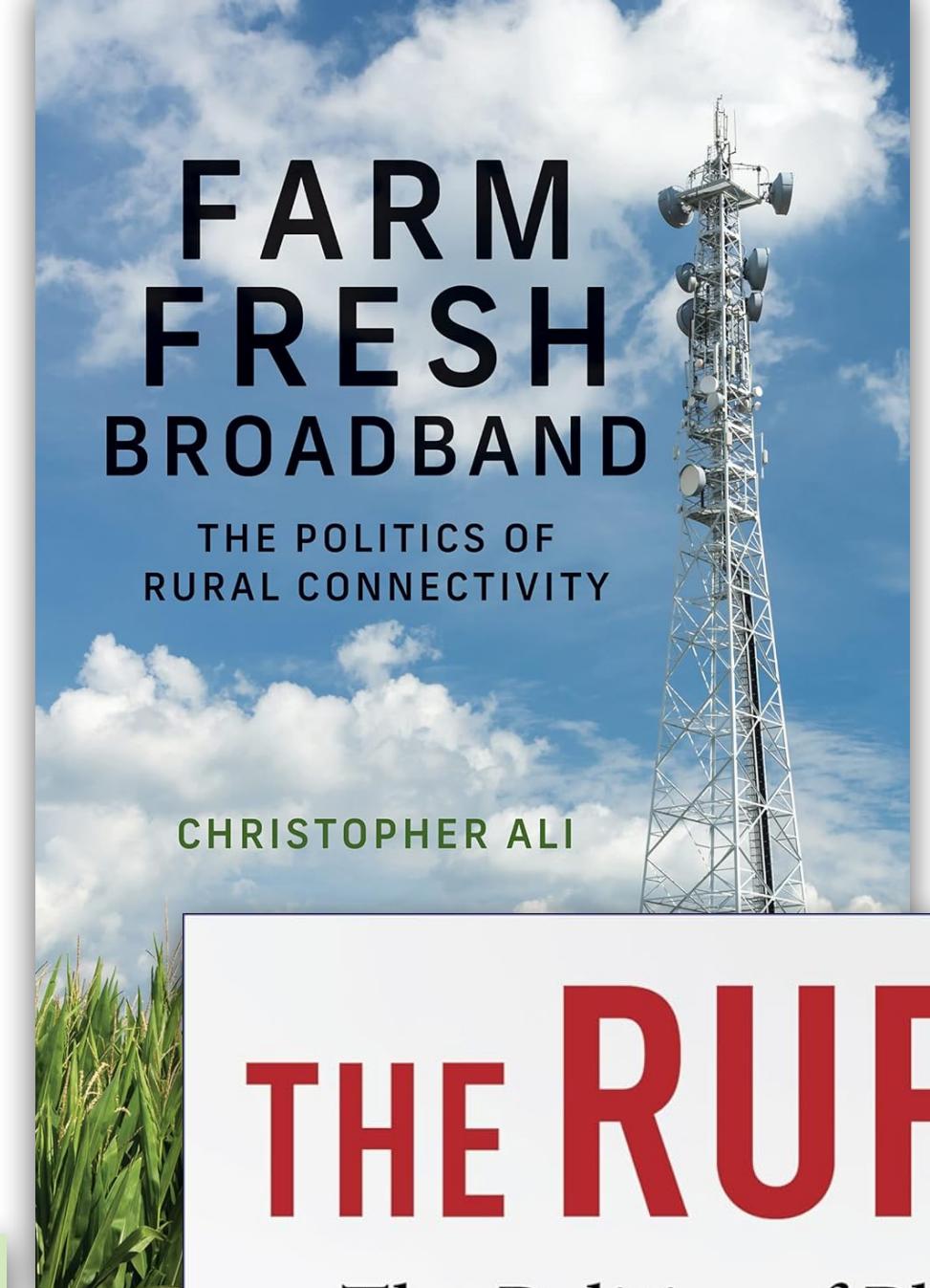
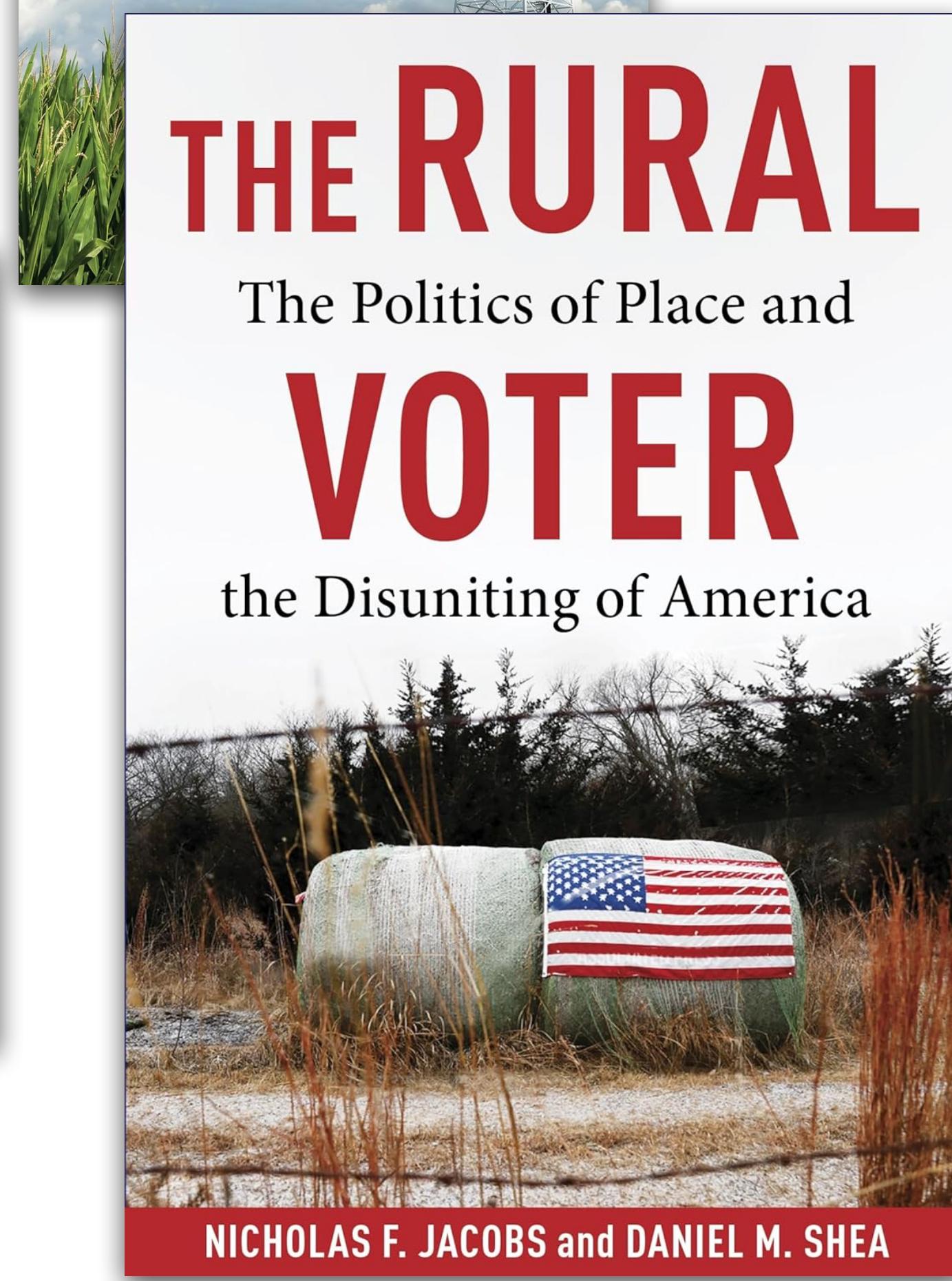
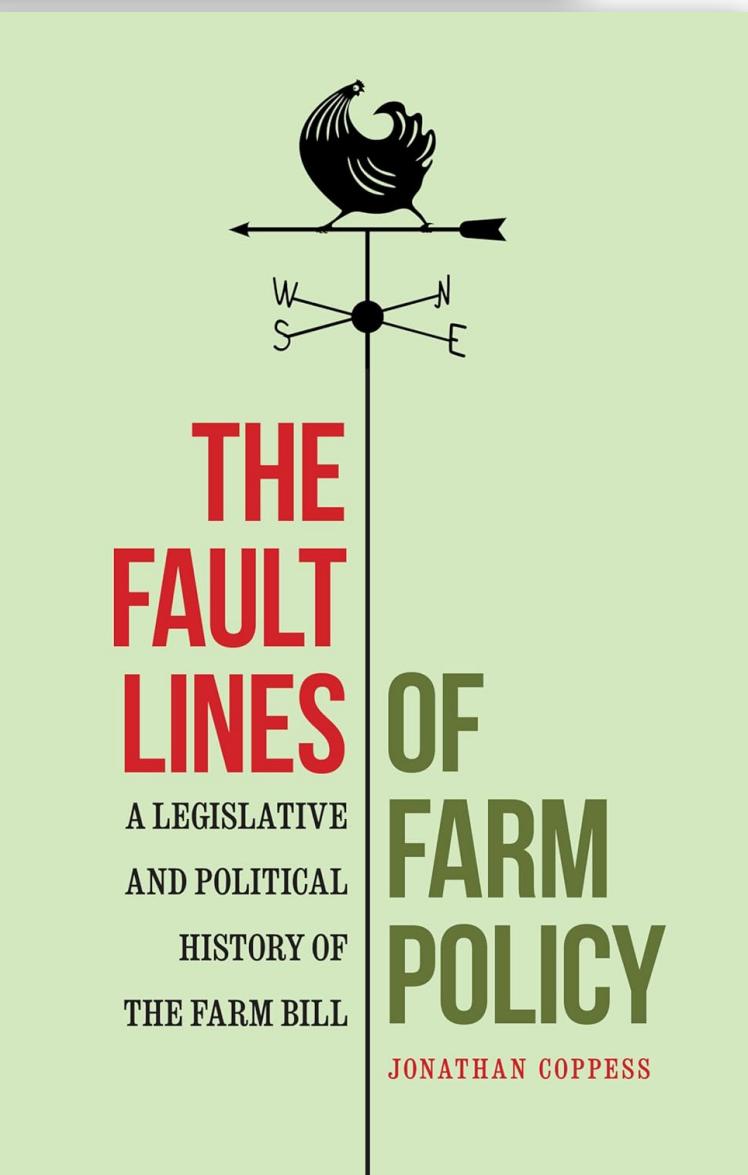
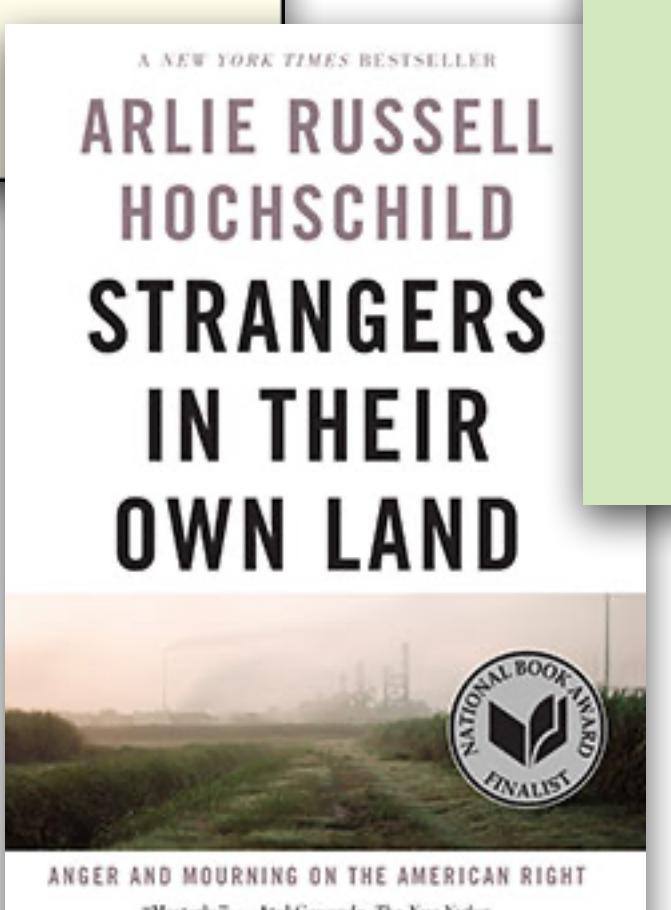
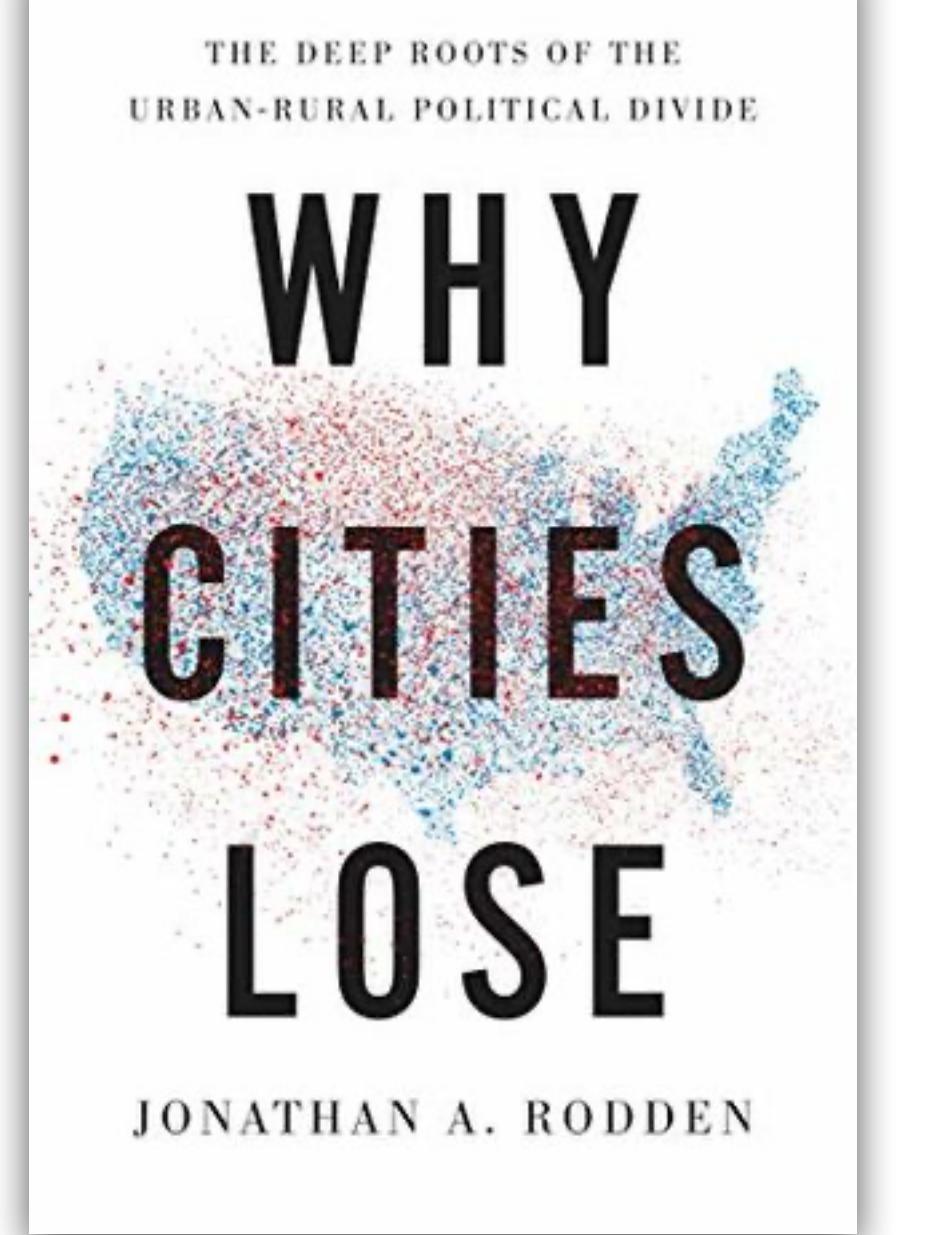
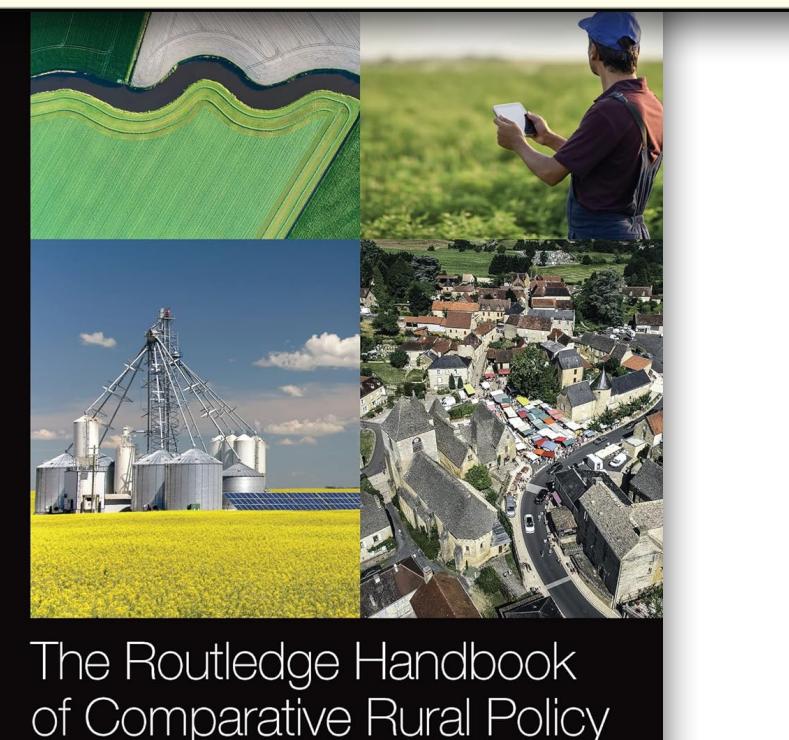
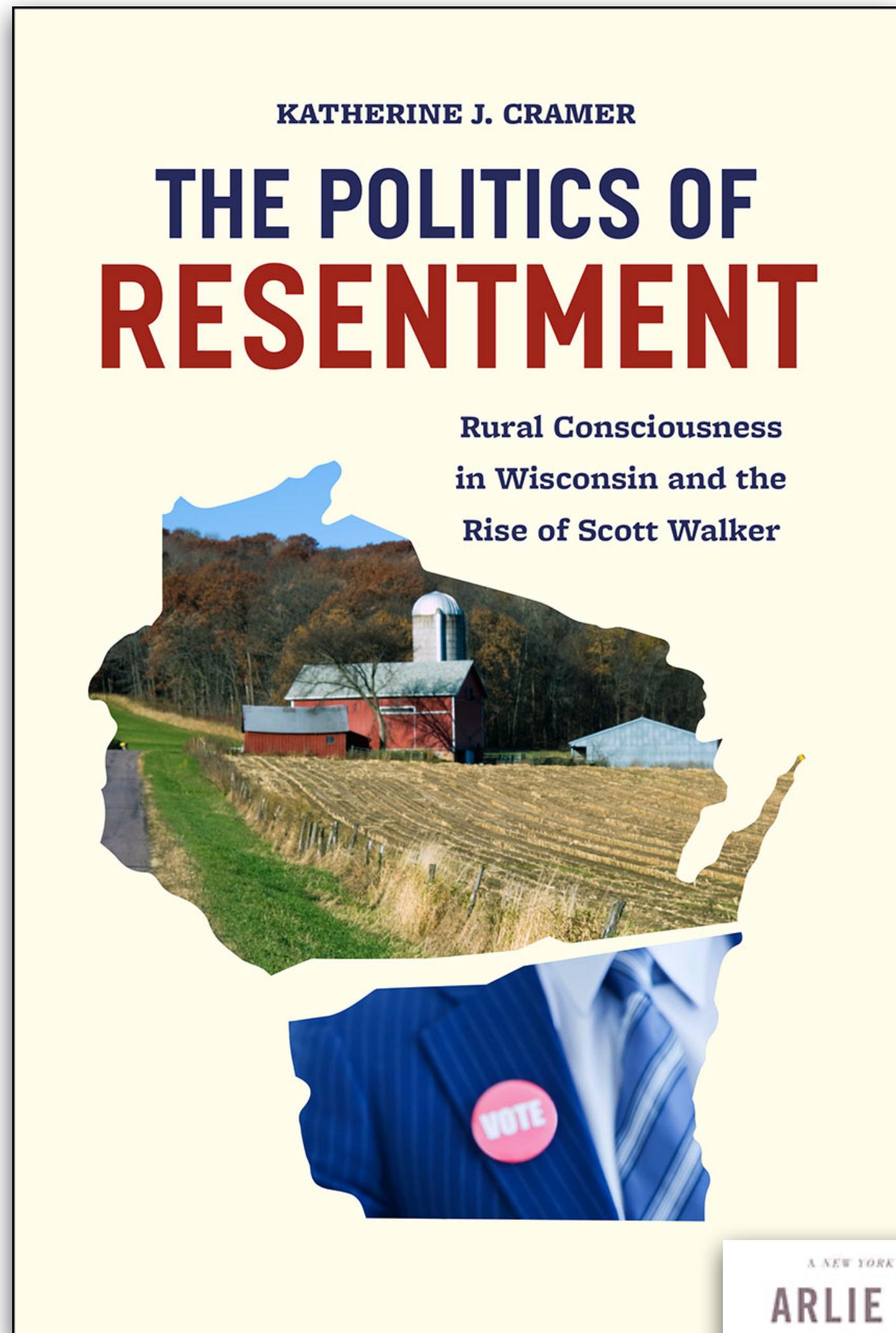
- Trump's rural advantage contributed to his Presidential election victory, but it was not sufficient to swing the election.
- Trump's average over-performance was higher in more economically-, socially-, and health-distressed counties.
- Trump performed better in counties with economic distress, poor health, low educational attainment, and high divorce rates.

Kenneth M. Johnson and Dante J. Scala*

The Rural-Urban Continuum and the 2020 U. S. Presidential Election

<https://doi.org/10.1515/for-2022-2057>

Abstract: The question, “What is rural?”, has become increasingly salient to scholars of American politics over the past decade, especially after the 2016 election of Donald Trump. While social and political tensions between urban and rural residents of the United States are now widely recognized, rural cannot simply be defined as the antithesis of urban. Using survey data and voting returns from the 2020 election, we illustrate how urban-rural differences are best understood not as a dichotomy, but as a continuum. Large metropolitan core counties comprise one



There's a small
problem...

Outline

Highlights

1. Election numbers: the predictable and the unexpected

2. Landscapes of despair

3. Despair and the Election

4. Conclusion

5. Annex: data and methods

Acknowledgements

References

Show full outline ▾

Figures (5)



Use RUCC codes and metro dummy

Highlights

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the election.

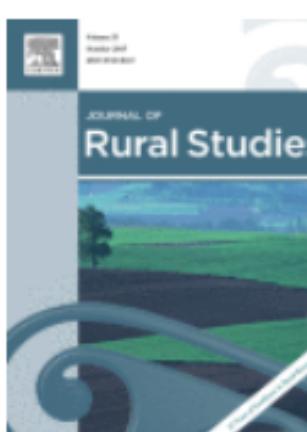
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Journal of Rural Studies

Volume 55, October 2017, Pages 227-236



More than a rural revolt: Landscapes of despair and the 2016 Presidential election

Shannon M. Monnat ^a  , David L. Brown ^b 

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Revisiting the Rural-Urban Contrast: Personal Networks in Nonmetropolitan and Metropolitan Settings¹

John J. Beggs✉, Valerie A. Haines, Jeanne S. Hurlbert

First published: June 1996 | <https://doi.org/10.1111/j.1549-0437.1996.tb02321.x>

¹ Order of authorship is alphabetical to reflect equal contribution. This research was supported by Grant #SES-922444 from the National Science Foundation's Graduate Faculty Fellowship Program. We thank Karen Campbell, F. Andrew Deseran, and two anonymous reviewers for their helpful comments.

Use a dummy variable

PDF TOOLS SHARE

Abstract

Abstract To revisit the rural-urban contrast, we use data from non-metropolitan and metropolitan subsamples of the 1985 General Social Survey to test whether, compared to personal networks in urban settings, personal networks in rural settings contain ties of greater intensity and role multiplexity, are based more on kinship and neighborhood solidarities rather than on friendship, are smaller, are denser, and have greater



Access



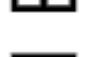
Related



Information

Log in to get access

Use population density

-  Table 3
-  Table 4
-  Table 5
-  Table 6



Probing the reds and blues: Sectionalism and voter location in the 2000 and 2004 U. S. presidential elections

Seth C. McKee ^a  , Jeremy M. Teigen ^{b, 1} 

 [Show more](#)

<https://doi.org/10.1016/j.polgeo.2009.11.004>

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within its political boundaries:

is facing voters. Yet, it is also
and between places. This study
that relate to electoral outcomes
distinctions and population density.

different locations (urban, suburban,
and rural residents), there exist notable differences in presidential voting. Using survey and
county-level data on the 2000 and 2004 U.S. presidential elections, this study evaluates the
partisan preferences of voters from a regional perspective, and from a density perspective.
The findings demonstrate independent relationships between section and voting, and
location and voting. A major consequence of the distinctiveness of section and location in
²²



Article

Metrics

Volume 39, Issue 3 July 2006 , pp. 467-472

The Rural Side of the Urban-Rural Gap

James G. Gimpel^(a1) and Kimberly A. Karnes^(a1) <https://doi.org/10.1017/S1049096506060859> Published online: 14 July 2006

Extract

The time does seem to be ripe for revisiting the urban-rural divide, with an eye toward understanding what lies beneath it. The last two presidential elections have revealed an urban-rural cleavage that is hard to ignore. Most observers now recognize that the “red” vs. “blue” Election Night maps really mask an urban-rural divide *within* states —a gap that has increased in recent years according to a range of definitions. In 2004, the difference in Democratic support between the most and least populous counties in the nation exceeded 25 points (see [Figure 1](#)). Survey marginals are comparable, although rural populations are not well represented in most national polls. Tabulations from the 2004 American National Election Studies (ANES) indicate a 20-point gap in presidential preference between inhabitants of counties with more than a million people and those in non-metro counties of less than 25,000.

Use the ANES's 3-cat. measure

Kenneth M. Johnson and Dante J. Scala*

The Rural-Urban Continuum and the 2020 U. S. Presidential Election

<https://doi.org/10.1515/for-2022-2057>

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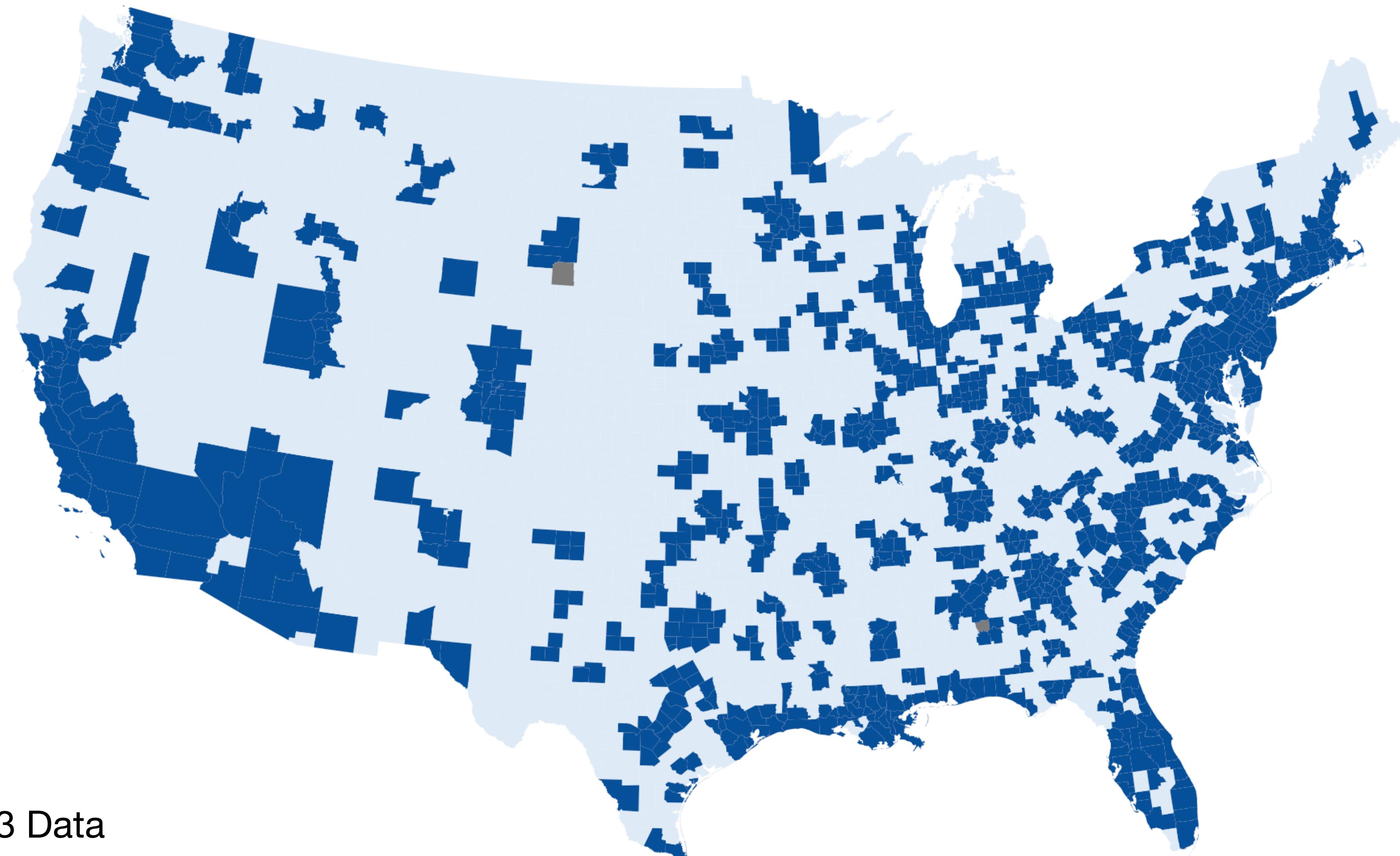
voting returns from the best understood not as counties comprise one

Use RUCC codes

A brief typology of some commonly used rural measures

Metro/Non-metro status

dummy variable; distinguishes counties in metropolitan areas from counties not in metropolitan areas (OMB/US Census)



Note: 2013 Data

Metro codes “do not produce an urban-rural classification, and confusion of these concepts can lead to difficulties . . .”

- OMB (2010)

Two “metro” areas

Sheboygan, WI
~118,000

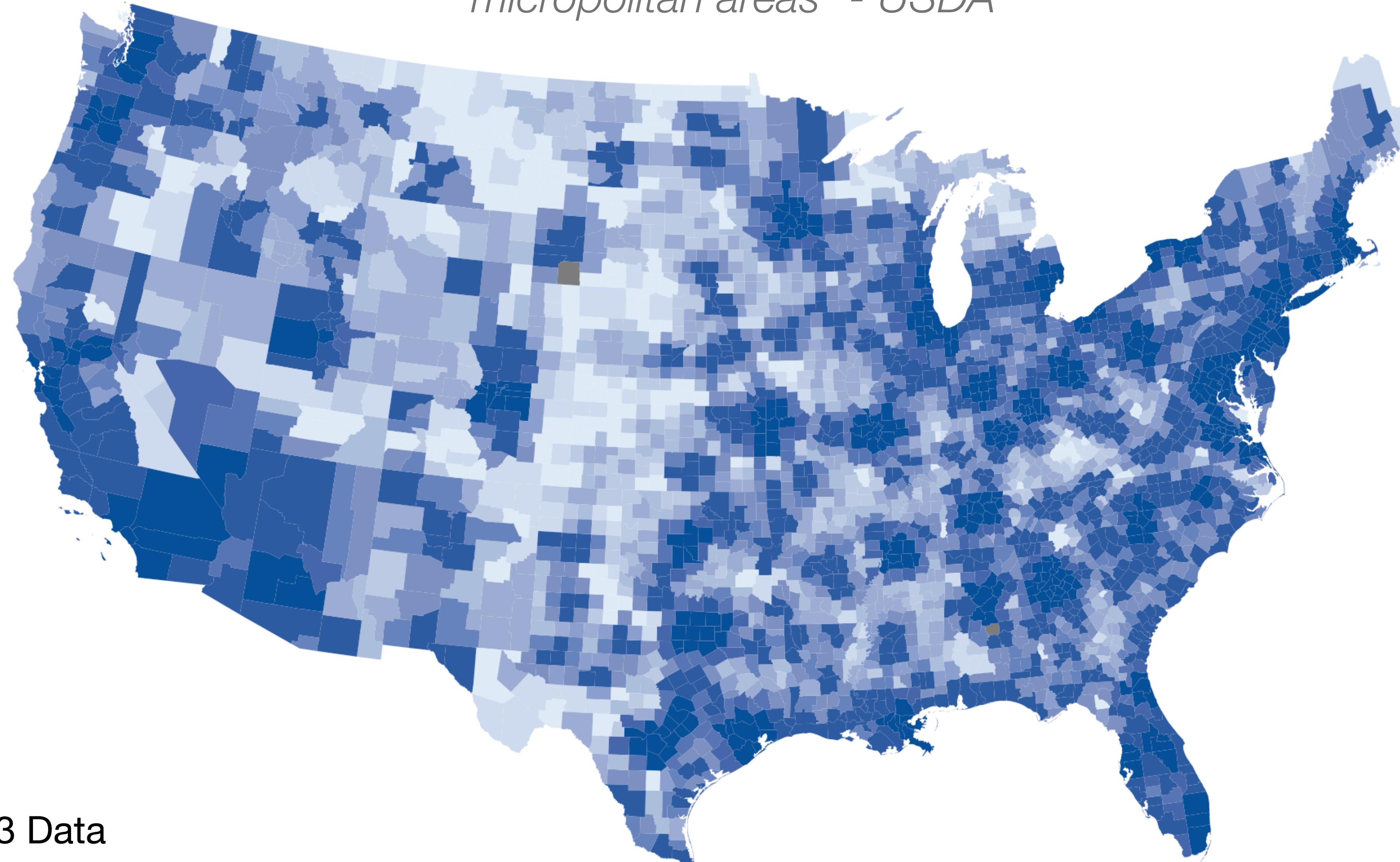


Los Angeles, CA
~13.2 million



Urban Influence Code

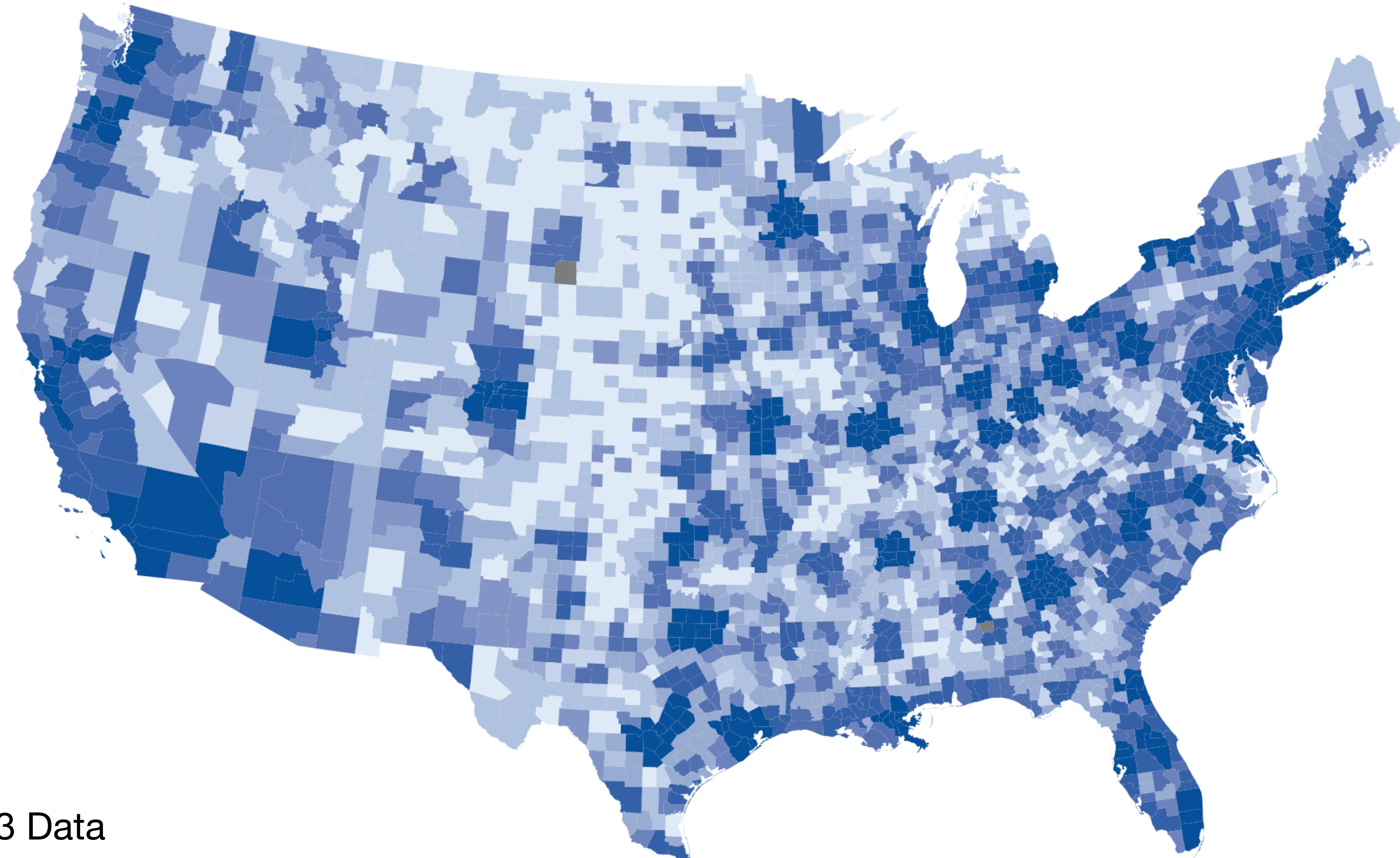
12 category variable; “form a classification scheme that distinguishes metropolitan counties by population size of their metro area, and nonmetropolitan counties by size of the largest city or town and proximity to metro and micropolitan areas” - USDA



Note: 2013 Data

Rural-Urban Continuum Code

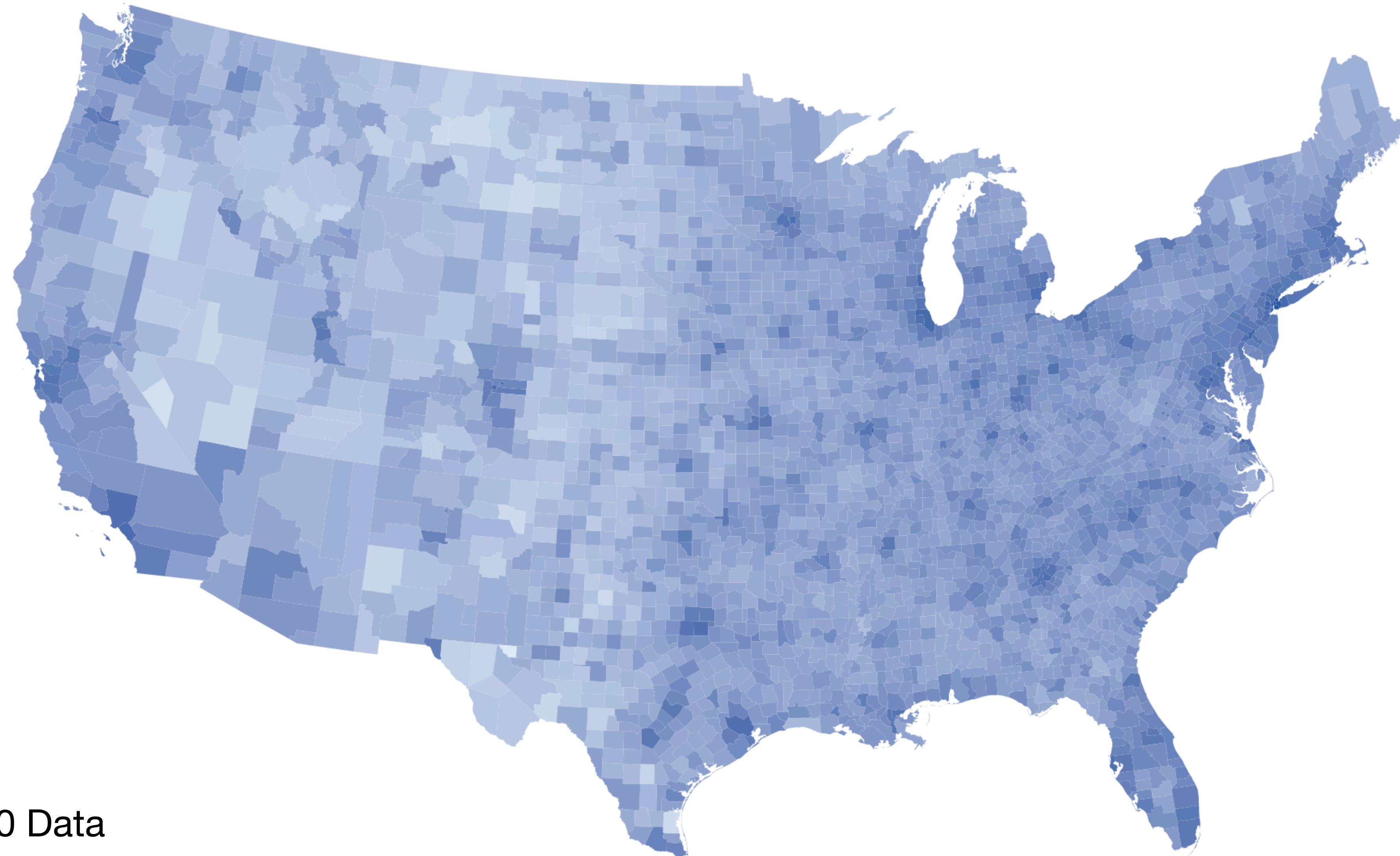
nine-category variable; “distinguish U.S. metropolitan (metro) counties by the population size of their metro area, and nonmetropolitan (nonmetro) counties by their degree of urbanization and adjacency to a metro area” - USDA



Note: 2013 Data

Logged Pop. Density

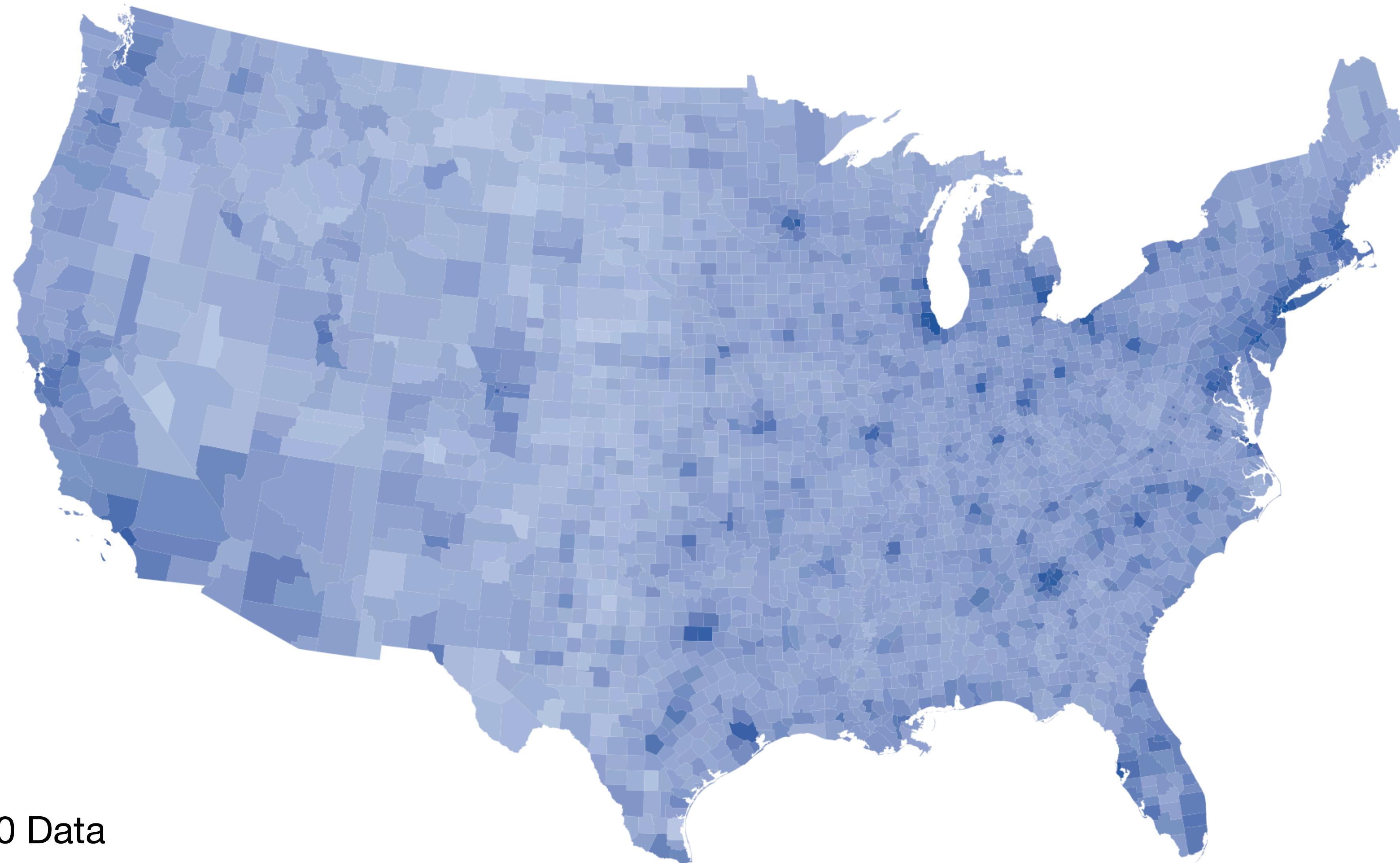
continuous variable; population density per square mile over a geographic area; calculable at numerous geographical units



Note: 2010 Data

Index of Relative Rurality

continuous variable; measures each county according to (1) logged population size, (2) logged population density, (3) remoteness/distance from nearest metro (4) built up area (% of land area urban) - Waldorf & Kim (2015)

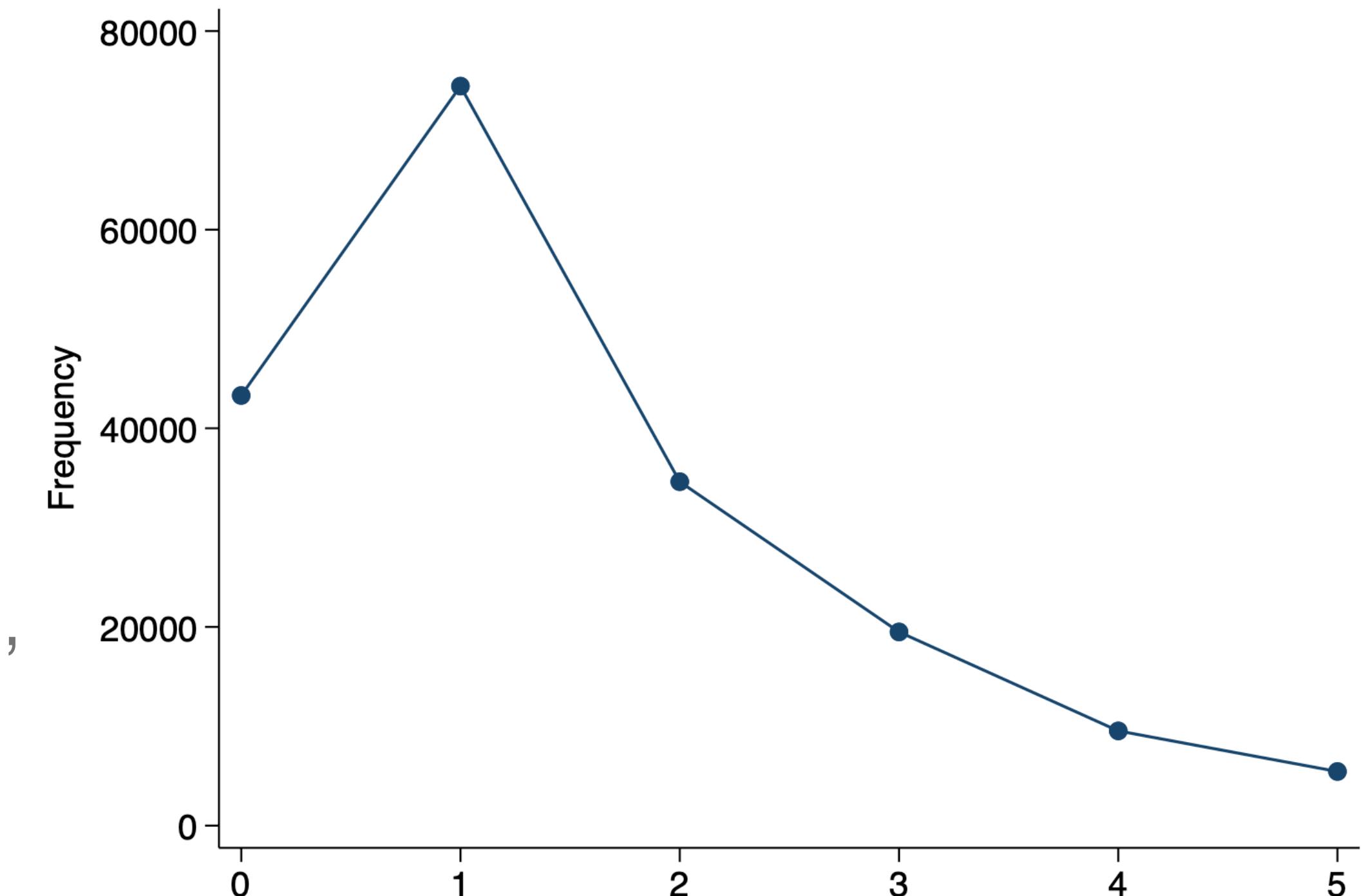


Note: 2010 Data

So what?

What difference does all of this make?

- Let's test with a common measure of interest: political engagement
- **Data:** 2008-2016 Cooperative Congressional Election Study
 - ~60,000 respondents/year
- **Dependent Variable:** Political activity reported in the prior election (0-6)
 - Vote (validated), placing a yard sign, working for a campaign, attending a political meeting, donating money

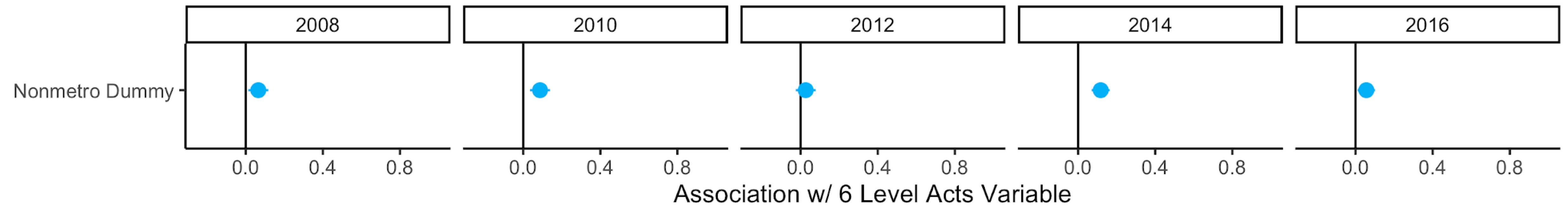


The model

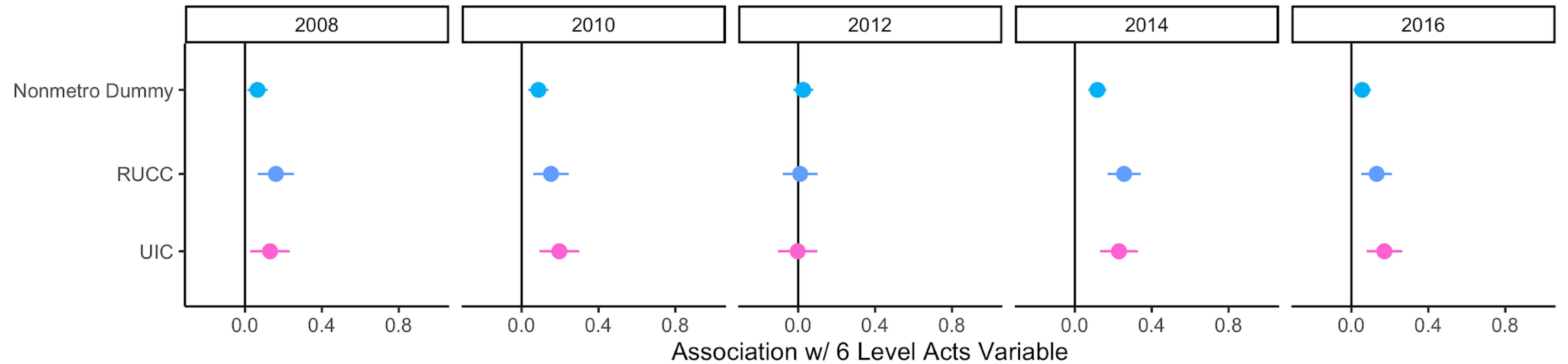
$$Activity = \alpha + \beta * rurality + controls$$

- Does the measure of rurality change the apparent association between rurality and political activity?
 - Rural-Urban Variables: standardized on a 0-1 scale ($1 = \text{rural}$)
 - Metro codes, Urban Influence Codes, Rural-Urban Continuum Codes, Population Density (logged), Index of Relative Rurality (Waldorf & Kim)
 - Demographic controls: gender, age, income, political interest, race, education, party id
- Run each year (2008, 2010, 2012, 2014, 2016)
 - Keep everything identical between models except for the rural measure

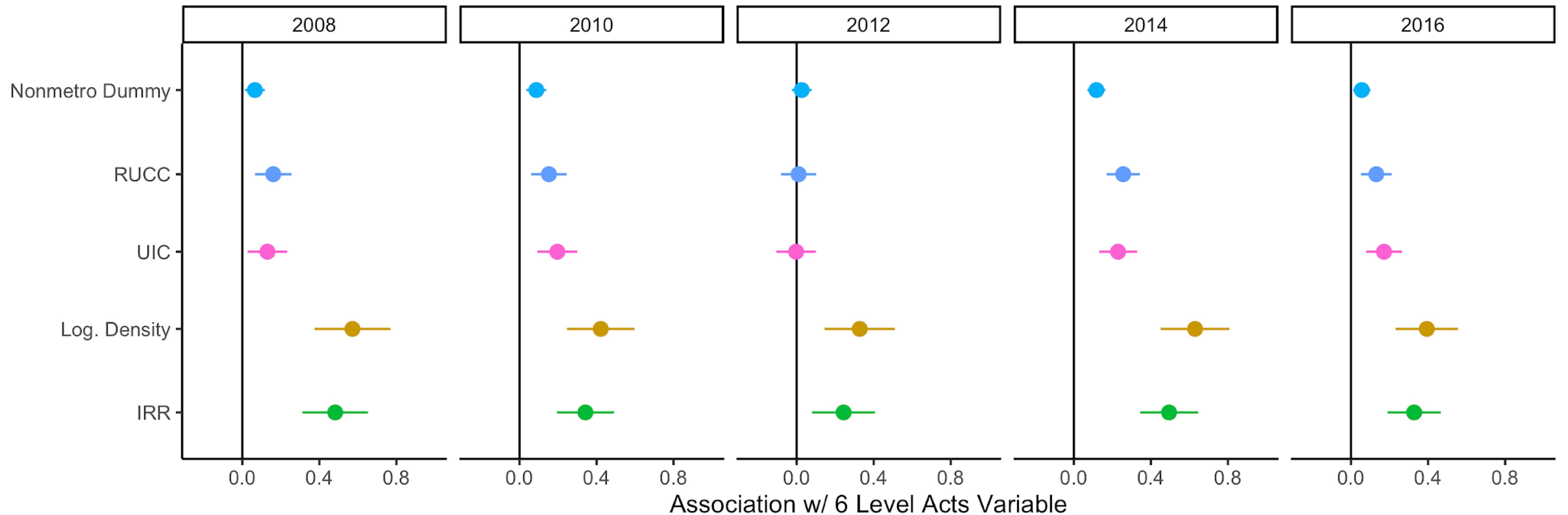
Different rural measures produce different results



Different rural measures produce different results



Different rural measures produce different results



The measures you
choose determine the
answers you get

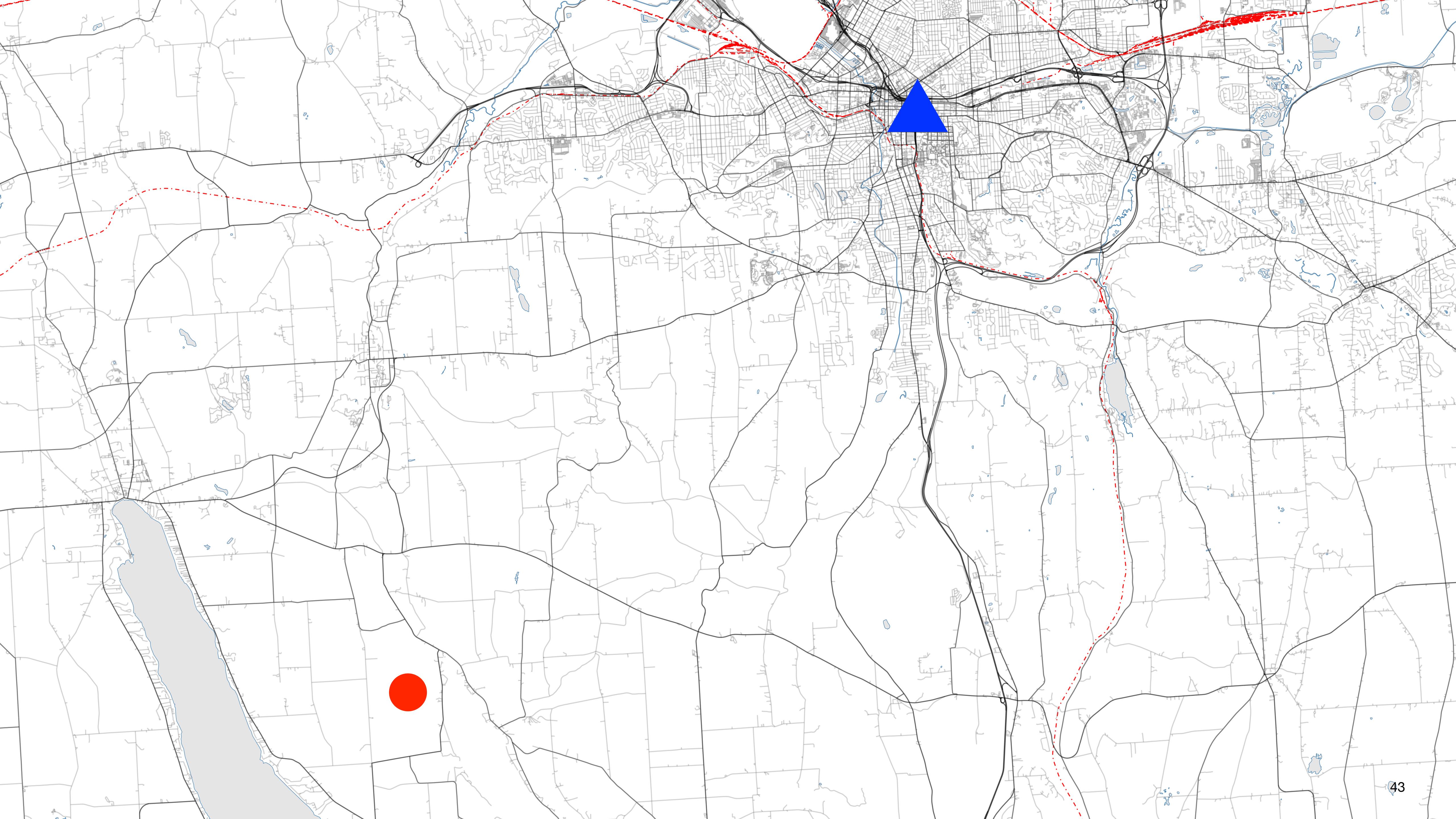
What should “rurality” measure?

- Little consensus from a top down perspective. Some options:
 - *Option 1:* Ask individuals in surveys
 - *Option 2:* Create categories based on examination of geographic areas
 - *Option 3:* Look at population density
 - *Option 4:* Create multi category measures
- *Other complications:* geographic units (counties vs zip codes)

So what are rural scores?

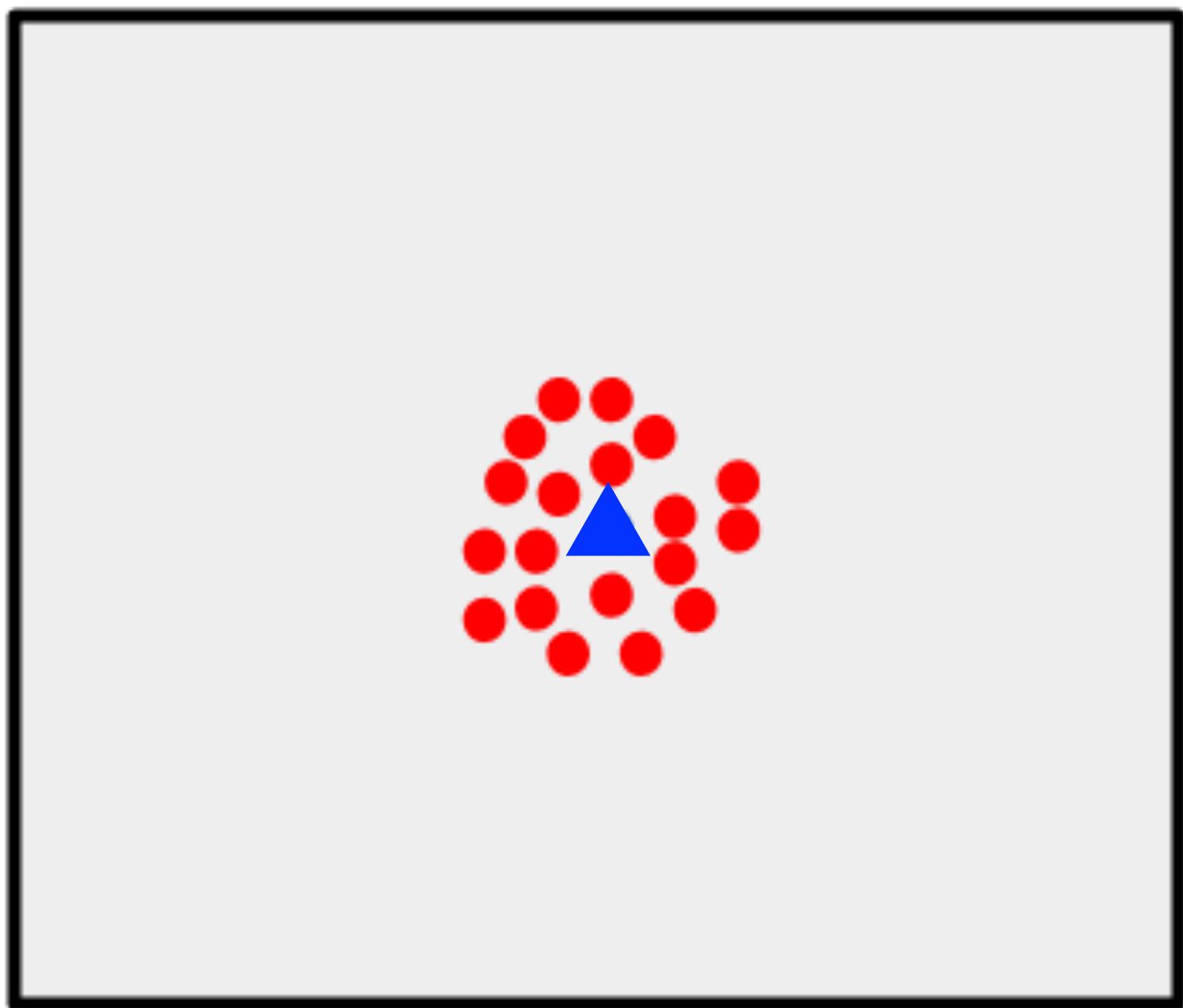
Scores are a function of:

1. Where people live

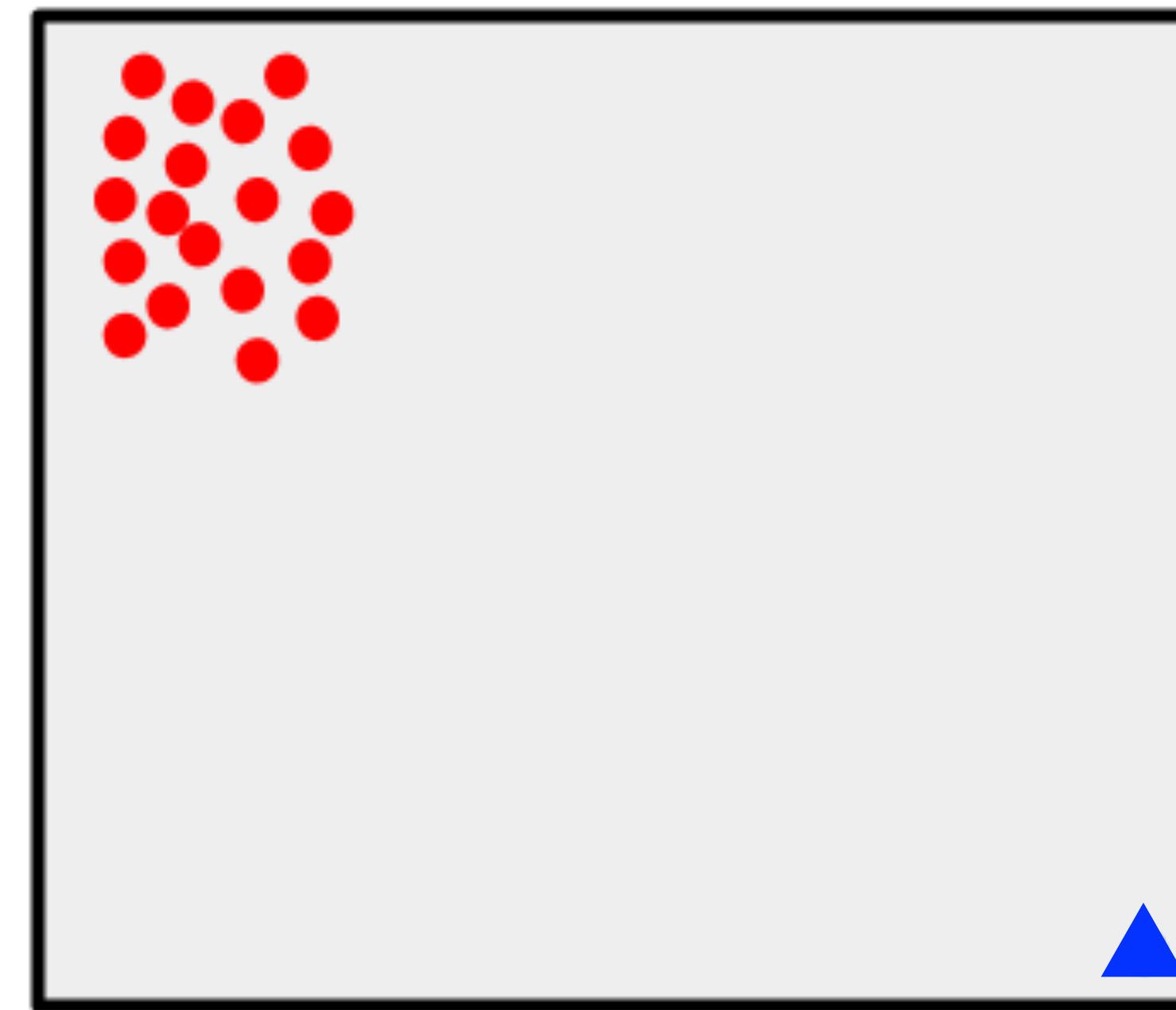


(most of the time)

County A



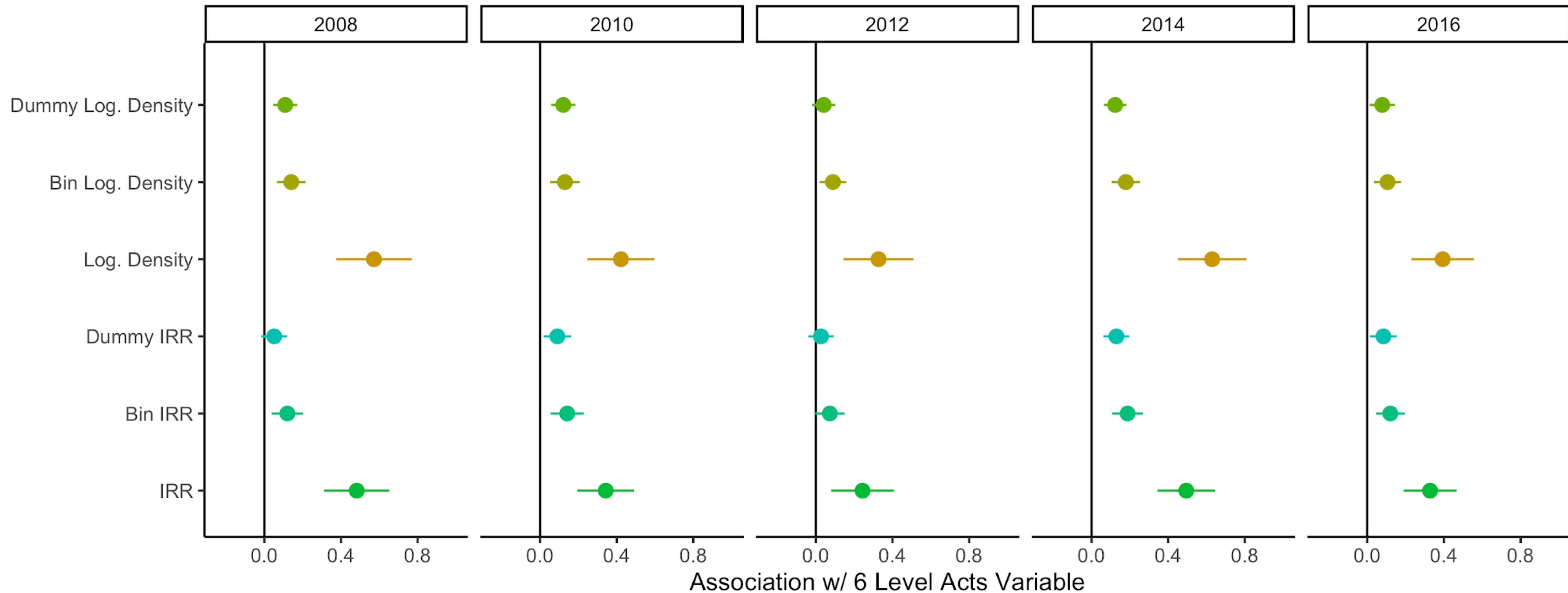
County B

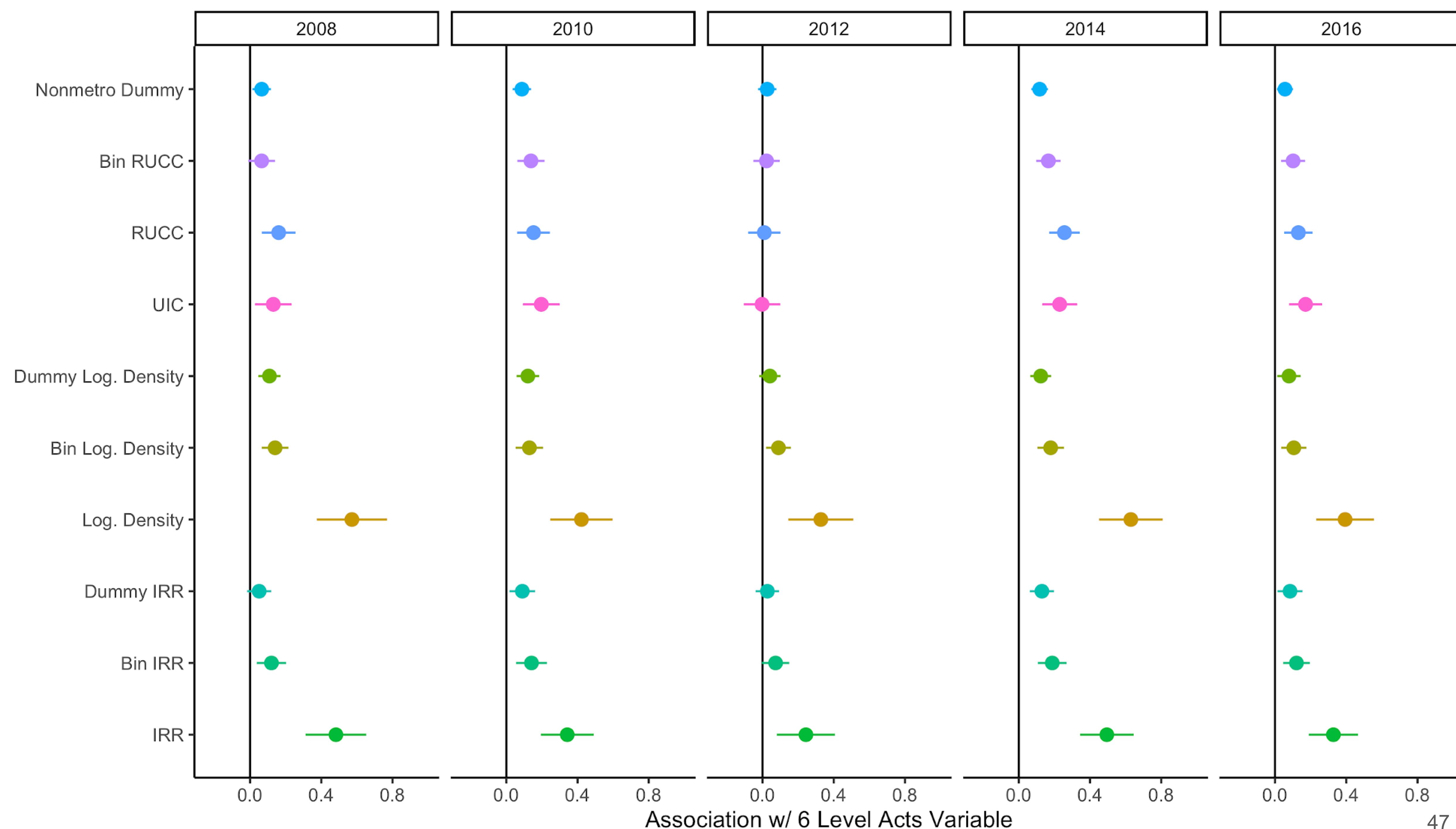


Scores are a function of:

1. Where people live
2. Number of values the variable can take

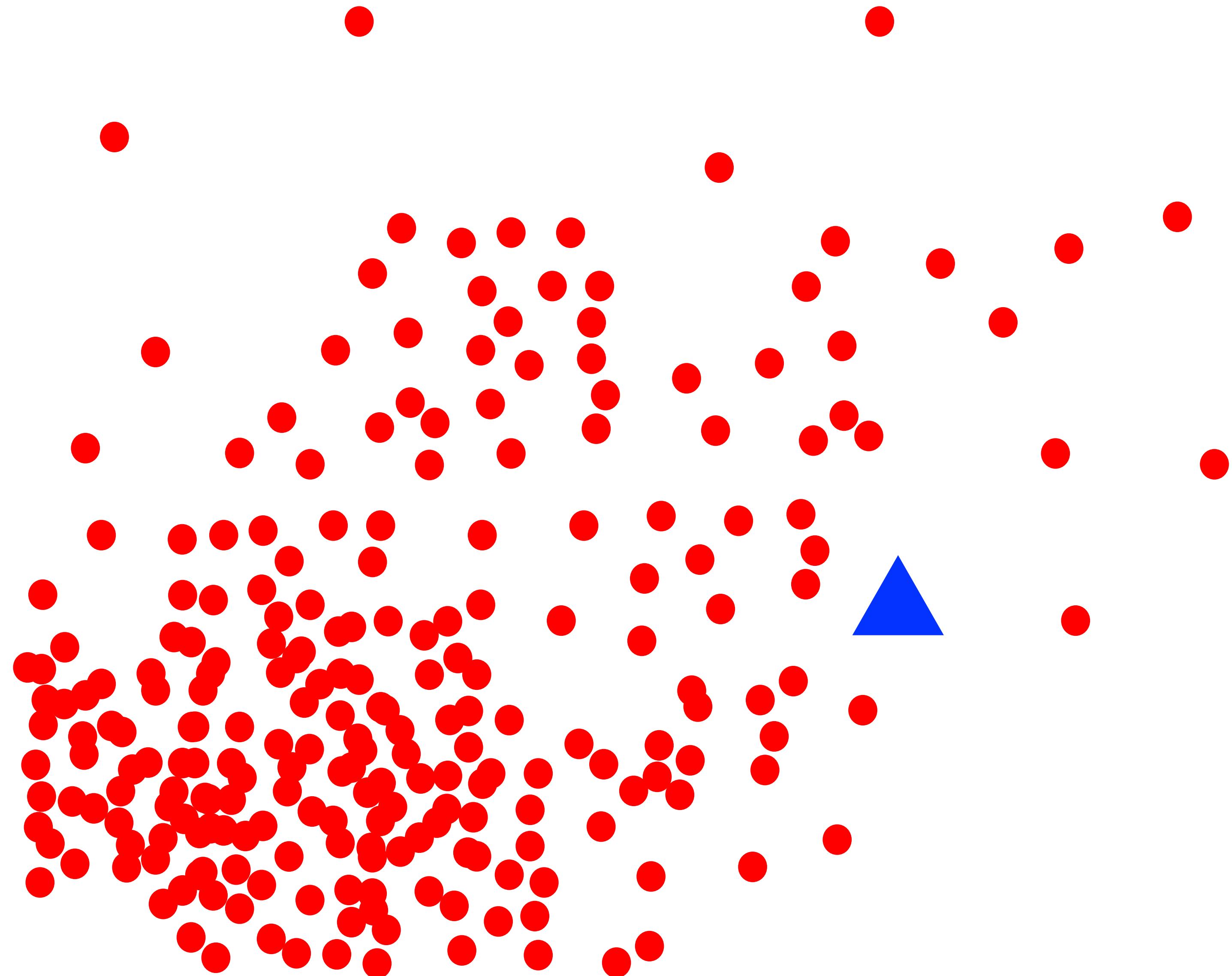
Political activities predicted by density and IRR, including binned and dummy variables





Scores are a function of:

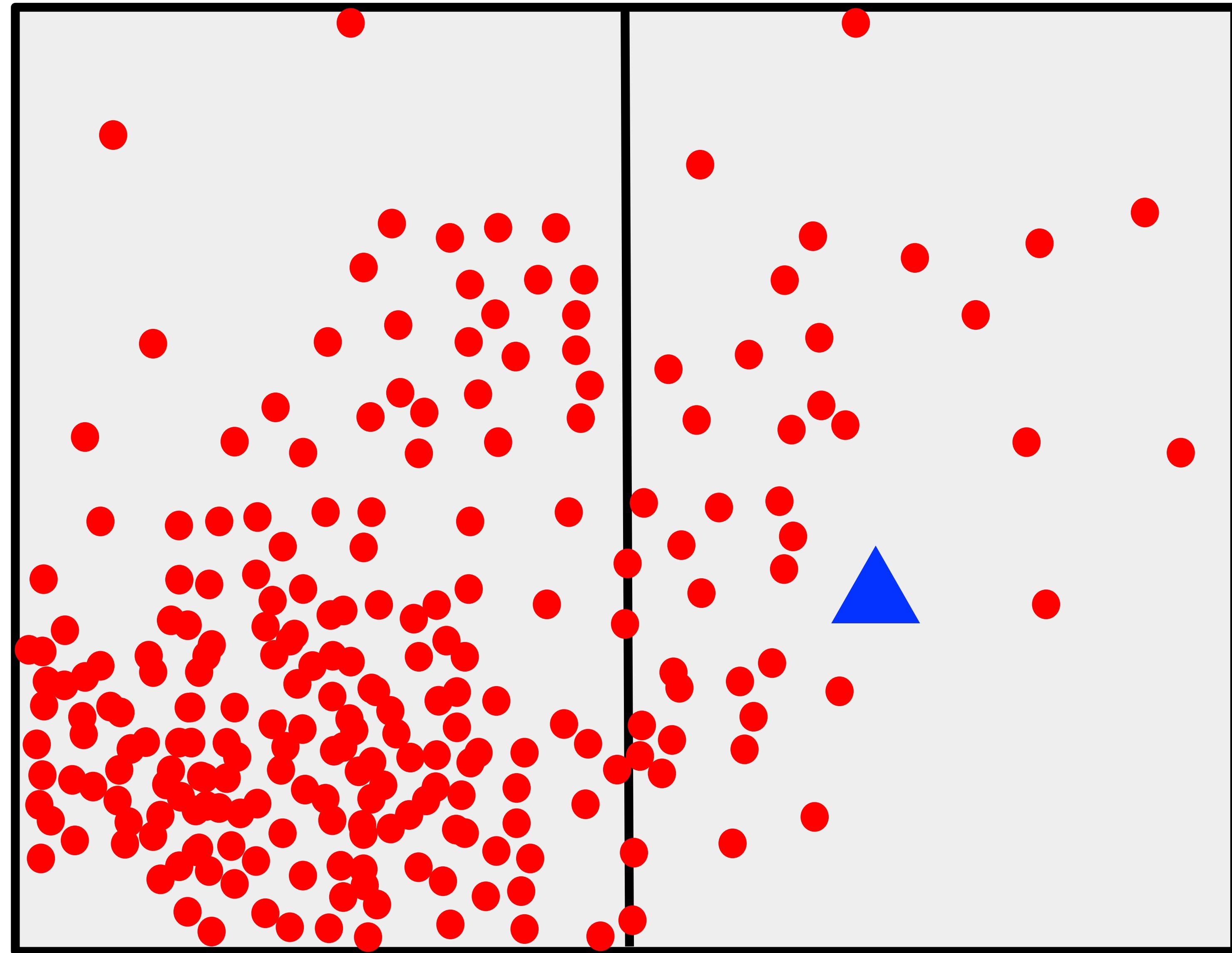
1. Where people live
2. Number of values the variable can take
3. How borders are drawn



County A

Size = 200

Density = $100/\text{km}^2$



County B

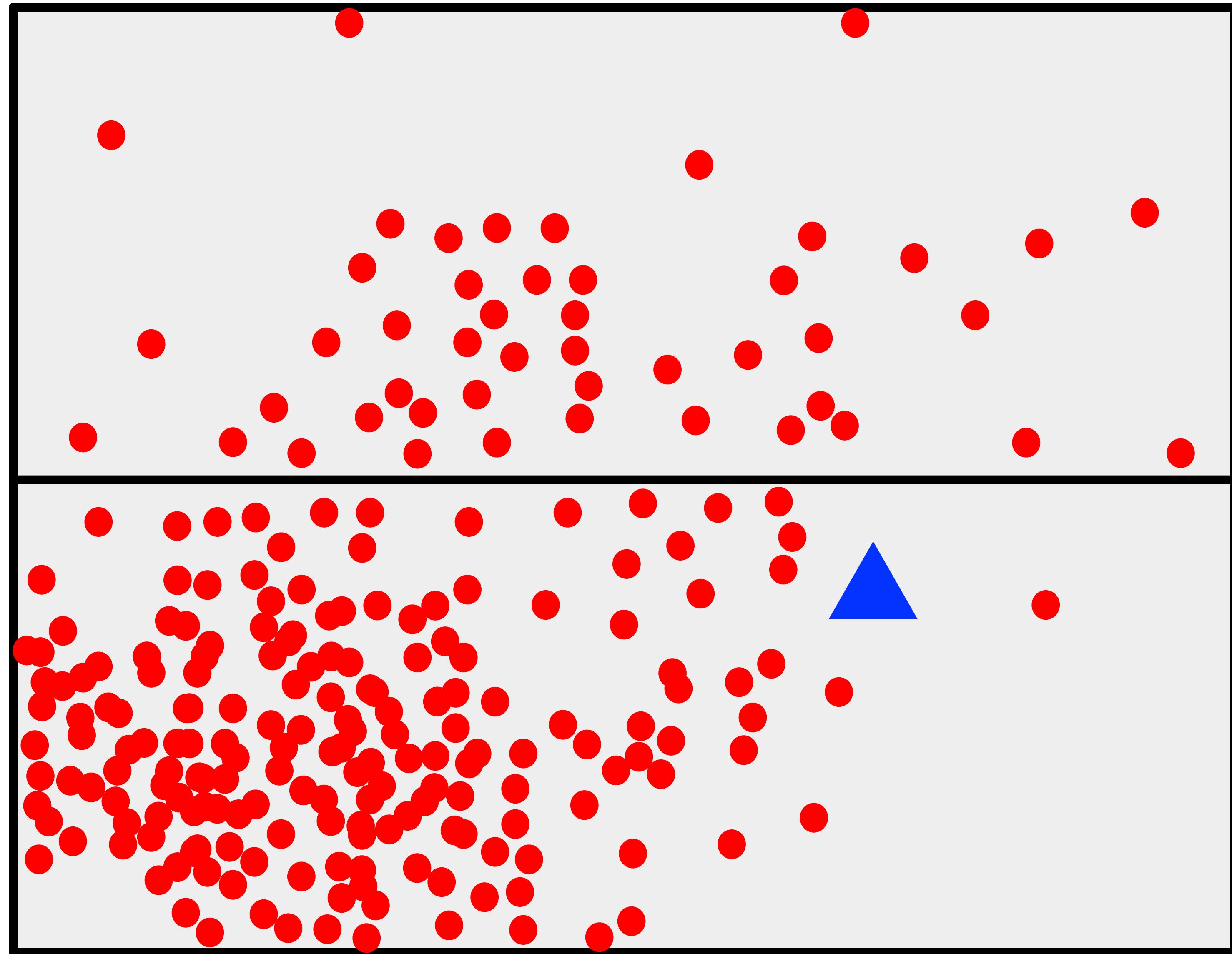
Size = 50

Density = $25/\text{km}^2$

County A

Size = 50

Density = $25/\text{km}^2$



County B

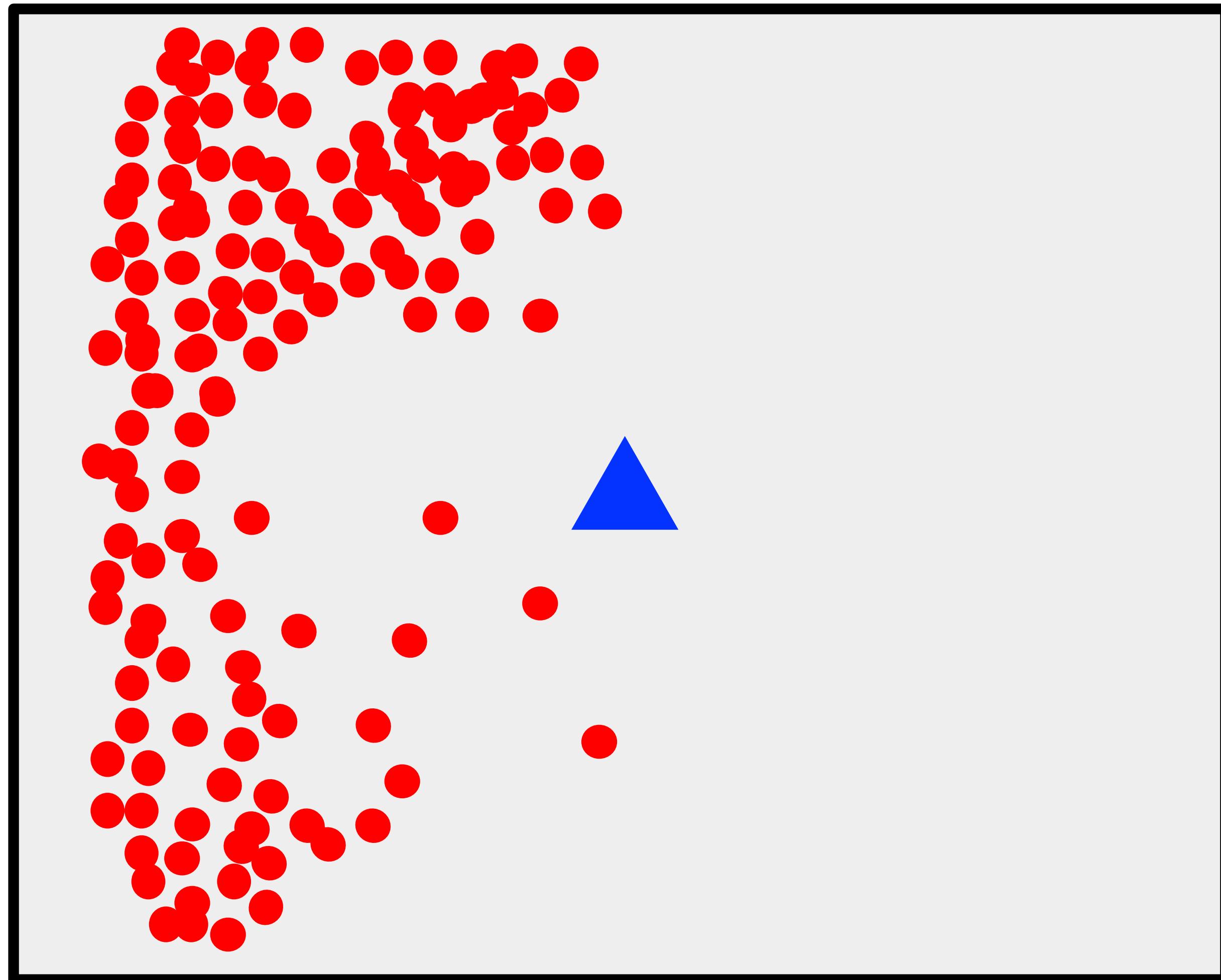
Size = 200

Density = $100/\text{km}^2$

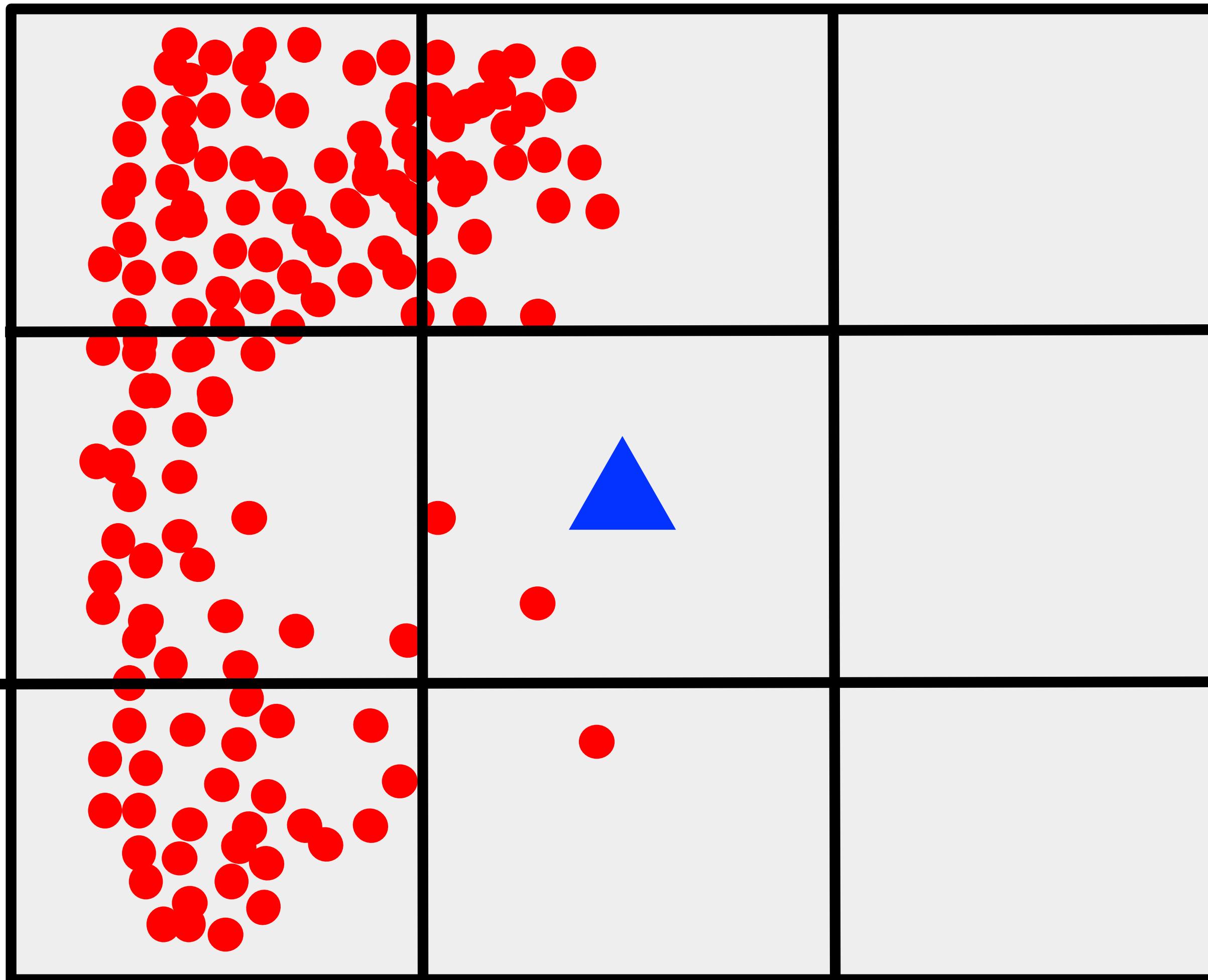
Scores are a function of:

1. Where people live
2. Number of values the variable can take
3. How borders are drawn
4. Size of the geography

County



Zip Code



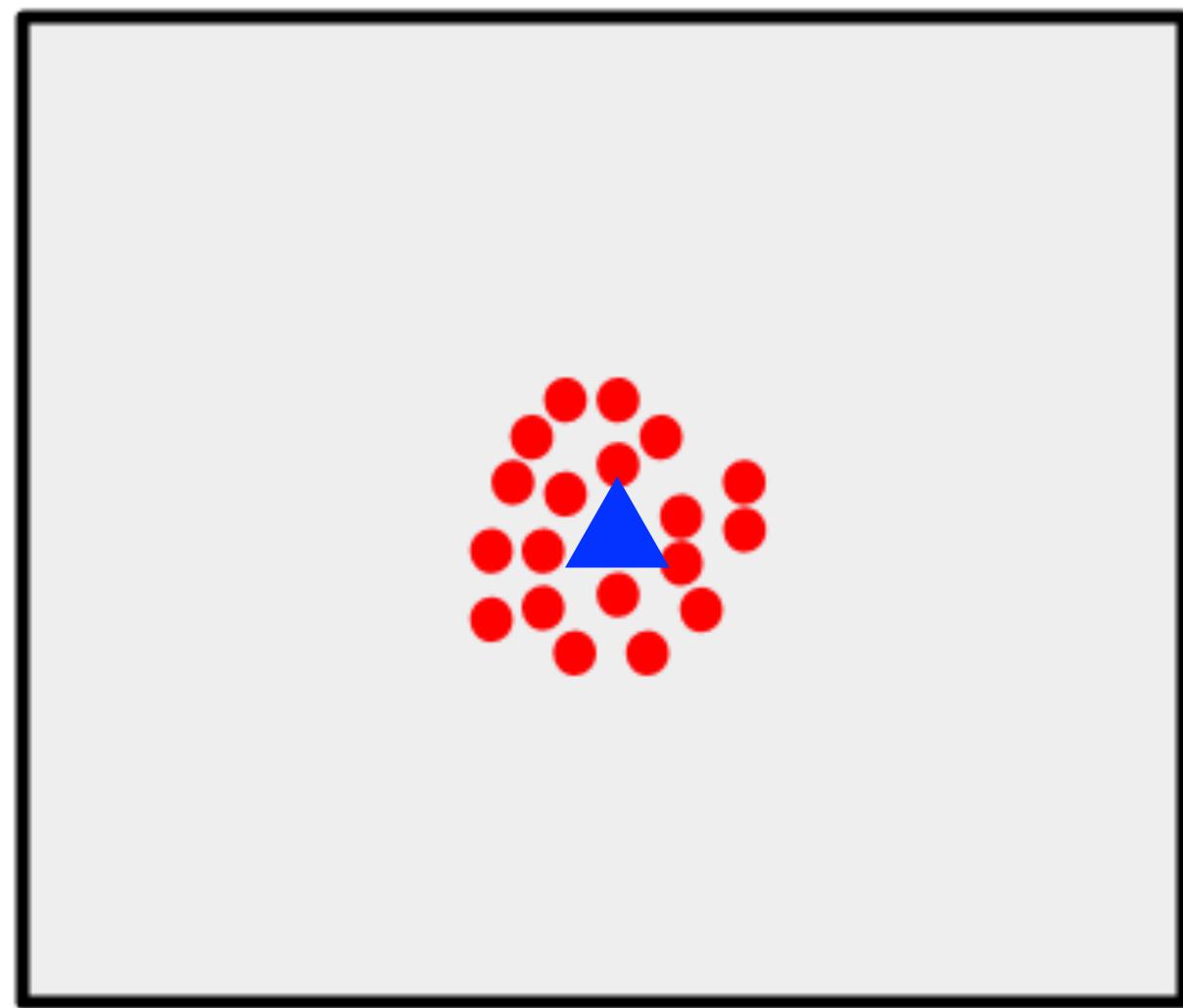
Huh. So what are rural
scores not?

Scores are often **not** a function of:

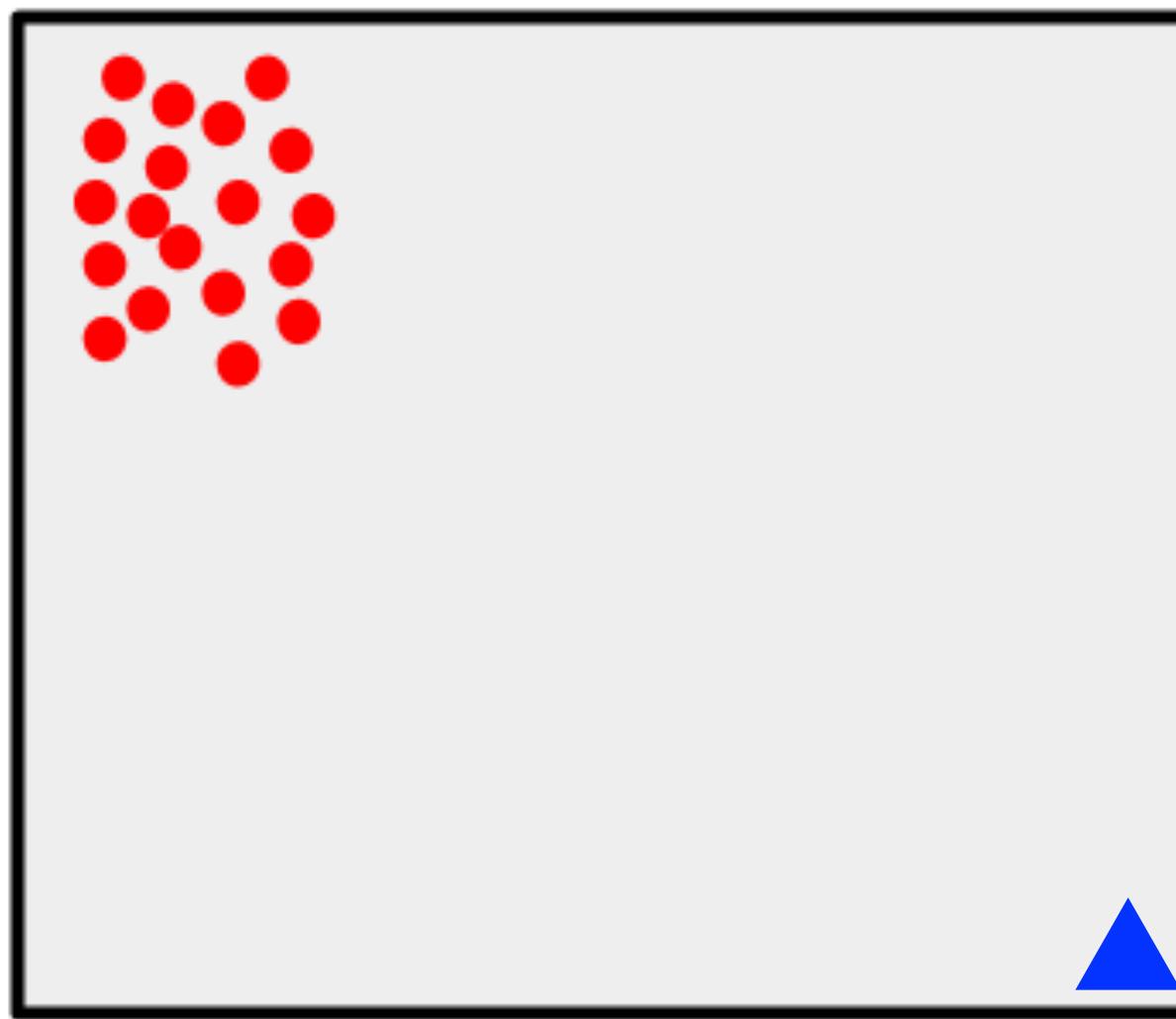
1. What the space *around* that space is

It's tempting to think we should always use smaller units

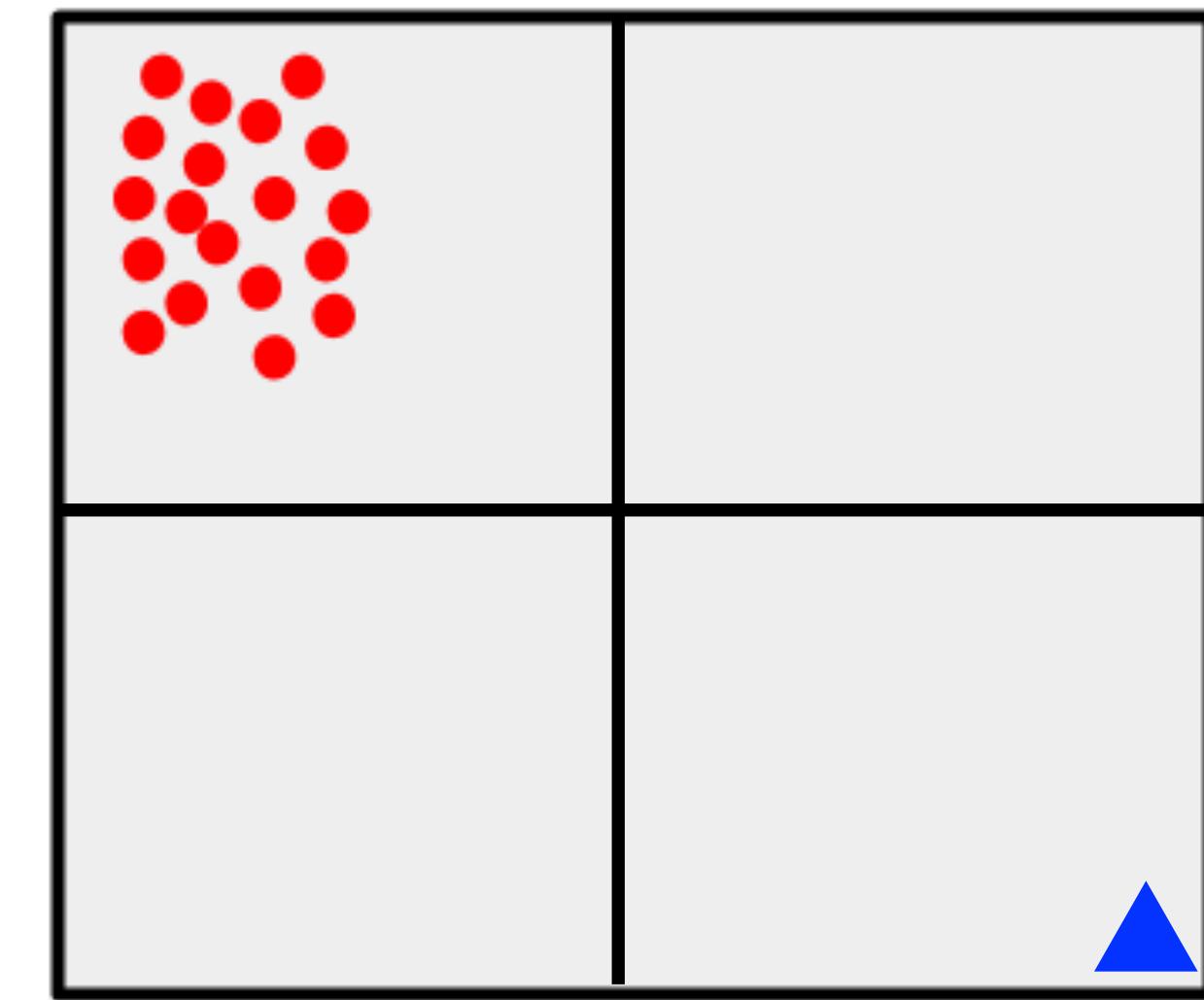
County A



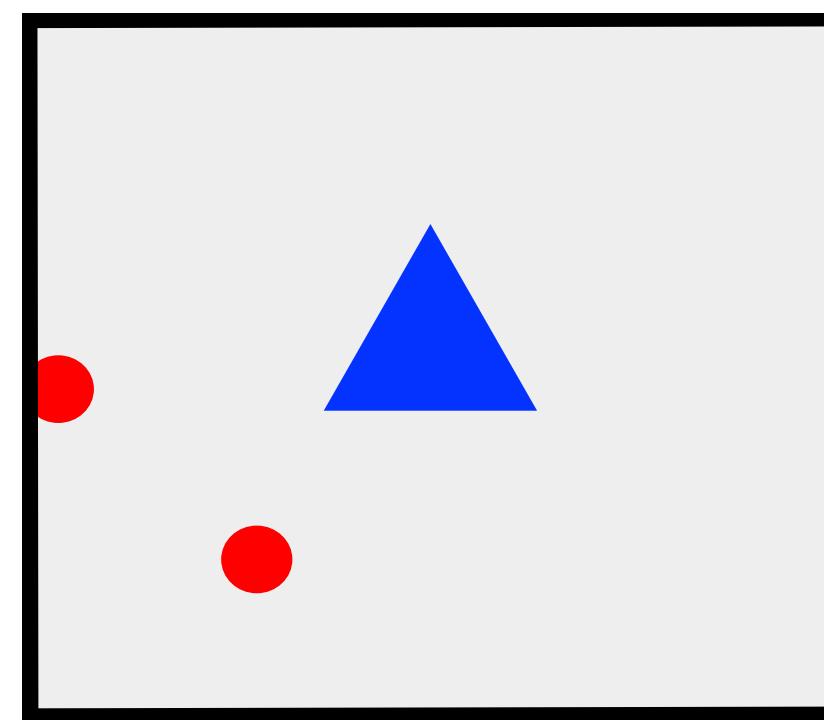
County B



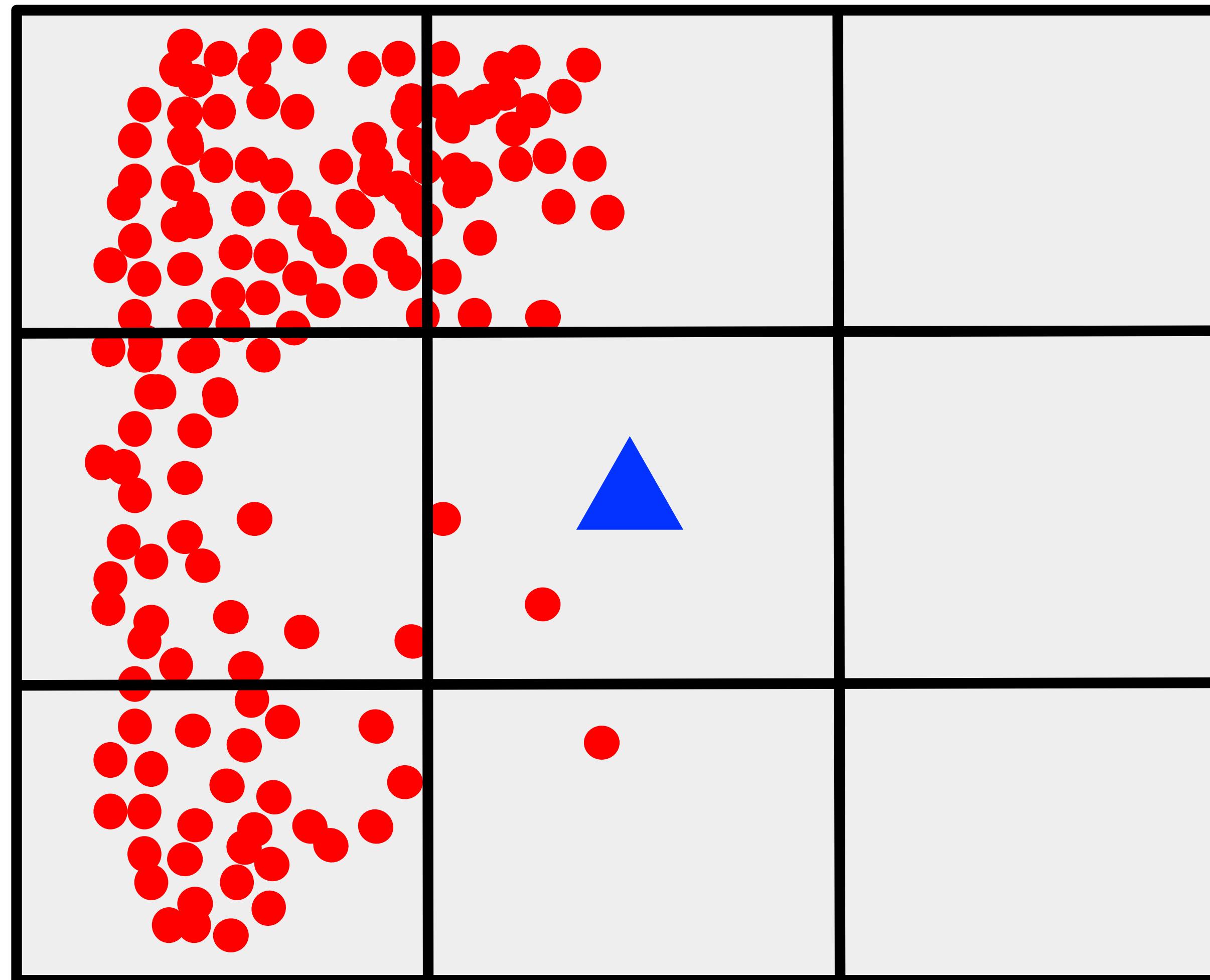
Smaller Unit



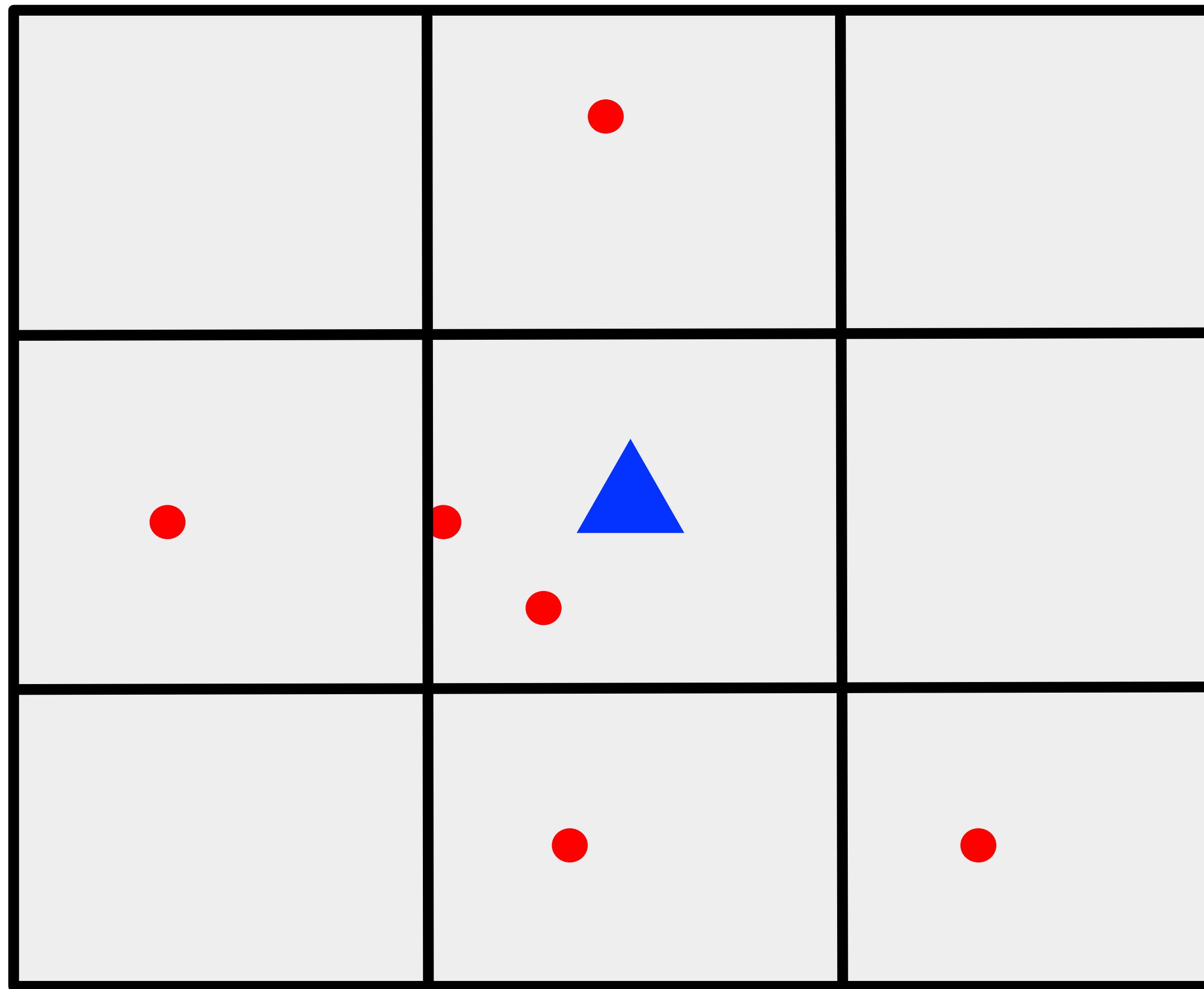
Smaller units obscure contextual information



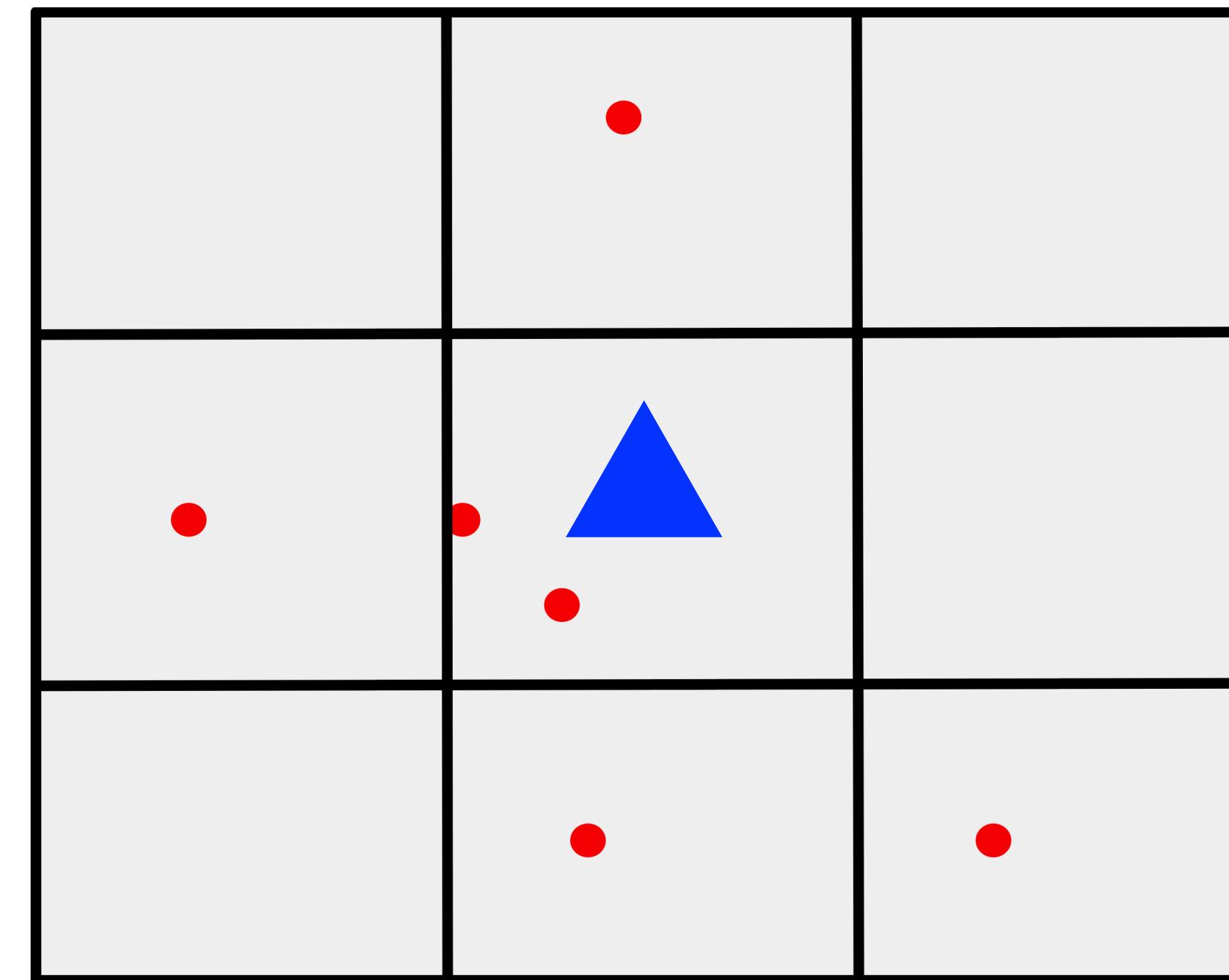
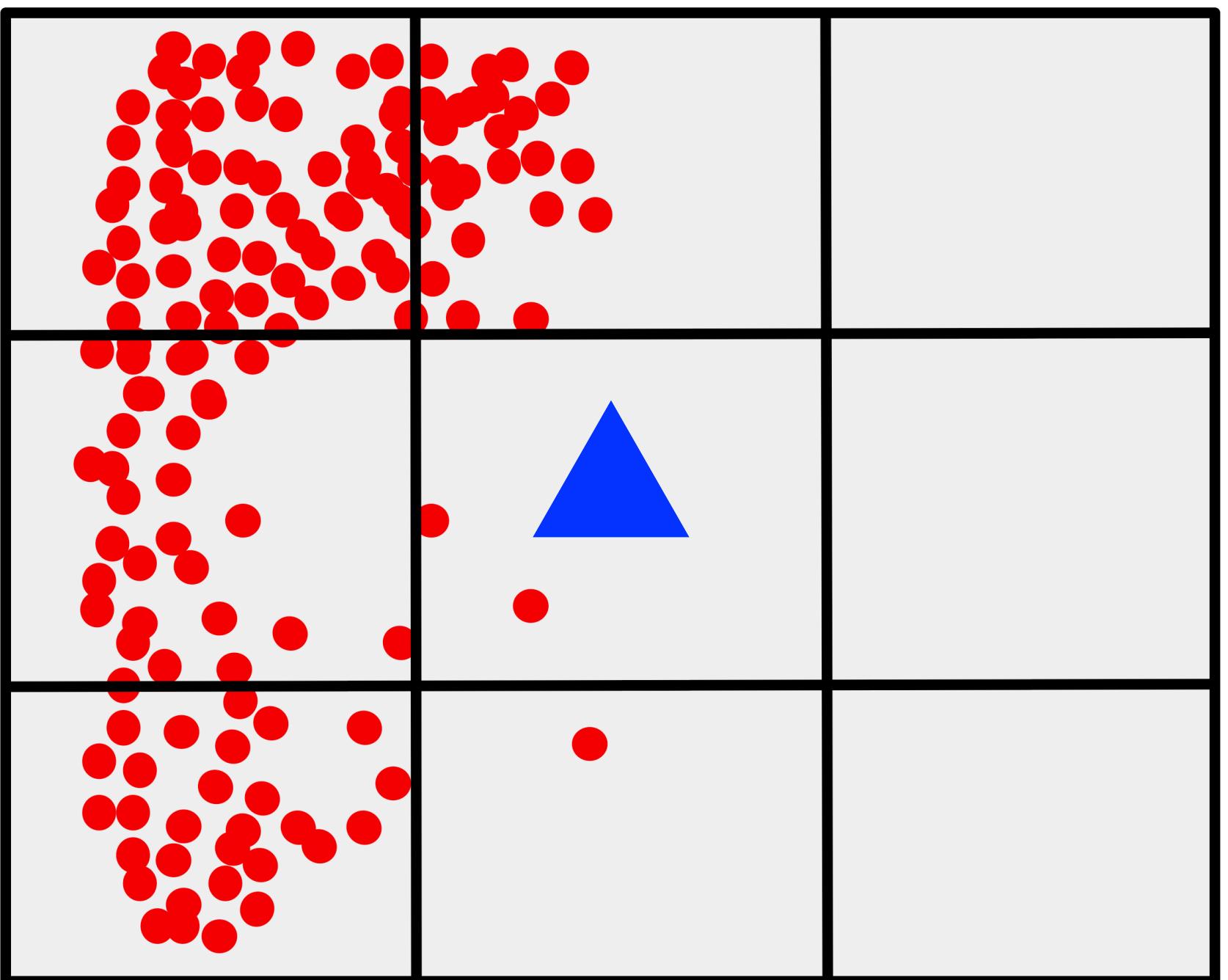
Smaller units obscure contextual information



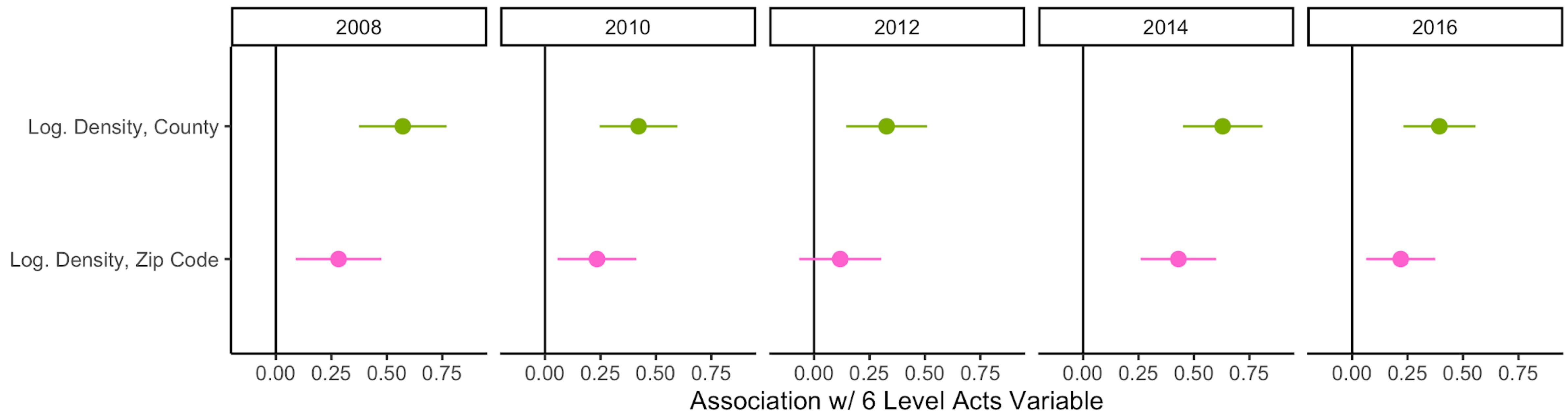
Smaller units obscure contextual information



Smaller units obscure contextual information



Smaller geographic units can attenuate results



The “central park” problem



Smaller units are not always better!

more variation, less context

Scores are often **not** a function of:

1. What the space *around* that space is
2. The access that space has to other spaces

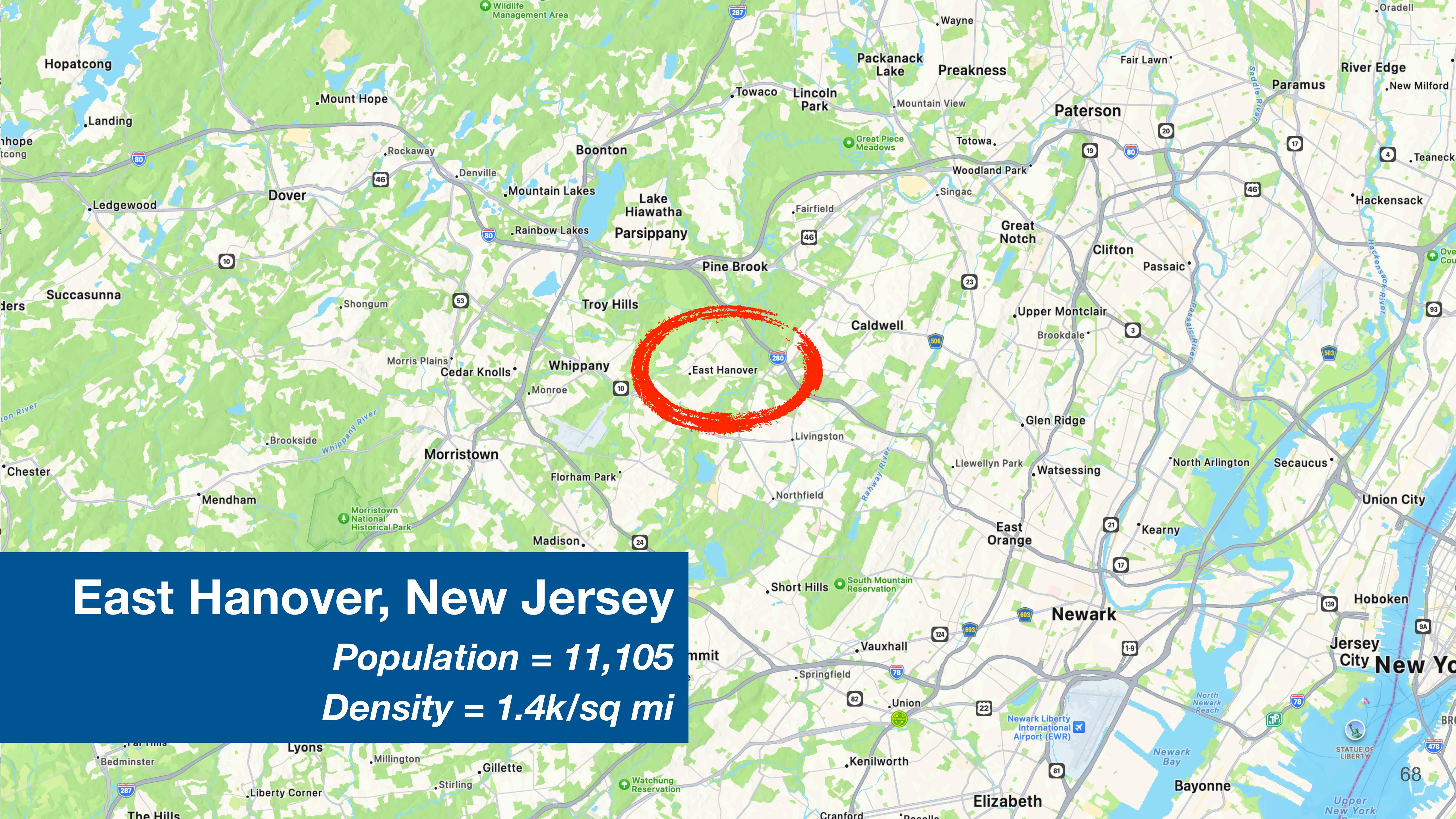
A tale of two towns

	Town 1	Town 2
Population	17,444	11,105
Population Density	1.7k/sq mi	1.4k/sq mi
Land Area	12.71 sq mi	8.1 sq mi

Sheridan, Wyoming

Population = 17,444

Density = 1.7k/sq mi



So what do we do?

Scores are a function of

1. Where people live
2. Number of values the variable can take
3. How borders are drawn
4. Size of the geographic space

Scores **should** be a function of

- 1. Where people live**
- 2. Number of values the variable can take**
- 3. How borders are drawn**
- 4. Size of the geographic space**

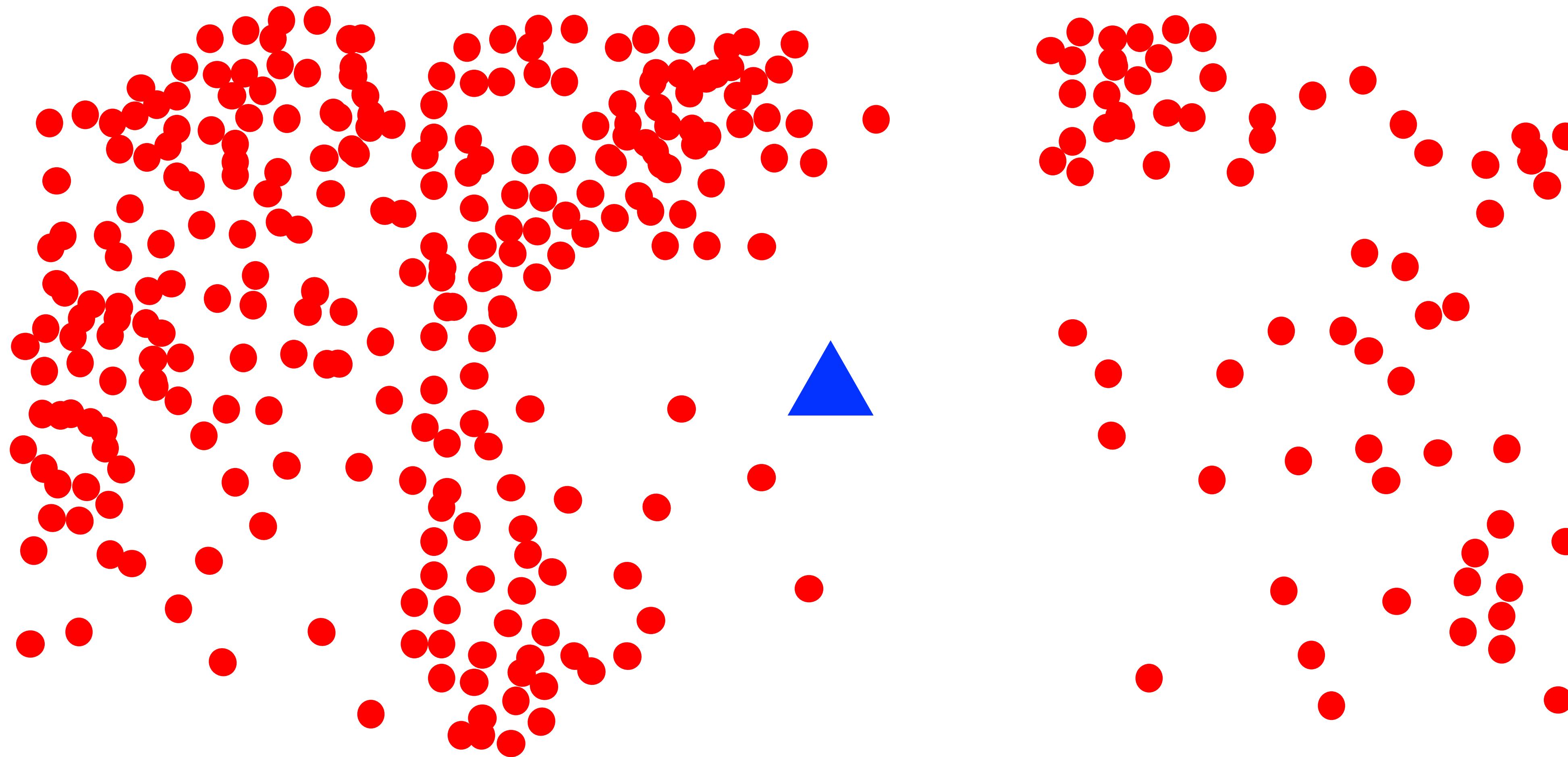
Scores **should** be a function of

1. Where people live
2. ~~Number of values the variable can take~~
3. ~~How borders are drawn~~
4. ~~Size of the geographic space~~
5. What the space *around* the space in question contains
6. The access that space has to other spaces

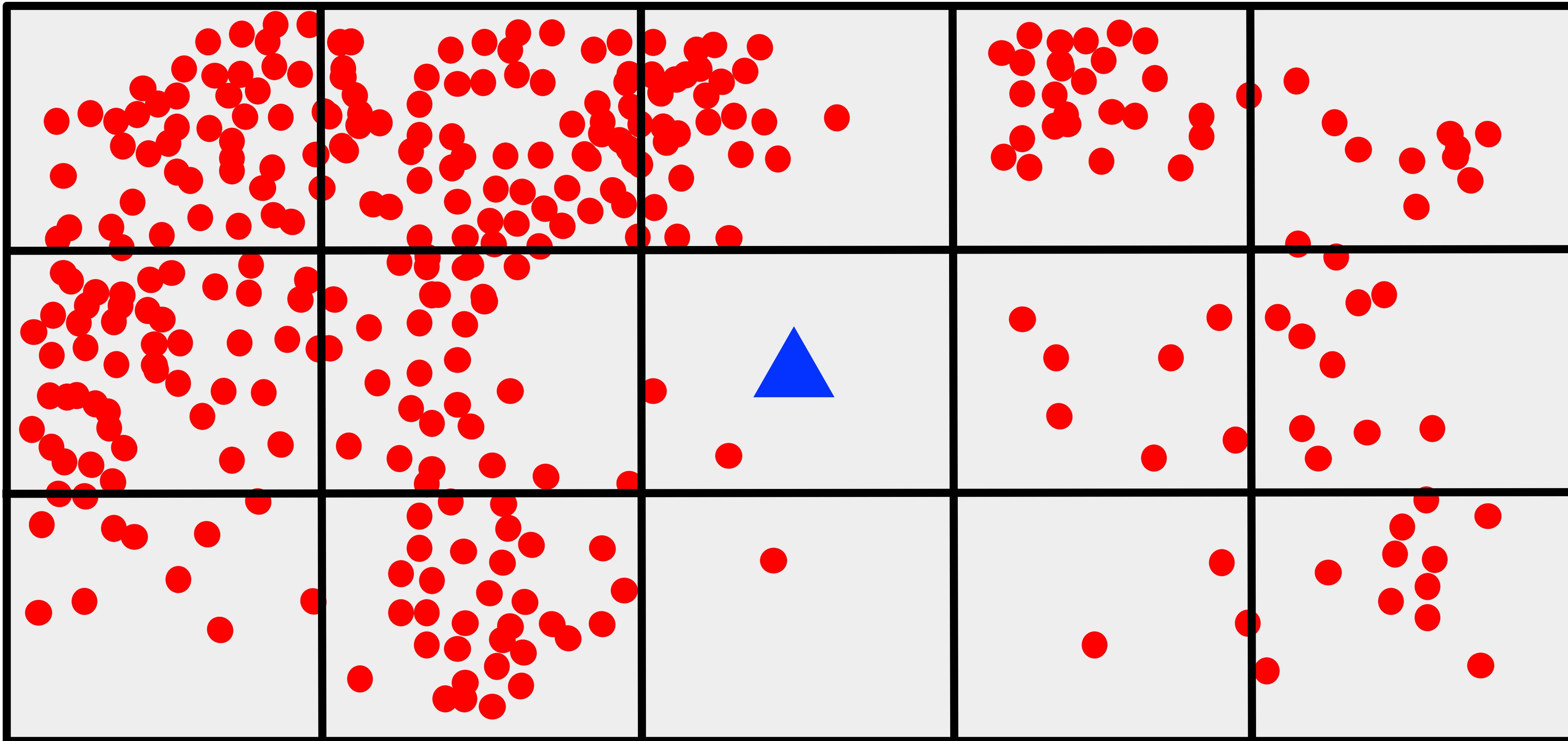
we want a measure that is
contextually sensitive
and
locally precise

The Plan

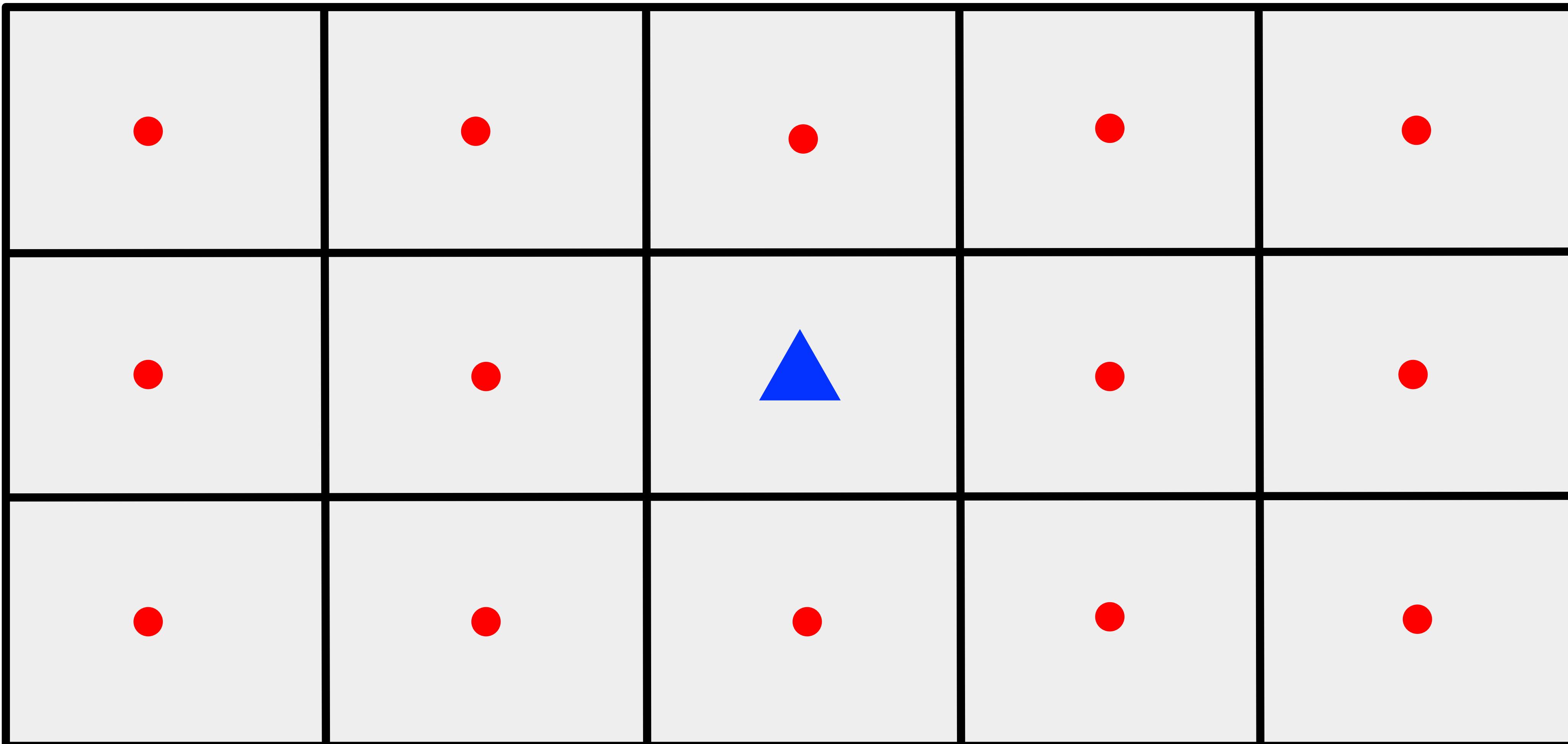
for a geographic space



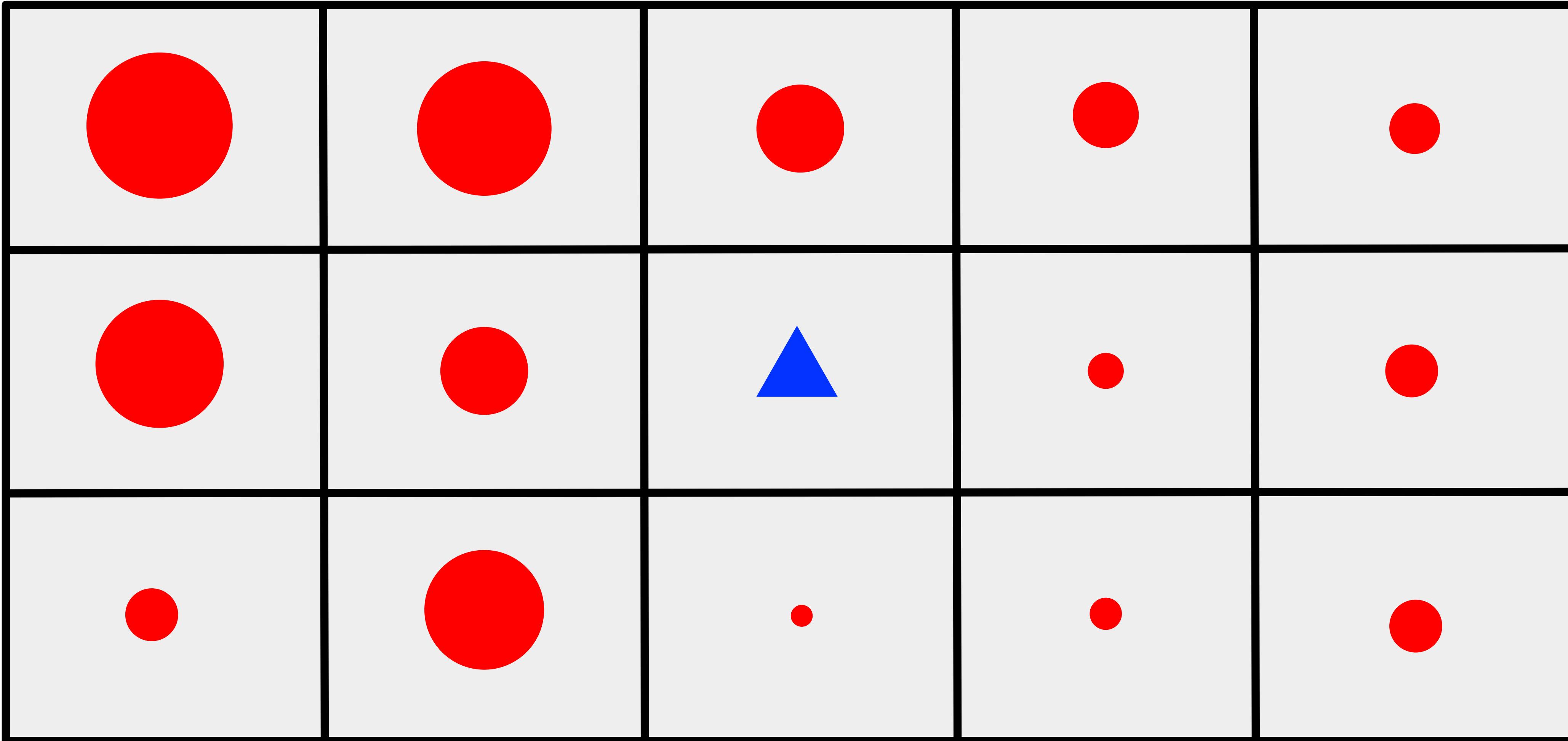
divide the whole space into units



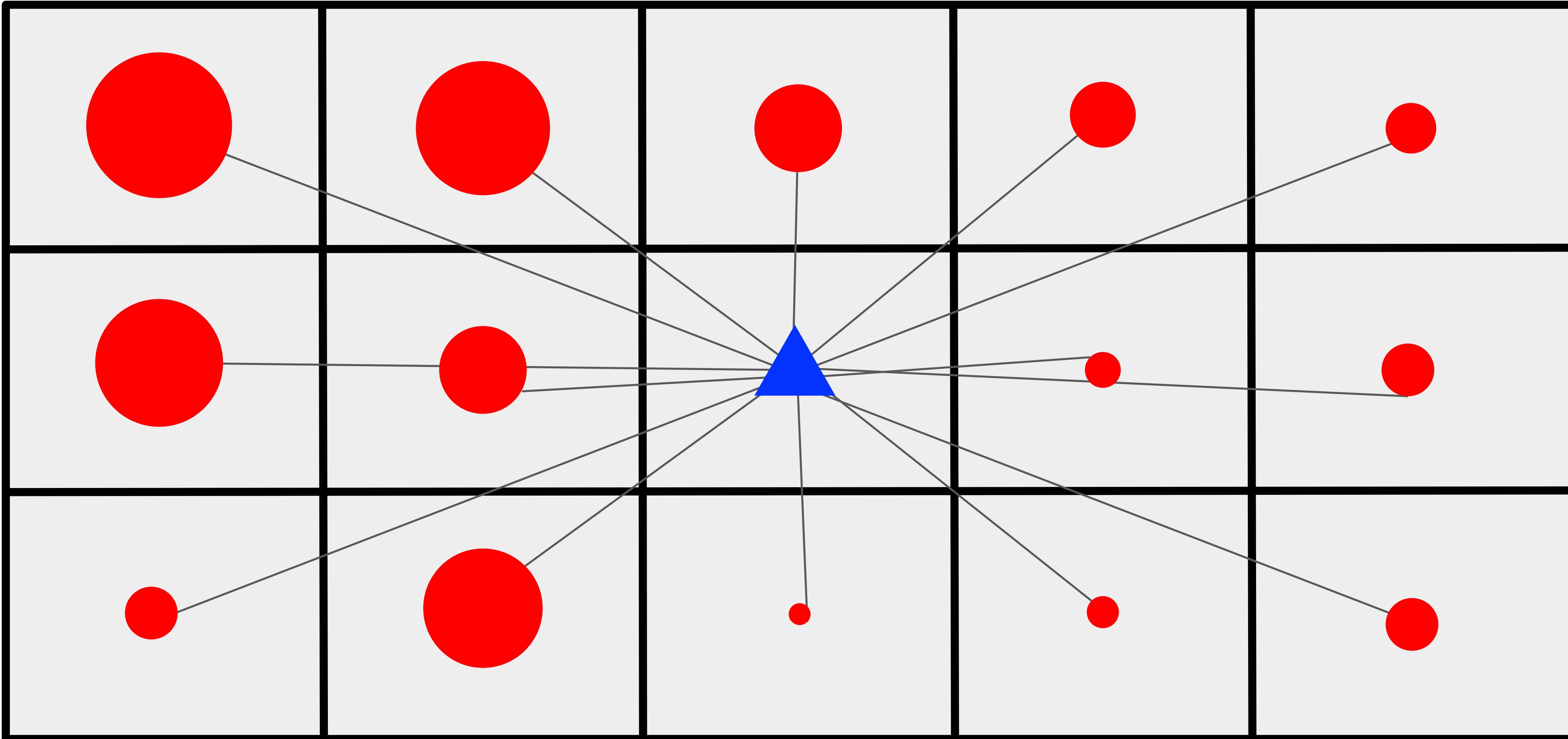
find the geographic centroid of each unit



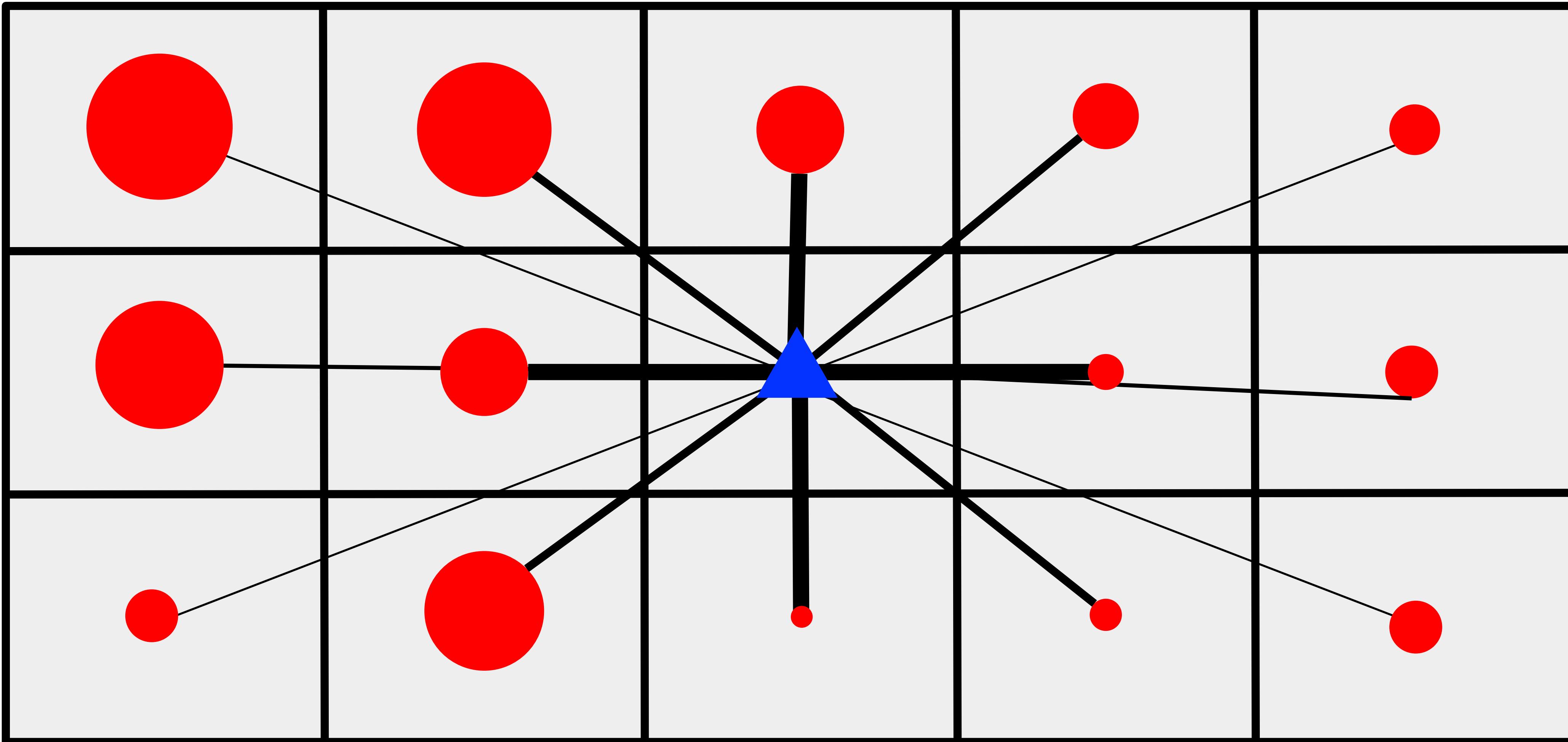
scale that centroid by population



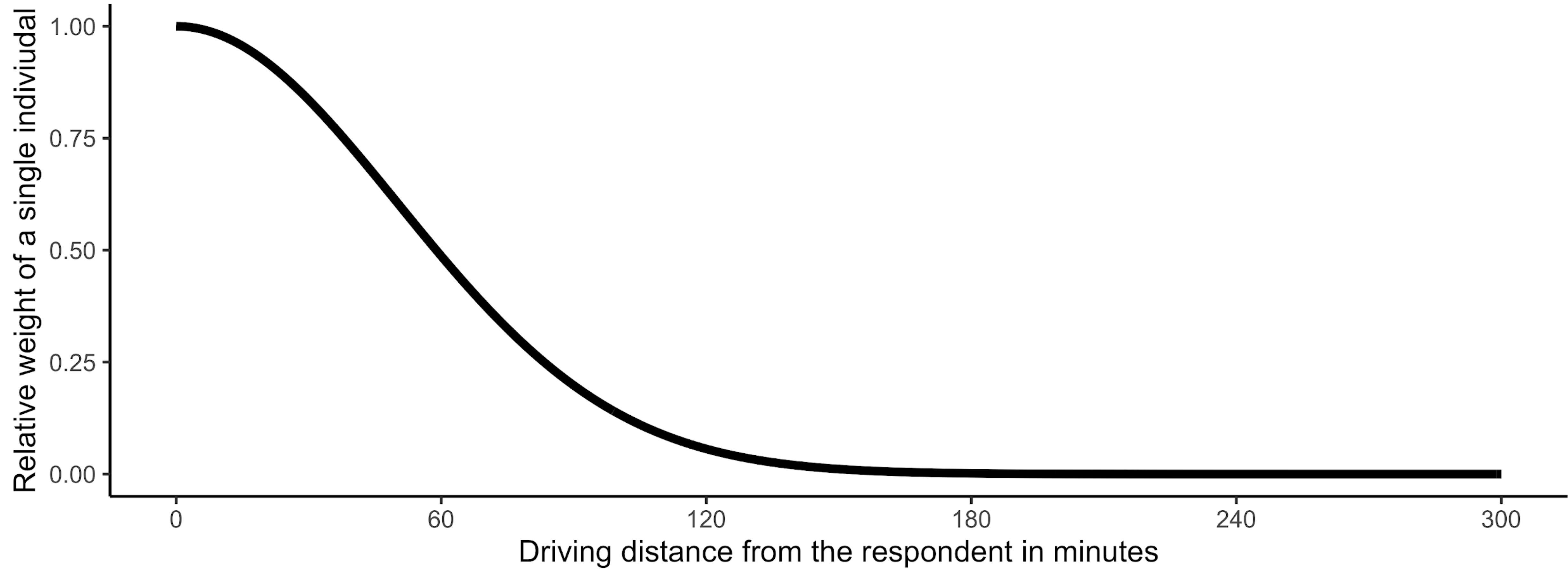
calculate distance between centroids and the ego



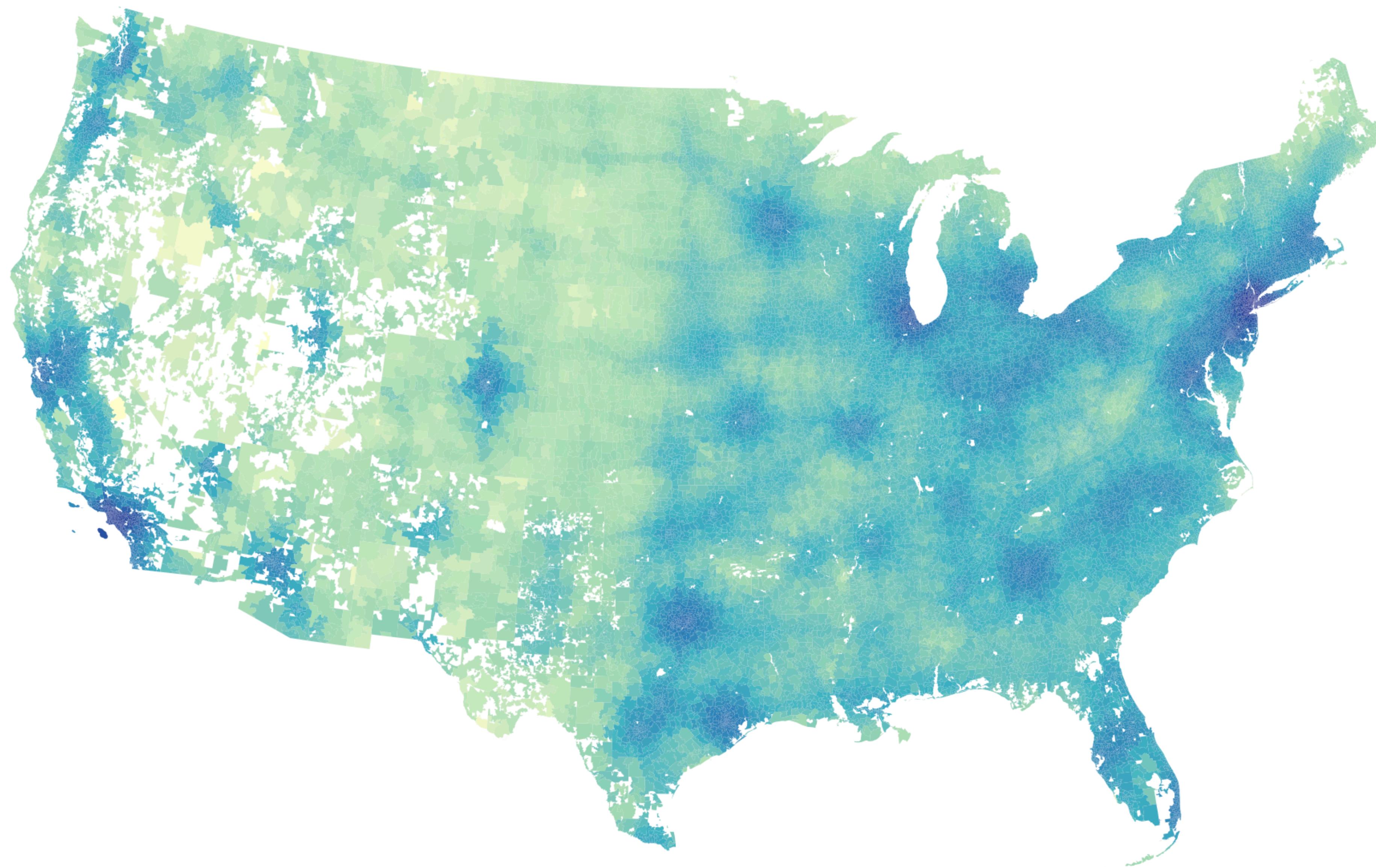
weight the influence on the ego by distance



some details



iterate for every unit



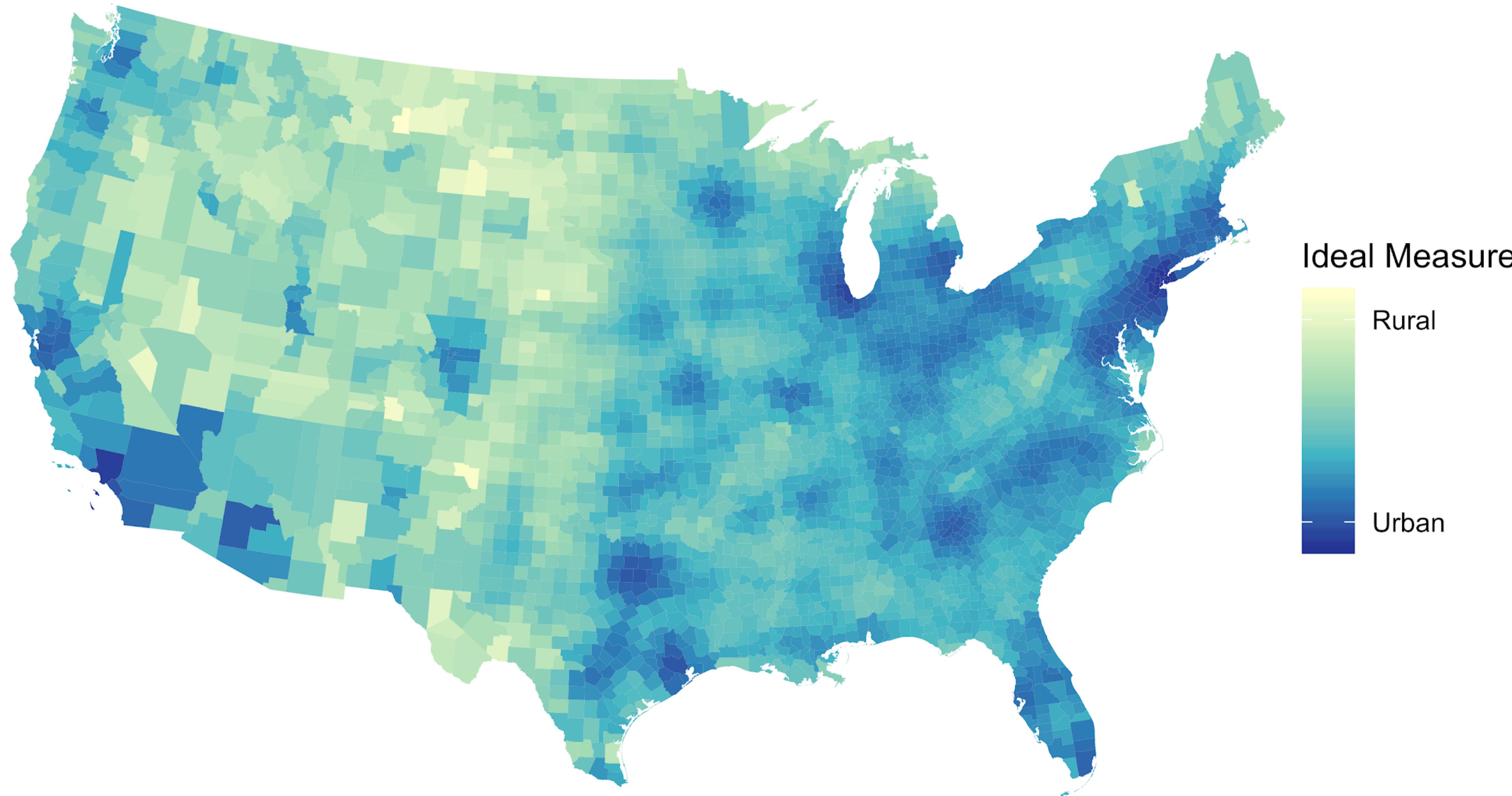
Ideal Measure



Rural

Urban

*census 2010 data
computed across zip codes*



*census 2010 data
computed across counties*

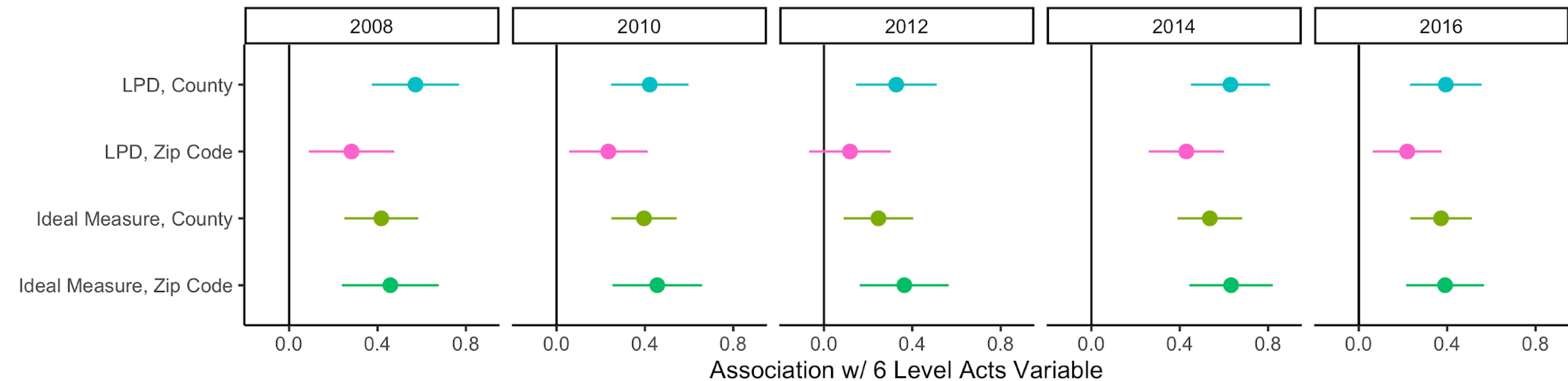
Advantages

The resulting measure

- Balanced tradeoff between contextual sensitivity *and* local precision
 - ~30 miles away from Sheridan, Wyoming:
 - Buffalo, WY (~4,400 people)
 - ~30 miles away from East Hanover, New Jersey:
 - Manhattan, New York City (~18 million people)

The resulting measure

- Contextually sensitive *and* locally precise
- More robust to geographic unit of analysis changes



The resulting measure

- Contextually sensitive *and* locally precise
- Robust to geographic unit of analysis changes
- Computable across any geography
 - . . . down to the census **block**



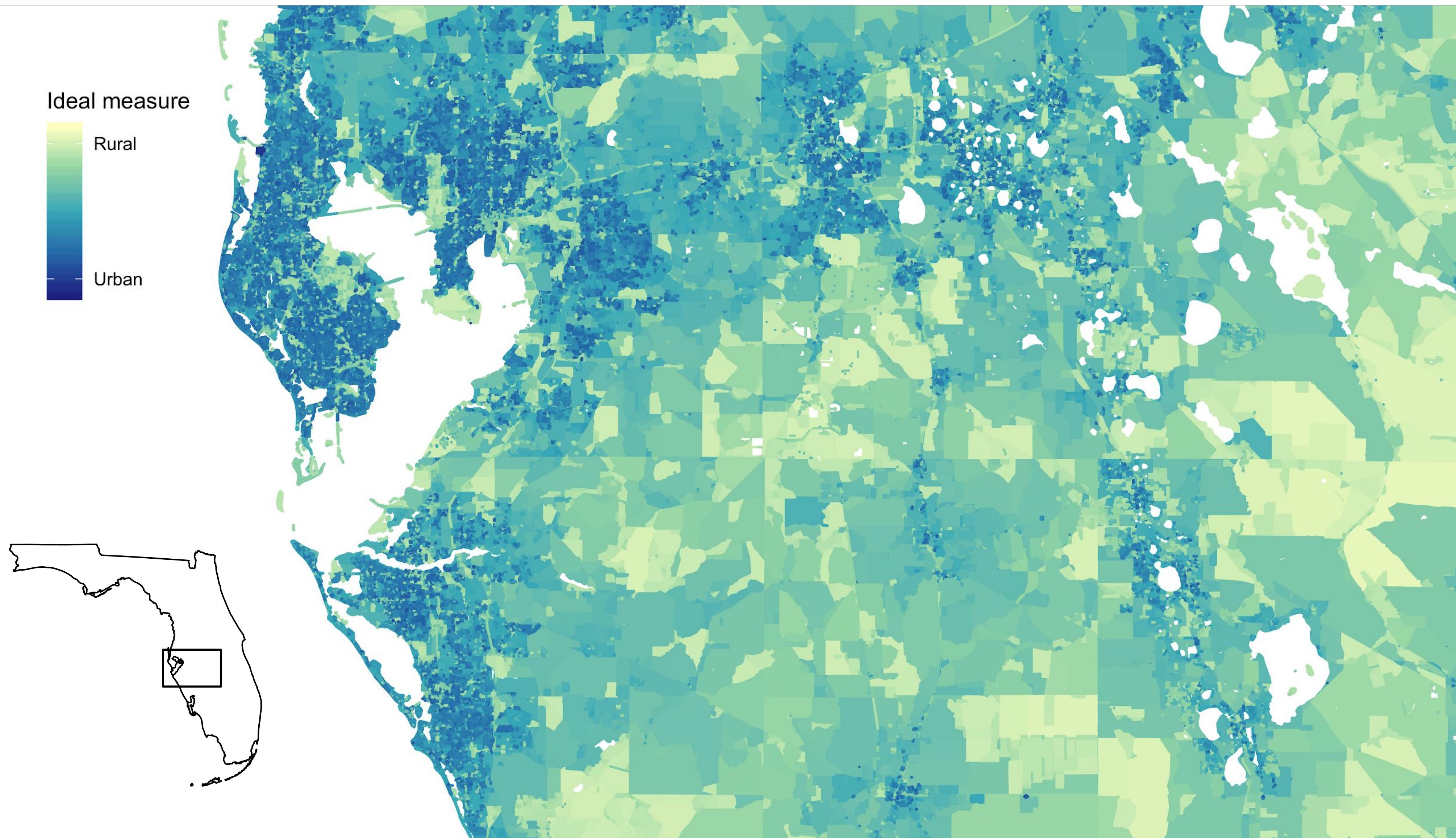
How much more precise is it?



How much more precise is it?



How much more precise is it?



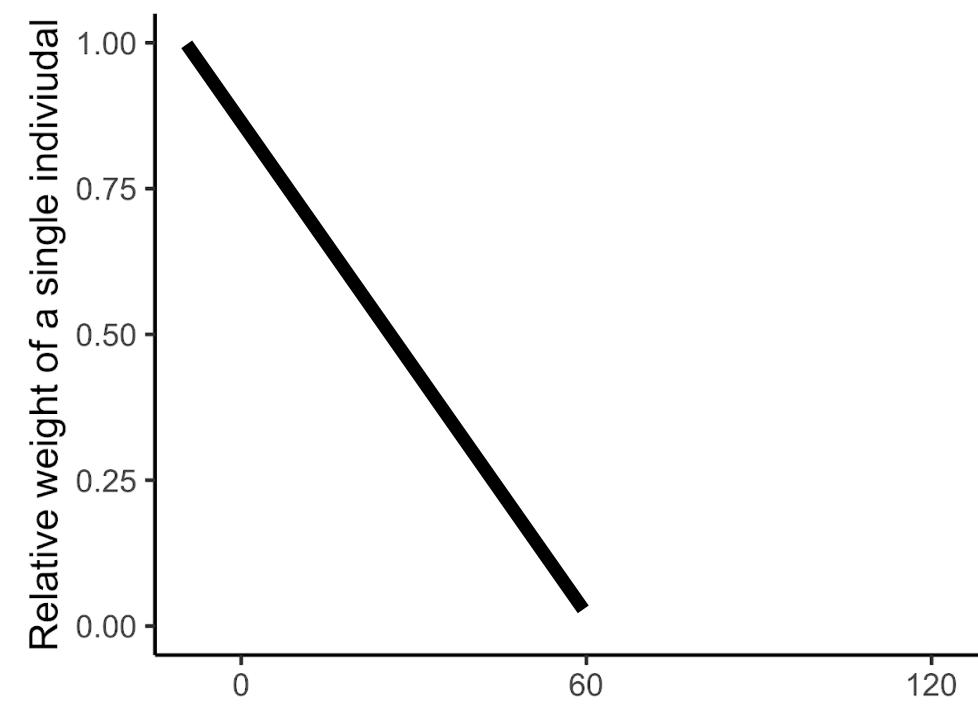
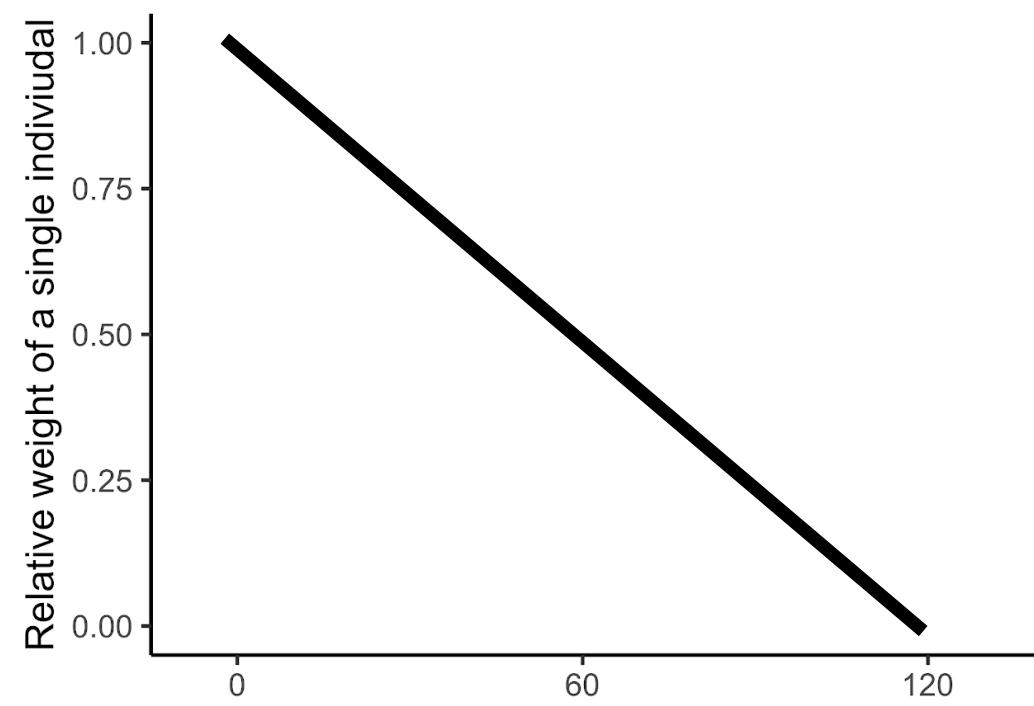
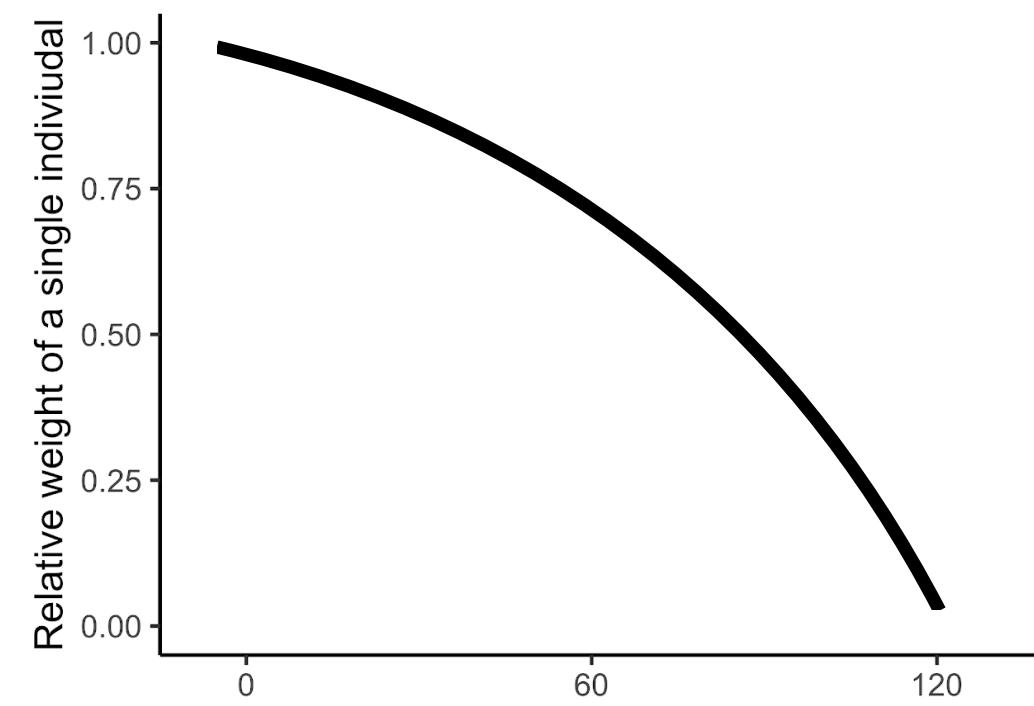
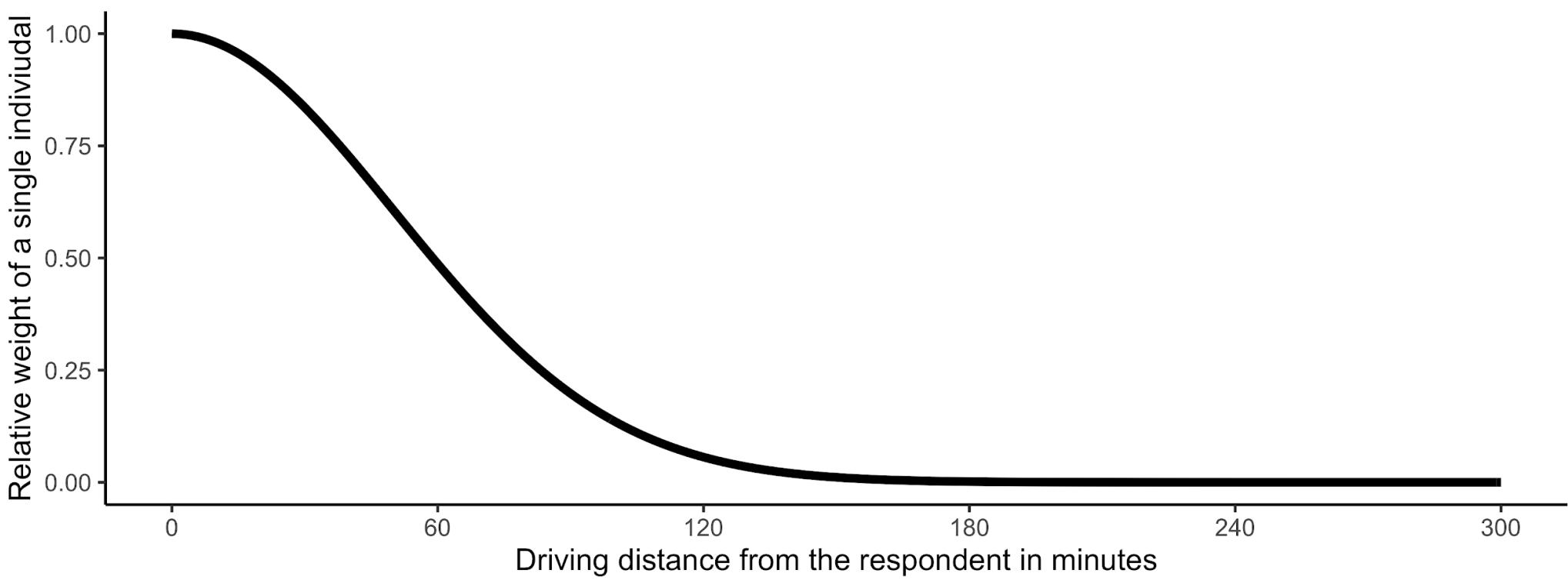
The resulting measure

- Contextually sensitive *and* locally precise
- Robust to geographic unit of analysis changes
- Computable across any geography
- Somewhat resource intensive to compute initially
 - *but* easy to match to respondents or geographies, at the smallest geographic unit available, once computed

The resulting measure

- Contextually sensitive *and* locally precise
- Robust to geographic unit of analysis changes
- Computable across any geography
- Somewhat resource intensive to compute initially
 - *but* easy to match to respondents or geographies, at the smallest geographic unit available, once computed
- Allows for different decay functions to be applied at different bandwidths

Decay functions



The resulting measure

- **Balanced** tradeoffs: Contextually sensitive *and* locally precise
- **Contextual**: Robust to geographic unit of analysis changes
- **Precise**: Computable across any geography, even small ones
- **Practical**: easy to match to respondents or geographies, at the smallest geographic unit available, once computed
- **Flexible**: allows for different decay functions to be applied at different bandwidths

Does it make a
difference?

Rurality and Policy Congruence

- Rural citizens generally feel that the federal government is both less **responsive** and **congruent** with their preferences
 - Responsive: **direction** of policy movement
 - Congruence: **agreement** between policy and constituent attitudes
- We can see this reported by media in the United States in both the 2016 and 2020 elections
 - As well as in survey data in Canada

So, is it true? Are rural representatives less responsive to their constituents?

- Flavin and Franko (2019), “Economic Segregation and Unequal Policy Responsiveness”
 - Uses **roll call vote match** data to see which citizen policy attitudes are reflected by representatives and which are not (CCES, 2008-2012)
 - Measures rurality with the US Census’ Urban Area Relationship variable:
 - a **dummy** variable
 - at the **zip code** level

Are rural representatives more or less responsive to their constituents?

- Dependent Variables: **Policy Congruence Score (0-100)**
- Independent Variables: income, party identification, age, race (individual and zip code), ethnicity (individual and zip), gini coefficient (zip code), **rurality** (zip code) measured as a dummy variable
- We begin by replicating Flavin and Franko

<i>Dependent variable:</i>	
Congruence Score	
Income	0.067 (0.073)
Same Party ID	24.302** (0.159)
Age	0.032*** (0.005)
Black	-2.151*** (0.291)
Hispanic	-0.689** (0.325)
Rich Insulation Index	0.212** (0.102)
Percent of Zip Code Black	4.653*** (0.778)
Percent of Zip Code Hispanic	0.614 (0.851)
Binary Rural Measure	0.850*** (0.265)
Zip Code Gini	4.628** (1.830)
Constant	42.411*** (1.463)

*p<0.1; **p<0.05; ***p<0.01

Are rural representatives more or less responsive to their constituents?

- Dependent Variables: **Policy Congruence Score** (0-100; 100=more congruent)
- Independent Variables: income, party identification, age, race (individual and zip code), gini coefficient (zip code), **rurality** (zip code)

census (binary 0-1)	
rurality (1=rural)	.850*** (0.265)

*slightly **more**
congruent*

Are rural representatives more or less responsive to their constituents?

- Dependent Variables: **Policy Congruence Score** (0-100; 100=more congruent)
- Independent Variables: income, party identification, age, race (individual and zip code), gini coefficient (zip code), **rurality** (zip code)

	census (binary 0-1)	pop. density (continuous 0-1)
rurality (1=rural)	.850*** (0.265)	-0.117 (0.095)

*slightly more
congruent*

*insignificantly less
congruent*

Are rural representatives more or less responsive to their constituents?

- Dependent Variables: **Policy Congruence Score** (0-100; 100=more congruent)
- Independent Variables: income, party identification, age, race (individual and zip code), gini coefficient (zip code), **rurality** (zip code)

	census (binary 0-1)	pop. density (continuous 0-1)	our measure (continuous 0-1)
rurality (1=rural)	.850*** (0.265)	-0.117 (0.095)	-4.156*** (1.733)
	<i>slightly more congruent</i>	<i>slightly less congruent</i>	<i>significantly less congruent</i>

So are rural representatives more or less congruent relative to their constituents?

- **Less!** (But you wouldn't suspect that using binary, non contextual, zip data)
- **Voters know what they're talking about**
- Finally: Rurality not the focus of Flavin and Franko, but measures are important, even as controls:

	census (binary 0-1)	pop. density (continuous 0-1)	our measure (continuous 0-1)
rich insulation index	.212** (0.102)	0.091 (0.106)	0.051 (0.106)

**So, how should we
measure rurality?**

What really is rural? How should we measure it?

- This project:
 - an emphasis on measurement and unit of analysis challenges
 - a way to partially overcome them
- Many argue need to measure more: access to resources, cultural events, health care, broadband, utilities, etc
- We suggest: other features of urbanity and rurality are *downstream* of population distribution

Practically: how should you measure rurality in your project right now?

- Strong argument: **self-identification**.
 - Avoids geographic unit problems
 - People have a better idea where they live than anyone else (*Nemerever and Rogers, 2021*)
 - However, asking on surveys can conflate rural *identity* and rural *place location*, which are different things
- If forced: can probably do much worse than logged population density (county level)
- But if possible, **use a contextually sensitive measure!**
 - (ours, index of relative rurality, etc)

The to-do list

- **Data**
 - Update for the 2020 census; backport through other census data (2000, 1990, etc)
 - Make data publicly available
- **Software**
 - Publish the R package, allowing for others to calculate
- **Analysis**
 - ANES Project: American National Election Studies
 - Downstream project:
 - see how our measure predicts other social, economic, cultural elements of urbanity (access to healthcare/hospitals, services, broadband, etc)

Thanks

- To my student collaborators from the New College Political Behavior Lab:
 - Jack Belk, Eugenia Quintanilla, Rory Renzy, Mollie Saumier
- My collaborators from other institutions:
 - Debra Leiter, Ronald Rapoport
- To you all

Questions?