Fostering Inclusive Support Ecosystems: A Community of Practice Conversation on Rural Entrepreneurship and Extension Programming

Maine Business School and UMaine Cooperative Extension, University of Maine
Regional Research Institute & WVU Cooperative Extension, West Virginia University
Northeast Regional Center for Rural Development, Penn State University

NACDEP June 10, Charleston, WV

National Institute of Food and Agriculture

U.S. DEPARTMENT OF AGRICULTURE

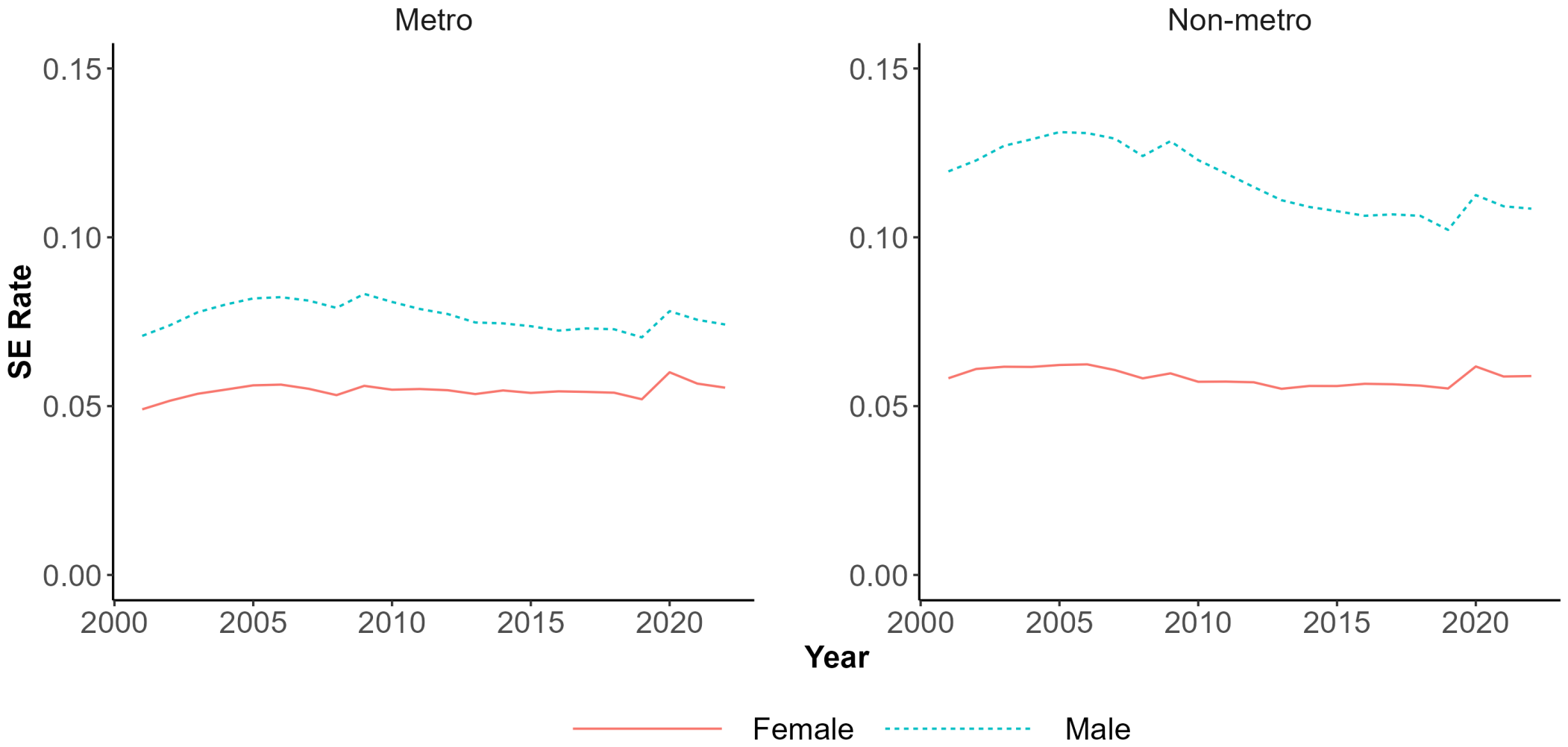
This work was supported by the Agriculture and Food Research Initiative, project award no. 2023-68006-39842, from the U.S. Department of Agriculture's National Institute for Food and Agriculture (USDA NIFA).

Any opinions, findings, conclusions, or recommendations expressed in this presentation are those of the author(s) and should not be construed to represent any official USDA or U.S. Government determination or policy.

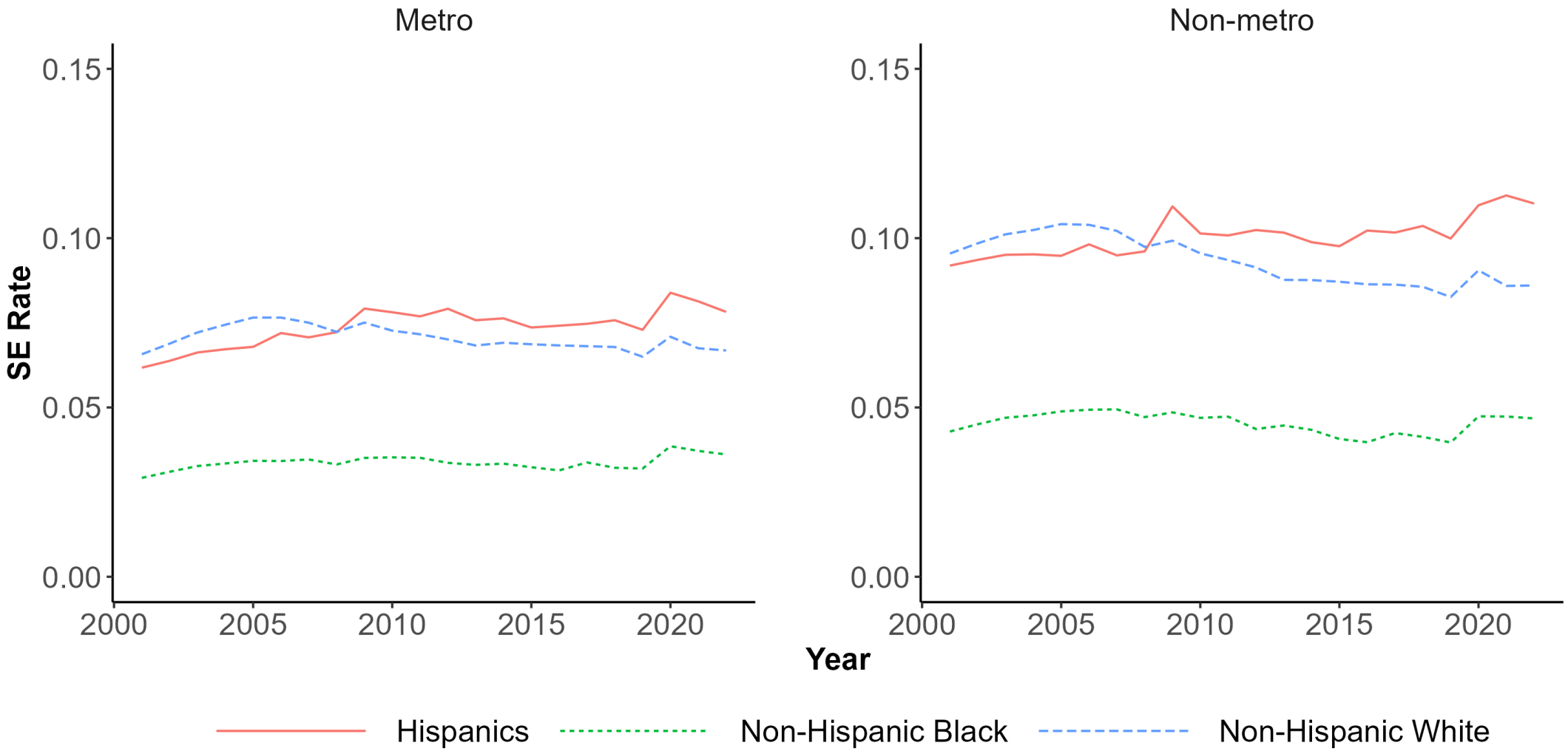
Background

- Self-employment → Economic development
  - Higher overall employment growth
  - More job opportunities for communities
- Vary across groups:
  - Female/Male
  - Minority/Majority
  - Rural/Urban

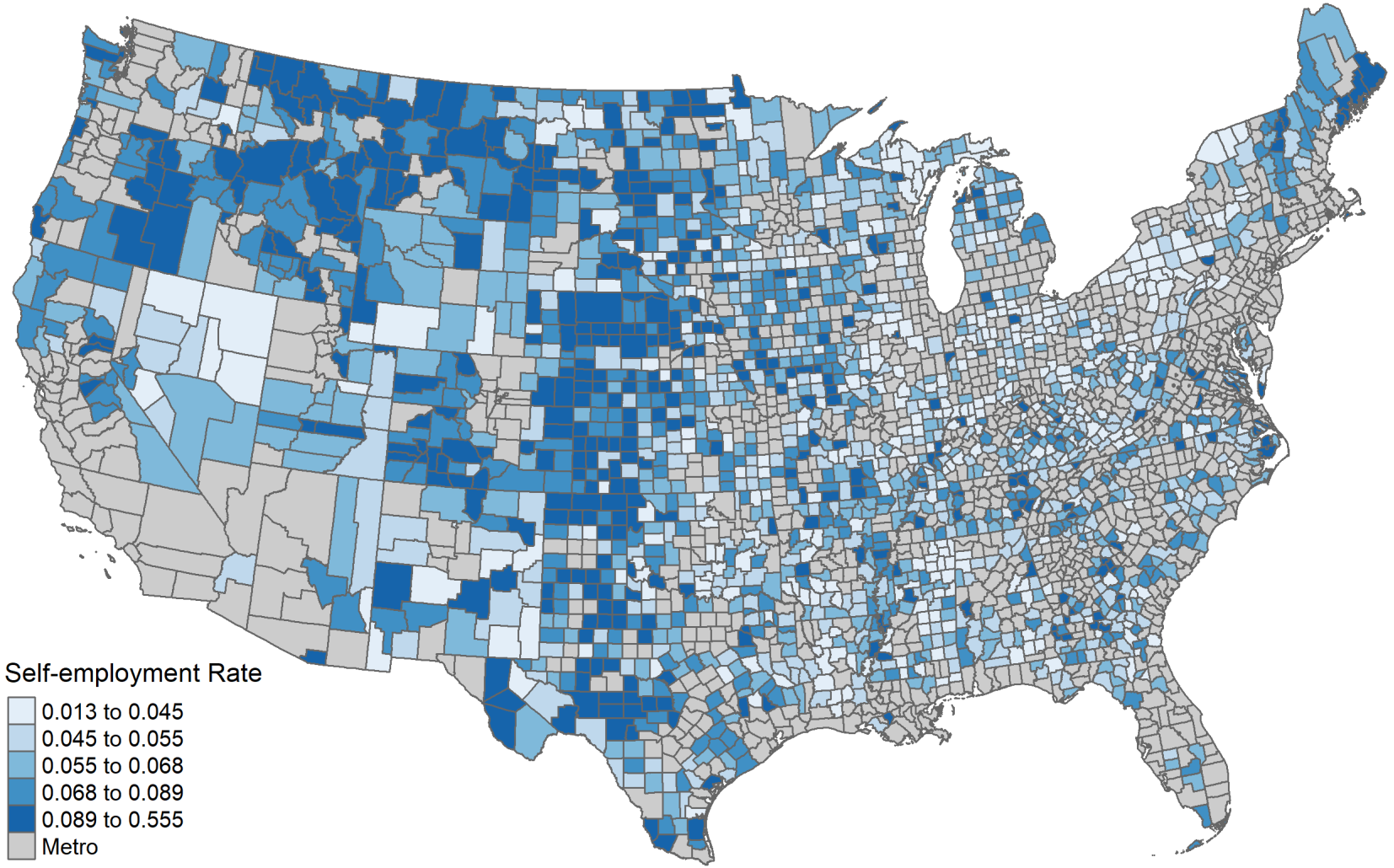
Self-Employment Rate by Gender and Area



Self-Employment Rate by Race and Area

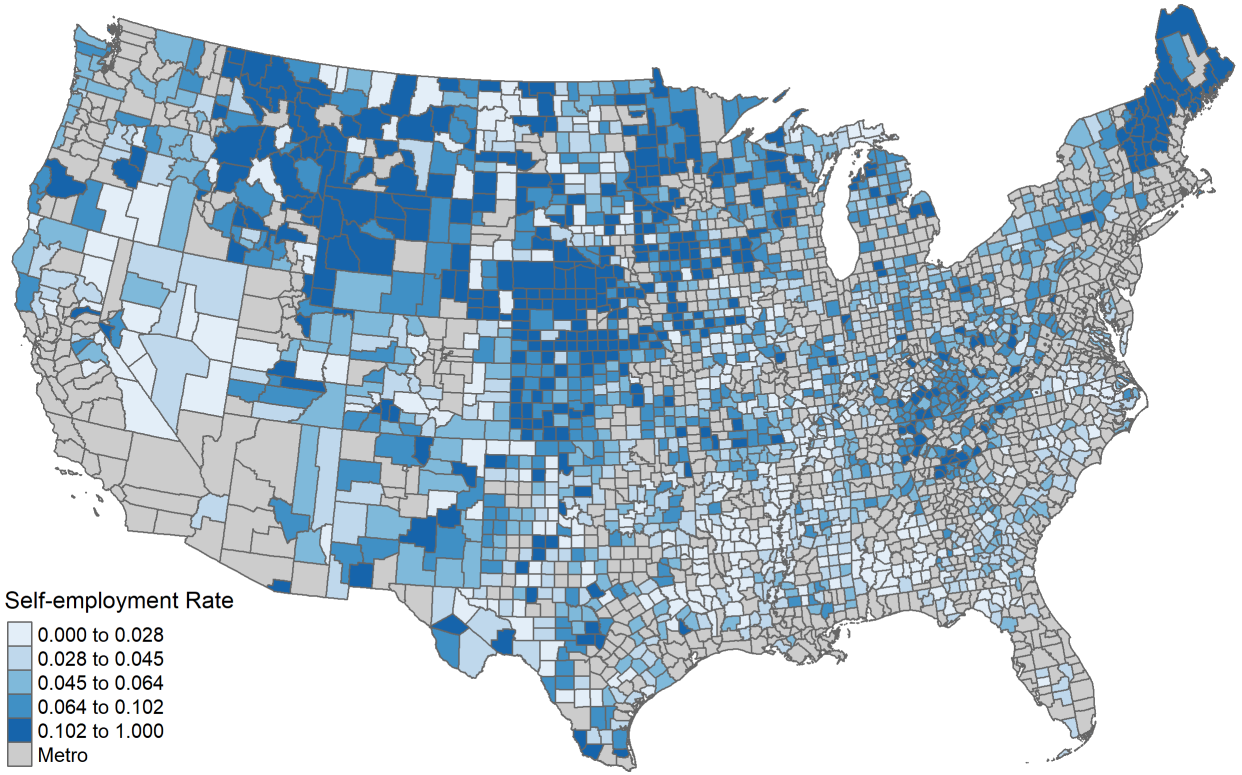


Regional Differences Across Rural Areas: Female

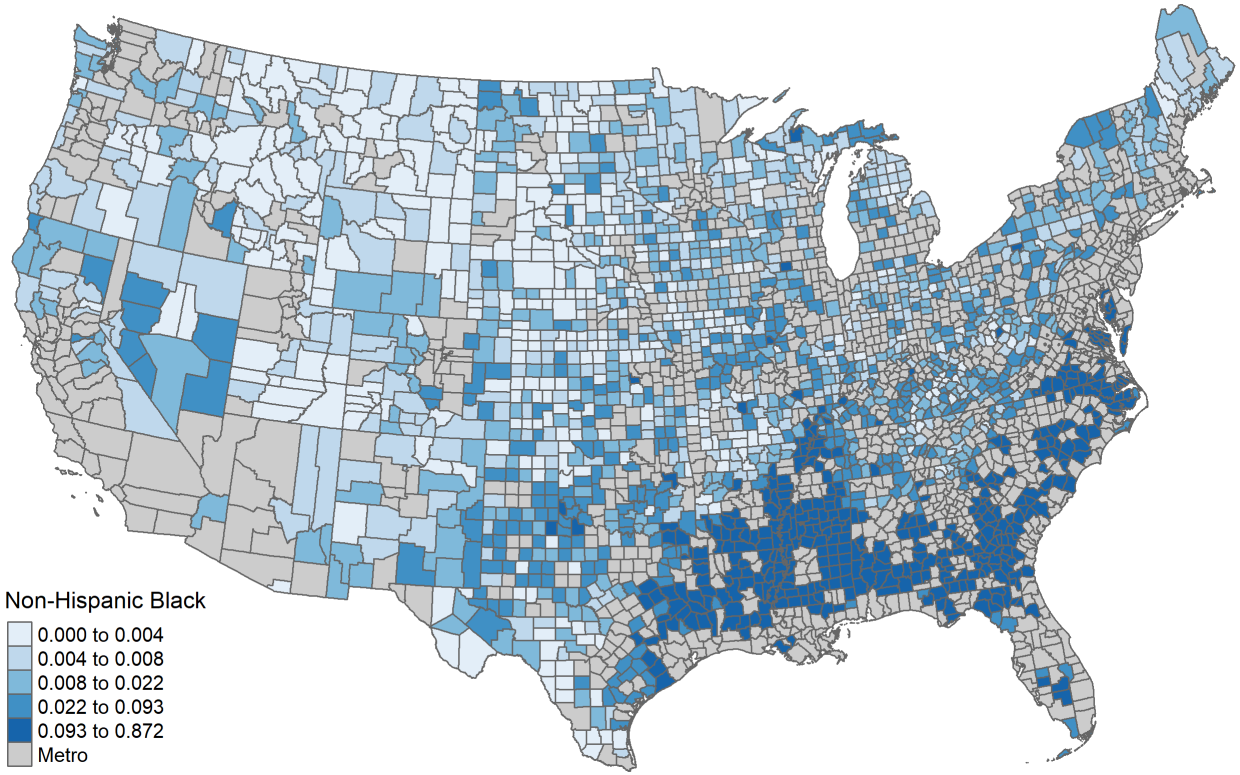


Regional Differences Across Rural Areas: Black

Self-employment Rate



Share of Black Population



Possible Factors Affecting Self-employment

- Demographics
  - Age, gender, education, foreign-born, population density
- Local economic conditions
  - Industry composition, wage, commute time, employment growth, credit access
- Care support
  - Childcare, eldercare
- Other county characteristics
  - Natural environment
  - Social environment

What Drives Female Self-employment in Rural Areas?

- Rural places close to urban centers are more like metro areas
- Separate rural counties into two groups:
  - Near-metro
  - Remote rural

Common Across Rural Regions

Positive:

- Financial services
- Commute time to work

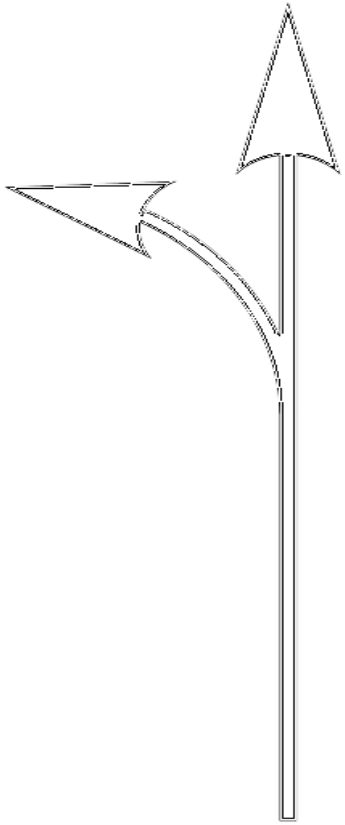
Negative:

- Strong wage and salary job market:
  - Average wage, employment (earning wage and salary) growth
- Eldercare access

Differences across Rural Regions

- For rural counties that are close to MSA:
  - Natural amenities (+)
  - Road ruggedness (−)
  - Share of women with Bachelor's degree (+)

- For more remote and isolated counties:
  - Social capital (+)
  - Childcare services (+)



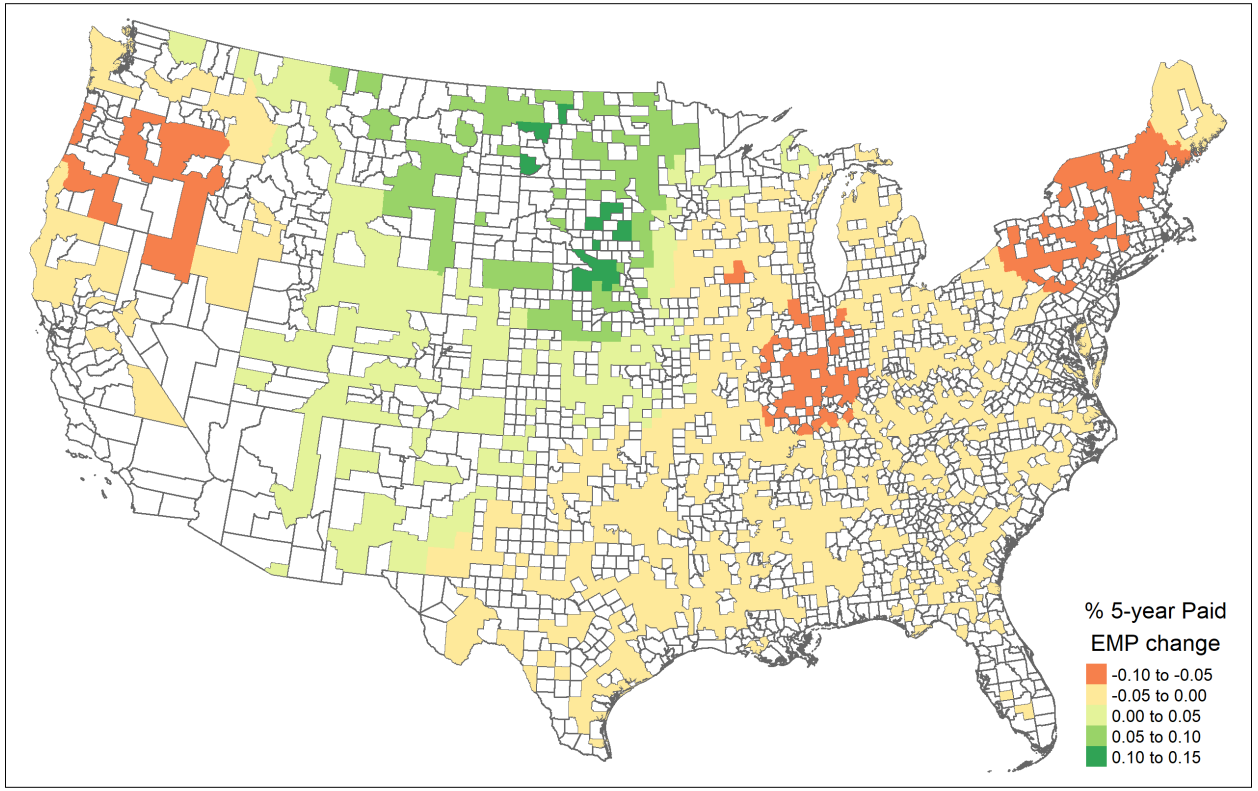
Industries: High Female Self-employment

Near metro	Remote
Social Assistance	Ambulatory Health Care Services
Administrative and Support Services	Social Assistance
Professional, Scientific, and Technical Services	Professional, Scientific, and Technical Services
Educational Services	Administrative and Support Services
Personal and Laundry Services	Educational Services
Private Households	Private Households
Sporting Goods, Hobby, Musical Instrument, Book, and Miscellaneous Retailers	Personal and Laundry Services
Health and Personal Care Retailers	Sporting Goods, Hobby, Musical Instrument, Book, and Miscellaneous Retailers
Amusement, Gambling, and Recreation Industries	Animal Production and Aquaculture
Real Estate	Real Estate

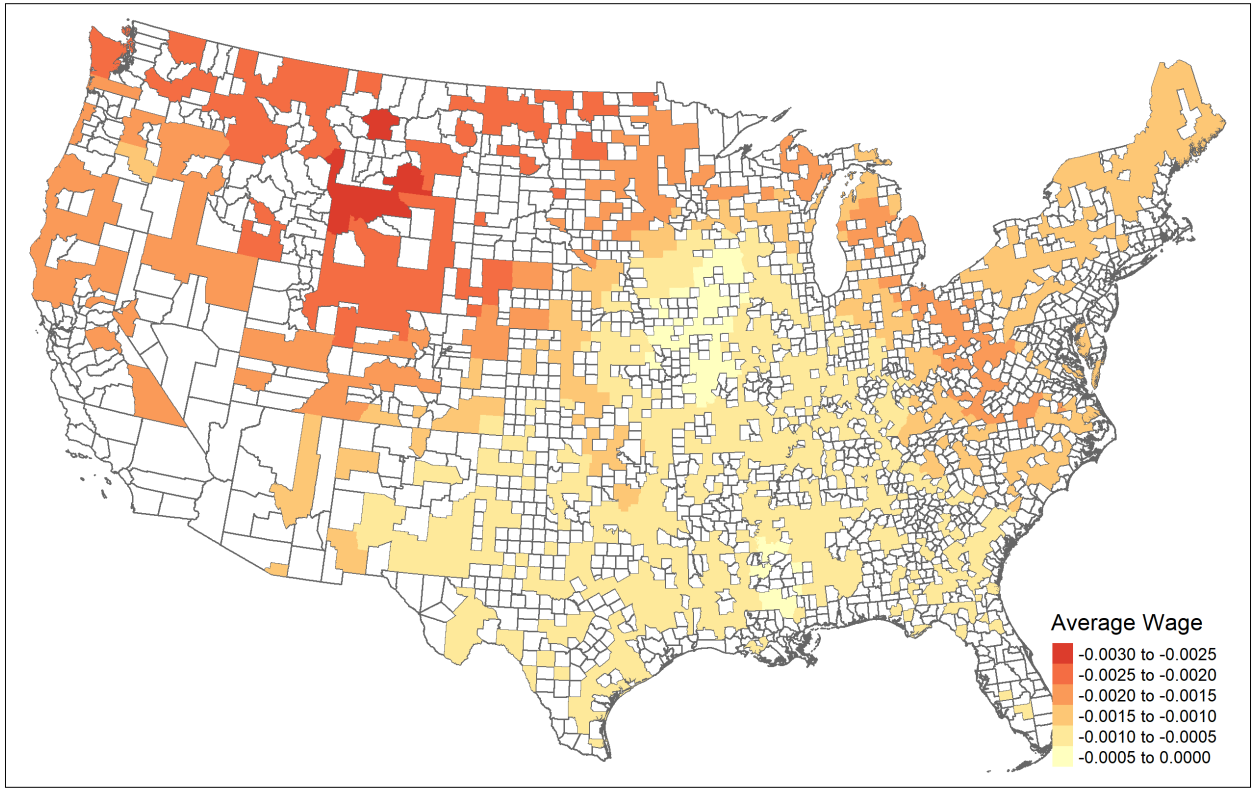
What Drives Black Self-employment in Rural Areas?

- No common patterns:
  - Different relationships between local factors and Black self-employment
- Explore local relationships instead

Impact of Employment & Wage

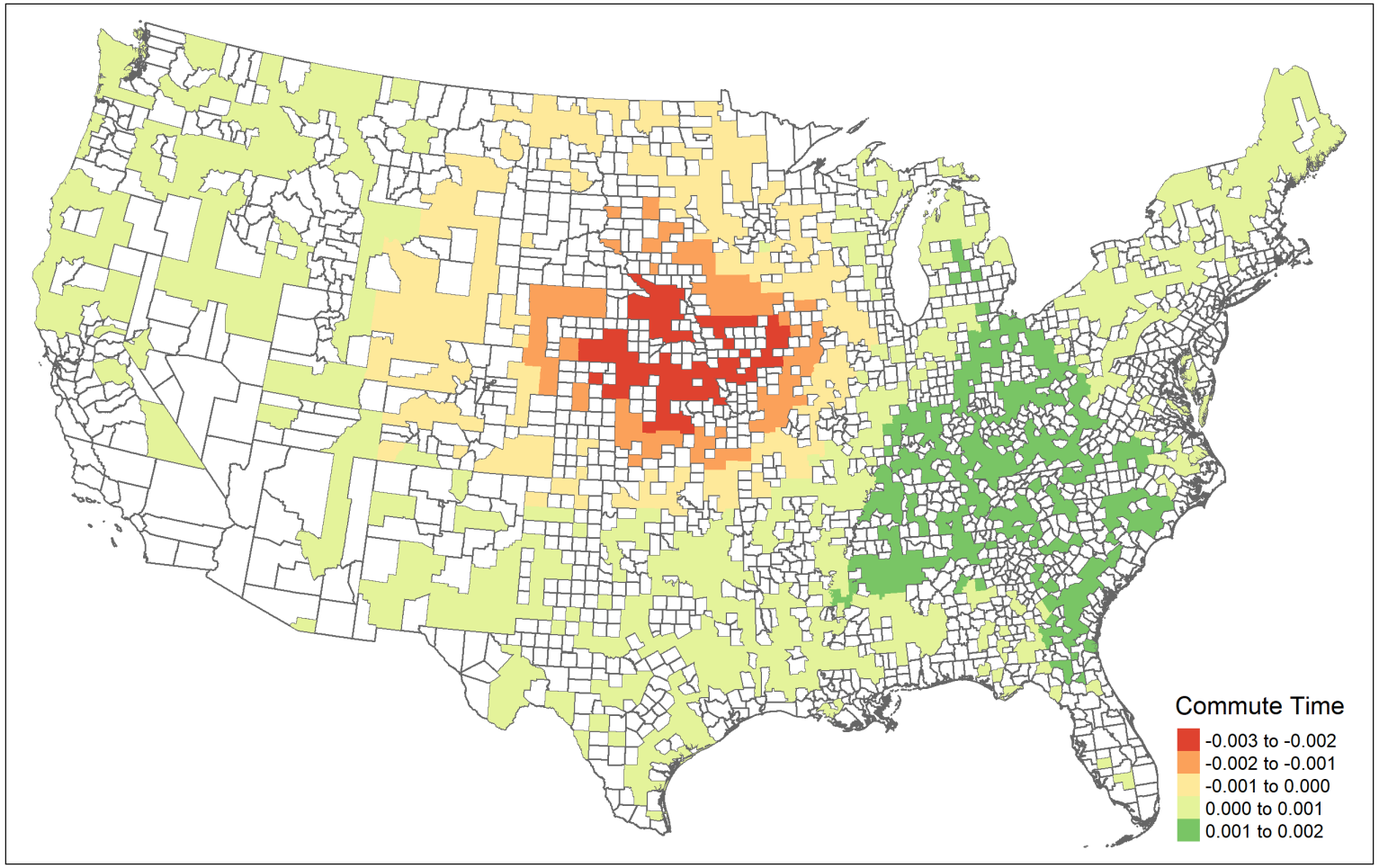


Change of Employment (earing Wage and Salary)

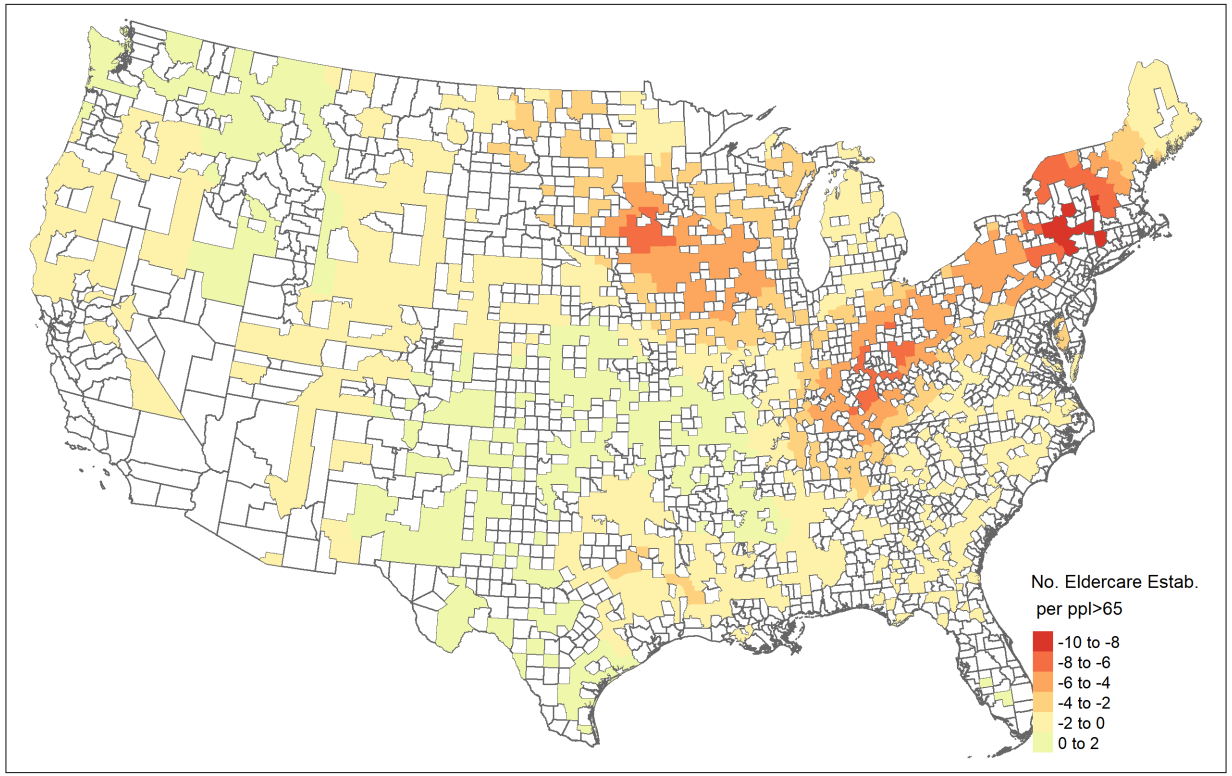


Average Wage

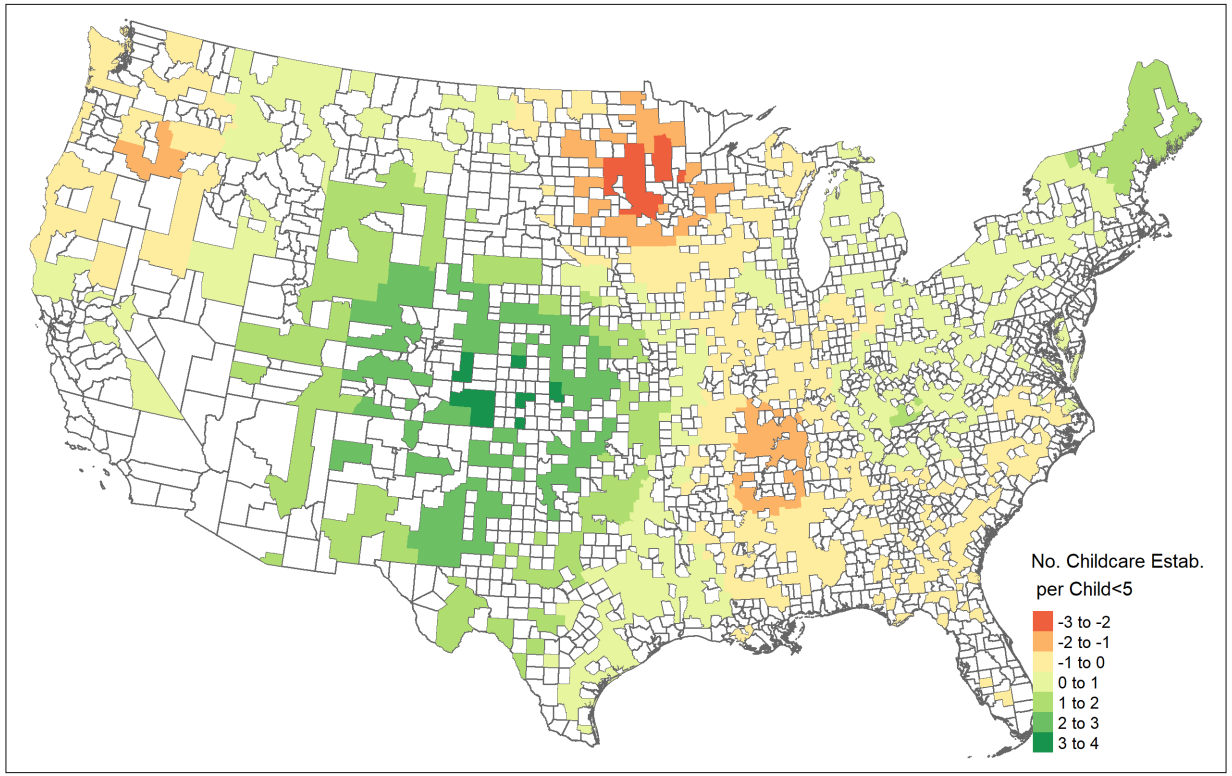
Impact of Commute Time



Impact of Care Access

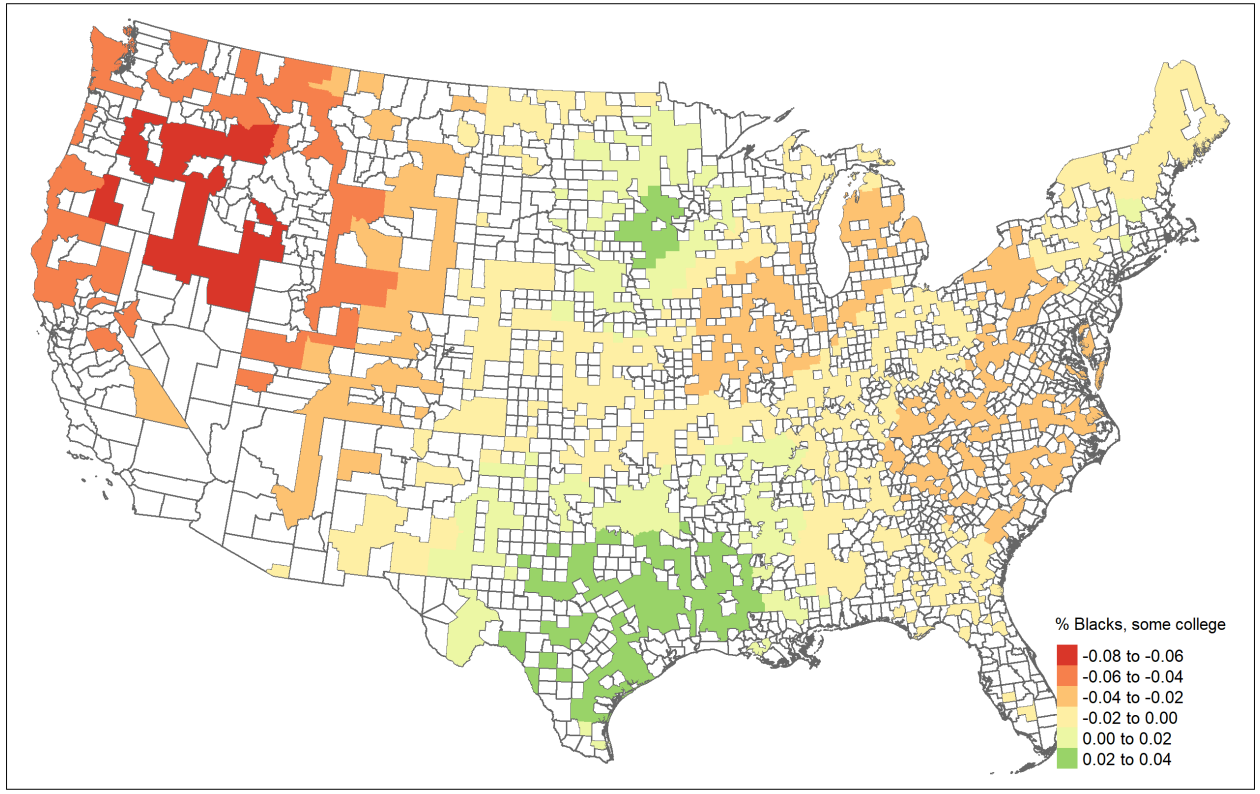


Eldercare

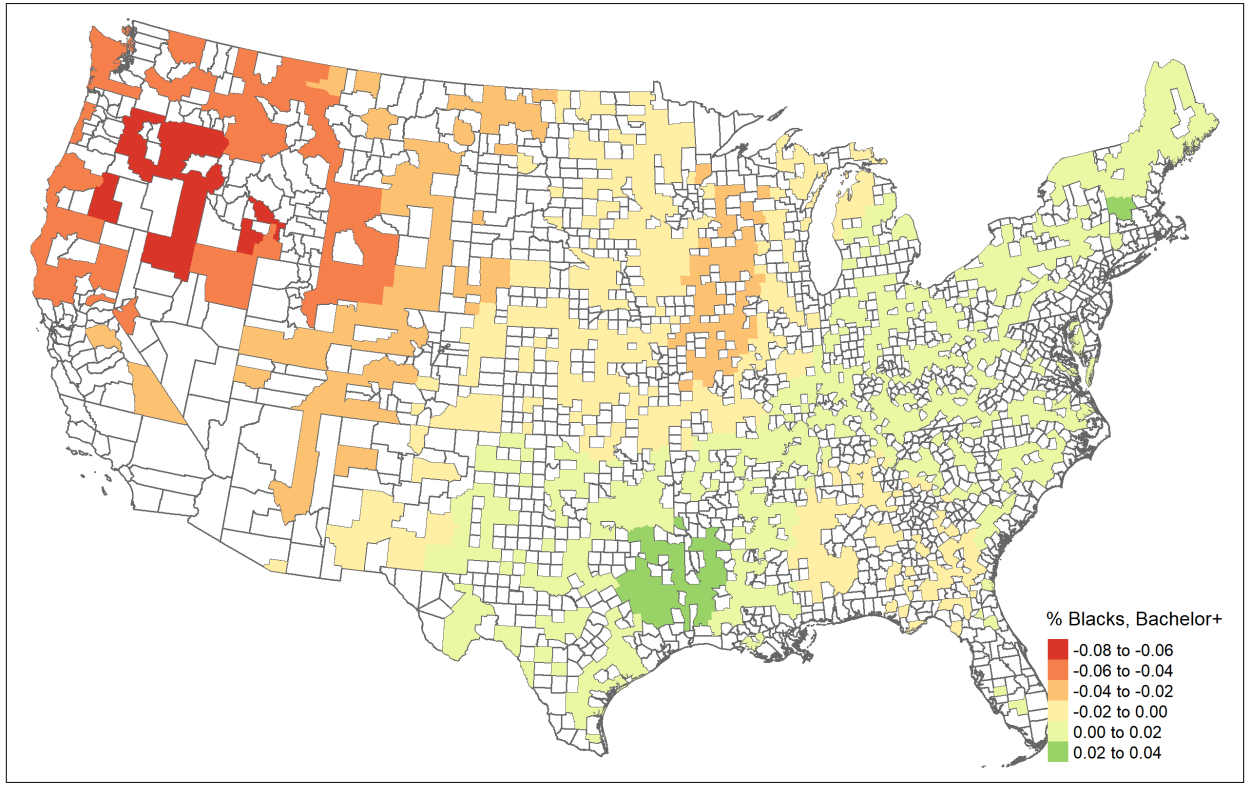


Childcare

Impact of Education

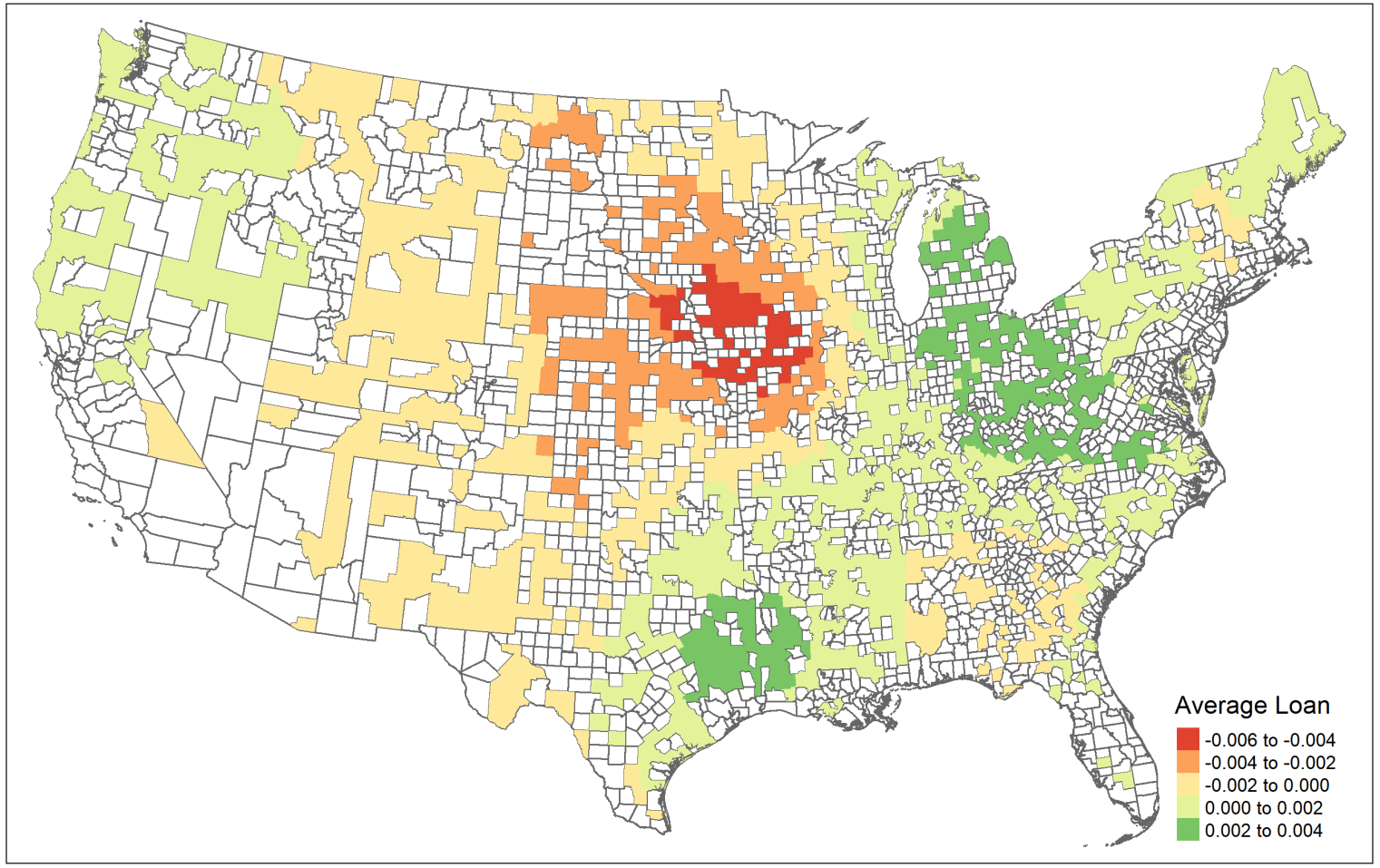


% of Black 25+, some college

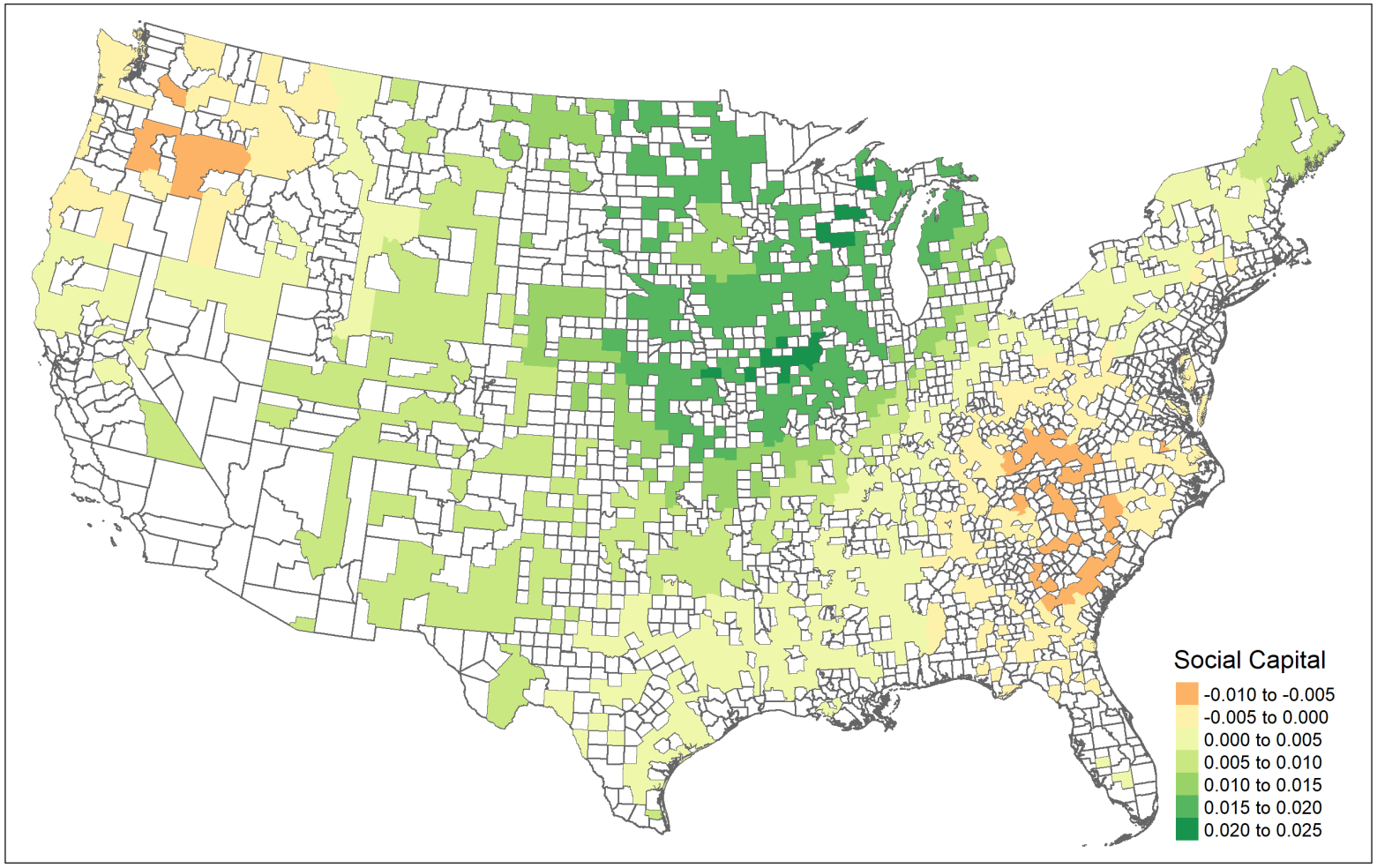


% of Black 25+, bachelor's +

Impact of Credit Access



Impact of Social Capital



Industries: High Black Self-employment

All Rural

Administrative and Support Services

Personal and Laundry Services

Specialty Trade Contractors

Social Assistance

Truck Transportation

Repair and Maintenance

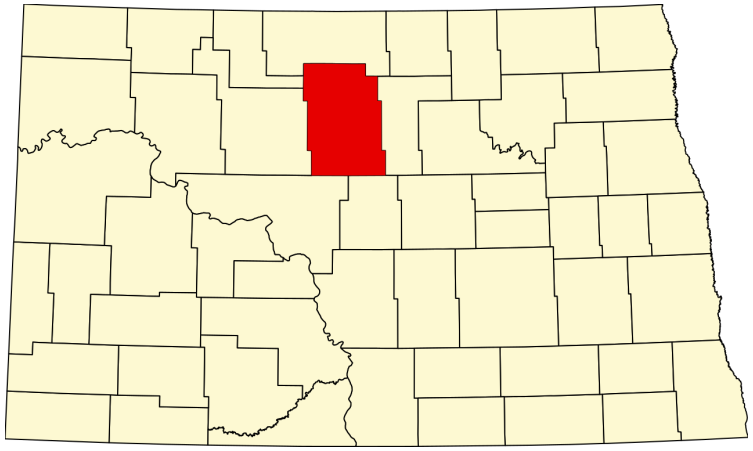
Private Households

Construction of Buildings

McHenry County, North Dakota (Remote rural place)

Economic Success Indicators:

- Median household income: $80,614 (2023) - well above rural averages
- Low poverty rate: 9.8% of families (below state average of 10.6% and US average 12.4%)
- Economic diversification: agriculture, natural resources, tourism
- Population stability in region of general rural decline



McHenry County, North Dakota (Remote rural place)

Female self-employment in 2019 is 18.71% (top 5%)

Success Factors:

- Strong social capital - community connections and networks
- Childcare accessibility - supporting women entrepreneurs
- Natural resource wealth - agriculture, cattle, energy potential
- Quality of life - hunting, fishing, birding opportunities

Other Outcomes for Self-Employed

- Self-employment rate or number of self-employed is just one dimension to measure success

- Limited public data

- Confidential data at individual-level
  - ZIP code, census tract, street address
  - Industry
  - Survival rates
  - Transition between self-employed and small businesses owners
  - **Income**

Self-Employed Income in Nonmetro Areas

- Population density (−)
- Social capital (−), especially for females
- Share of manufacturing industry (+)
- Credit access (+)
- Childcare (+), especially for black females

Data Exploration & Discussion

Data

- County-level Black self-employment rate (Lightcast)
- Demographics:
  - Age structure, gender, foreign-born, education attainment (ACS)
  - Historical Black population share in 1970 (U.S. Census Bureau)
- Local economic conditions:
  - Industry composition (Lightcast), share of Black population in the labor force (ACS), 5-year employment change (BEA), commute time (ACS), average paid salary (Lightcast), Loan amount per adult population (CRA)
- Care service:
  - Number of childcare/eldercare service establishments per population under 5/over 65 (QCEW)
  - Share of women born in state of residence (ACS)
- Other county characteristics:
  - Population density, overall marriage rate (ACS), social capital (JEC), election results (MIT Election Lab), poverty rate (SAIPE), internet access (FCC Form 477)
  - Natural amenity, road ruggedness (ERS), population weighted distance to the closest MSAs (authors' calculation)

Method 1: Fixed Effect Model

$$SE_{c,s,t} = \beta X_c + \gamma X_{c,t-1} + \alpha_{s,t} + \epsilon_{c,s,t}$$

- $SE_{c,s,t}$: Black/Female self-employment rate in county *c, state s* during year *t*
- X_c: non time−varying county−level factors
- $X_{c,t-1}$: one-year lagged time-varying county-level factors
- $\alpha_{s,t}$: interacted state and year fixed effect
- Sample period: 2011-2019
- Subsamples:
  - Female: Near-metro vs. Remote
  - Black: Delta Regional Authority (DRA) region; U.S. South, non-DRA region; Other.

Method 2: Geographically Weighted Regression (GWR)

- To account for spatial heterogeneity, we apply GWR using 2019 data
- Basic assumption: the relationship between controls and Black self-employment rate varies across space; but is consistent among nearby locations.
- Two steps of GWR:
  - Determine the optimal kernel bandwidth (i.e., how many data points to include in each local model)
  - Fit GWR model
- We use the same control set as in the fixed effect model
  - We use adaptive Gaussian Kernels and cross-validation (gives highest adjusted R square)
  - Optimal bandwidth: 66 (nearest 66 observations will be in each local regression)

Social Capital Index (Joint Economic Committee)

Family Unity Subindex		
Share of births in past year to women who were unmarried	American Community Survey, 2012-2016, 5-year estimates	American FactFinder Table S1301
Share of women ages 35-44 who are currently married (and not separated)	American Community Survey, 2012-2016, 5-year estimates	American FactFinder Table B12002
Share of own children living in a single-parent family	American Community Survey, 2012-2016, 5-year estimates	American FactFinder Table B09002
Community Health Subindex		
Registered non-religious non-profits per 1,000	IRS, Business Master File, 12/2015; ACS population estimates, 7/2015 (2015 vintage)	via National Center for Charitable Statistics & American FactFinder Table PEPANNRES
Religious congregations per 1,000	U.S. Religion Census: Religious Congregations and Membership Study, 2010	via Association of Religious Data Archives, census conducted 2009-11
Informal Civil Society Sub-Index	various state-level sources (see Table 1)	combination of share who volunteered, who attended a public meeting, who report having worked with neighbors to fix/improve something, who served on a committee or as an