



# The Determinants of Rural Non-Farm Self-Employment: Insights from County-Level Data

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**Small Business and Entrepreneurship during an Economic Recovery**

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Board of Governors of the Federal Reserve System

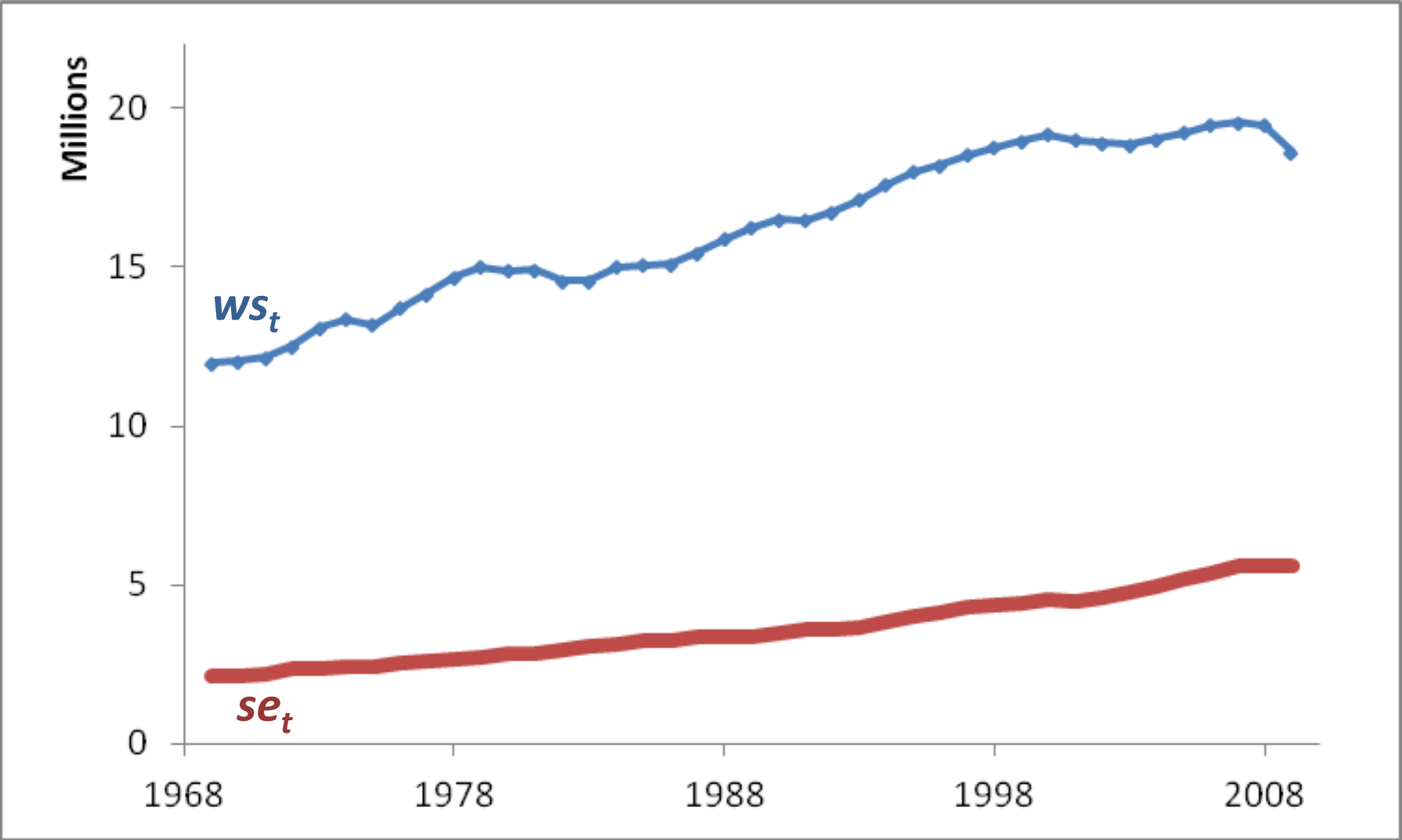
# Key Rural Employment Trends

## Between 2000 and 2009...

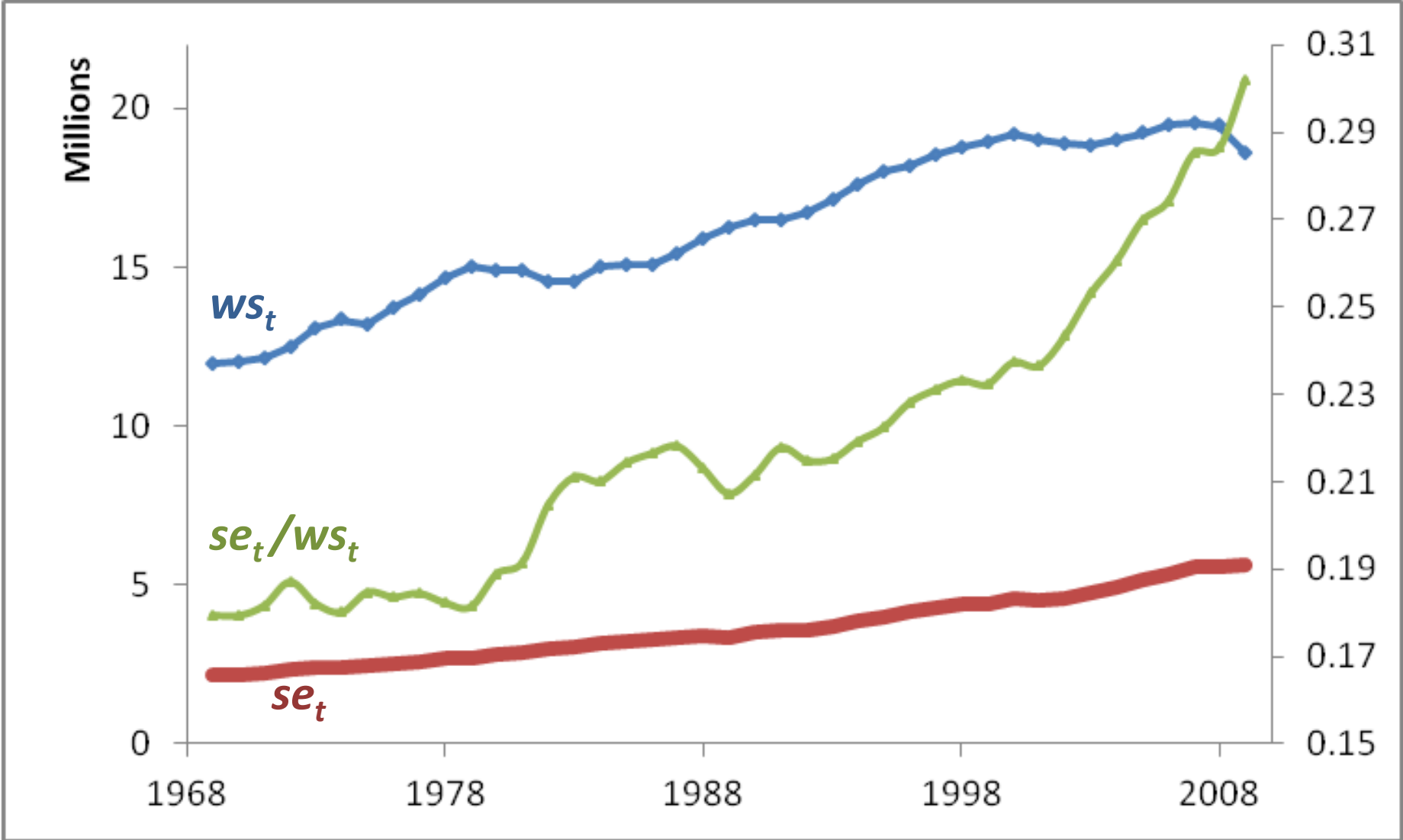
- 568,000 rural wage-and-salary jobs lost
- 1,070,000 new self-employed workers
- Based on IRS Schedule 1040 Form SE filings
- Not known if self-employed out of *necessity* or *opportunity*
- Strong evidence of positive local impacts

Yet the self-employed are generally not on policy-makers' radars

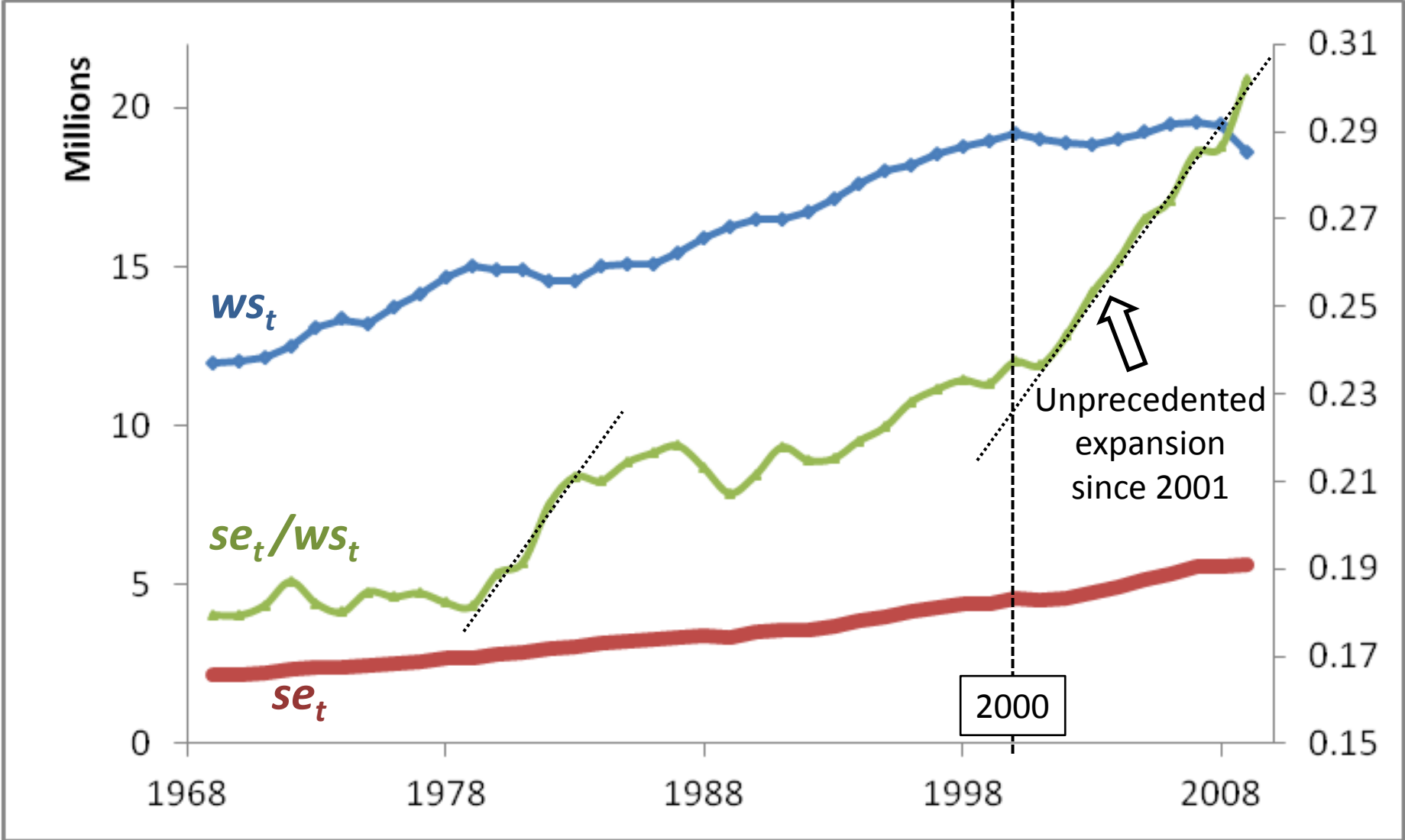
# Figure 1: Rural Wage-and-Salary Employment, Self-Employment, 1969-2009



# Figure 1: Rural Wage-and-Salary Employment, Self-Employment, and Ratio, 1969-2009



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# Relative Neglect of Self-Employment

- The self-employed are neglected by State Labor Departments
  - Ineligible for unemployment compensation
  - Not captured in the ES 202 series
- Disincentives at the federal level
  - Health insurance coverage; deductibility
  - Pay both employer and employee share of Soc. Sec., Medicare
- *Business Week* Aug. 8-14, 2011: “To Boost the Economy, Help the Self-Employed” (p.54)

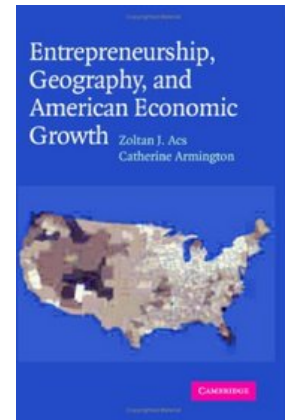
# Purpose of this Study

- Raise awareness of the importance of self-employment/proprietorship formations
- Understand determinants of self-employment growth in rural areas
  - Overall (all rural counties)
  - By county urbanized population size
  - By county proximity to metro areas

Note that self-employment numbers are not without problems (e.g., under-reporting)

# Conceptual Framework(s) and Explanatory Variables

- **Acs-Armington (2006)**; 1995-96 firm formations/1994 labor
  - Establishment size, specialization, educational attainment, income and population growth, self-employment shares, unemployment rate
- **Goetz-Rupasingha (2009)**; 2000-2007 change in self-employment workers per wage-and-salary workers
  - Economic incentives and risk, educational attainment, population demographics, access to capital, industry mix, natural amenities, economic policy variables, rural status



We use updated data to 2000-09, additional financial capital variables, and more refined measures of rural



# State-Level Economic Policy Variables

## **Areas and Components of the Economic Freedom of North America Index**

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### **AREA 1. Size of Government**

1A. General Consumption Expenditures by Government as a Percentage of GDP

1B. Transfers and Subsidies as a Percentage of GDP

1C. Social Security Payments as a Percentage of GDP

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### **AREA 2. Takings and Discriminatory Taxation**

2A. Total Government Revenue from Own Source as a Percentage of GDP

2B. Top Marginal Income Tax Rate and the Income Threshold at Which It Applies

2C. Indirect Tax Revenue as a Percentage of GDP

2D. Sales Taxes Collected as a Percentage of GDP

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### **AREA 3. Labor Market Freedom**

3A. Minimum Wage Legislation

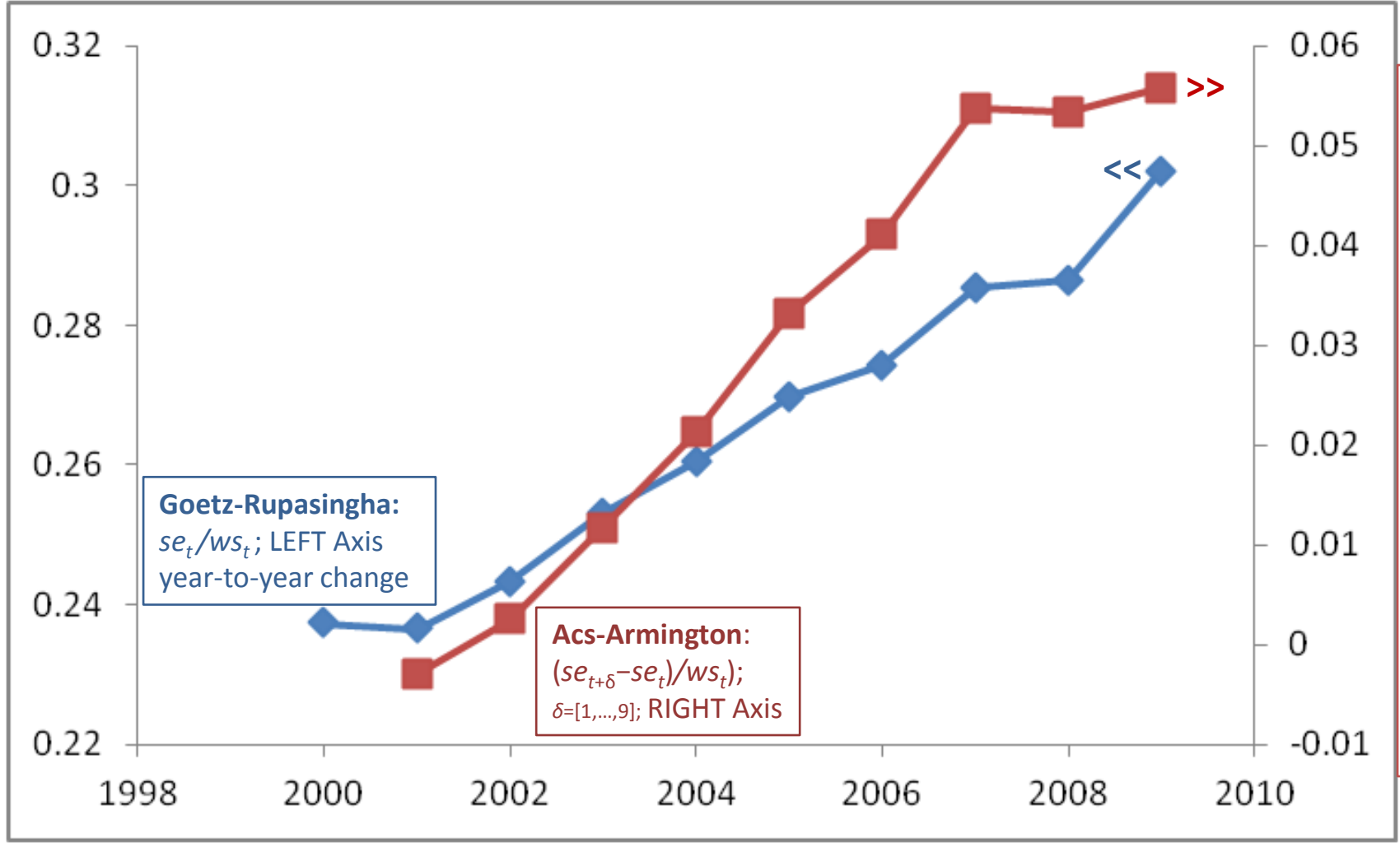
3B. Government Employment as a Percentage of Total State/Provincial Employment

3C. Union Density

Note: data are state-level; a higher value means *more* economic freedom, or less government intervention. The earliest year for which the data are available is 2002.

# Choices for Dependent Variable: Measuring Change in Self-Employment

Self-employment relative to wage-and-salary workers



Change in Self-Employment Rate Relative to 2000 wage-and-salary employment (AA)

# Regression Strategy

- Combination of AA and GR Regressors
- Additional financial variables used:
  - Bank branches per person
  - Dividend, rent and interest payments per person
  - Also allow for interactions, non-linear effects
- Rural urban continuum codes: separate regressions to assess effects of population size versus metro-proximity; control for population density

# County characteristics by RUCC\*

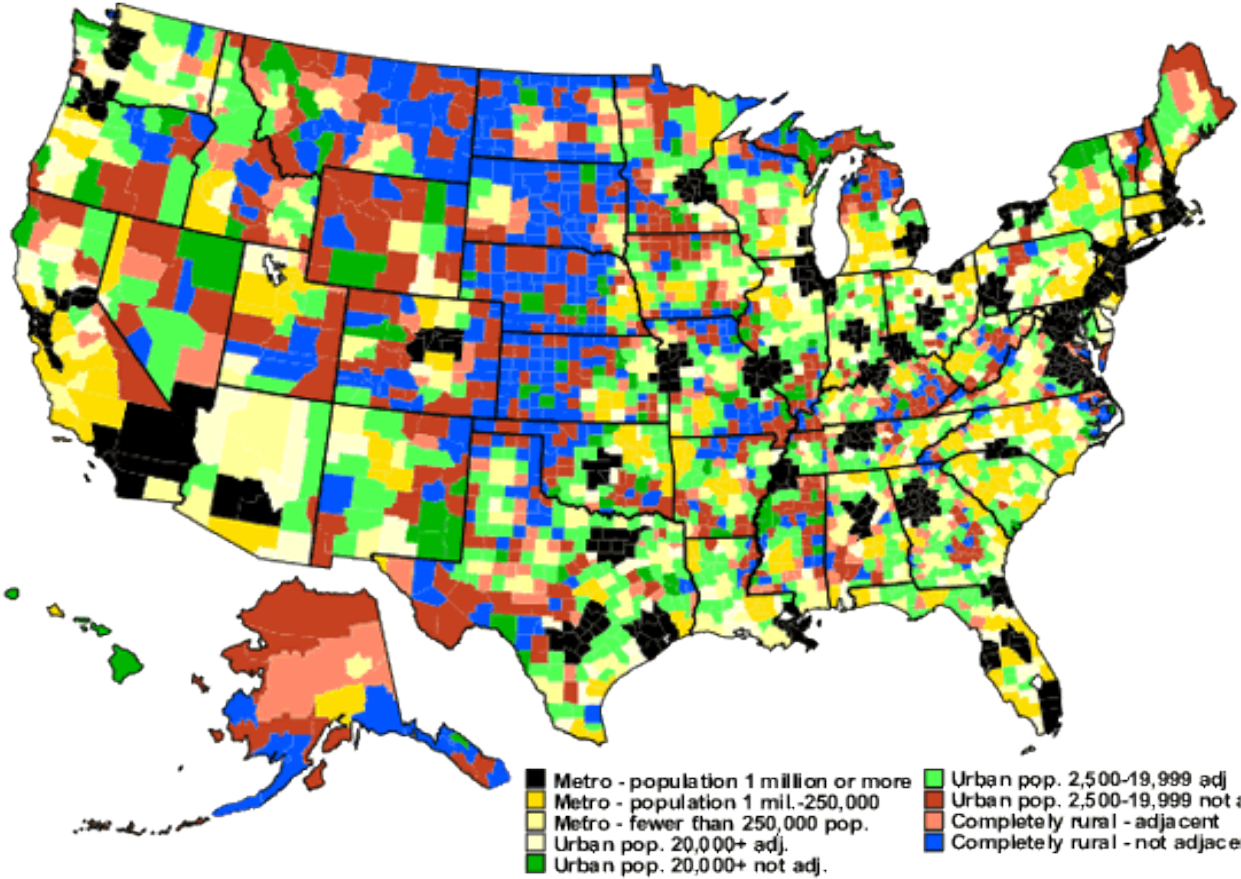
## (Rural-Urban Continuum Code)

rucc03	Total Population	Mean Population	Pop./mile <sup>2</sup>	Coun- ties, #	<i>Definition</i>
4	14,259,827	66,948	101.1	213	Urban pop. 20,000+ adj.
5	5,207,328	51,558	64.5	101	Urban pop. 20,000+ not adj.
6	14,997,680	25,122	41.9	597	Urban pop. 2,500-19,999 adj.
7	8,248,109	18,874	30.8	437	Urb. pop. 2,500-19,999 not adj.
8	2,405,935	10,415	21.7	231	Completely rural - adjacent
9	2,741,321	6,638	12.6	413	Completely rural - not adjacent
Total	47,860,200	24,026		1,992	

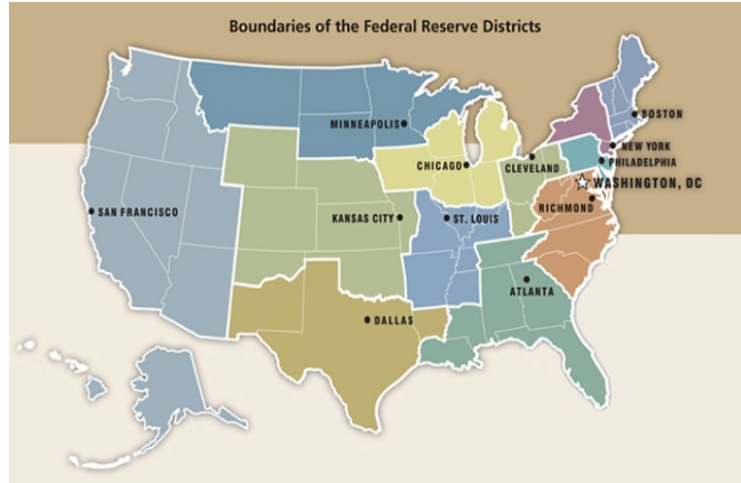
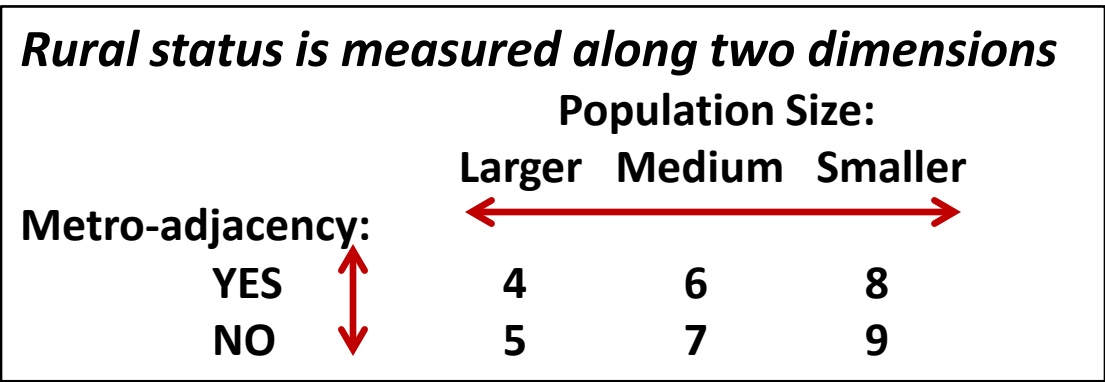
*Source:* Authors' calculations

\*Codes 1-3 are for metropolitan counties: 1 = population of 1 million or more; 2 = population of 250,000 – 1 mn.; 3 = fewer than 250,000 metro population

Rural-urban continuum codes, 2003

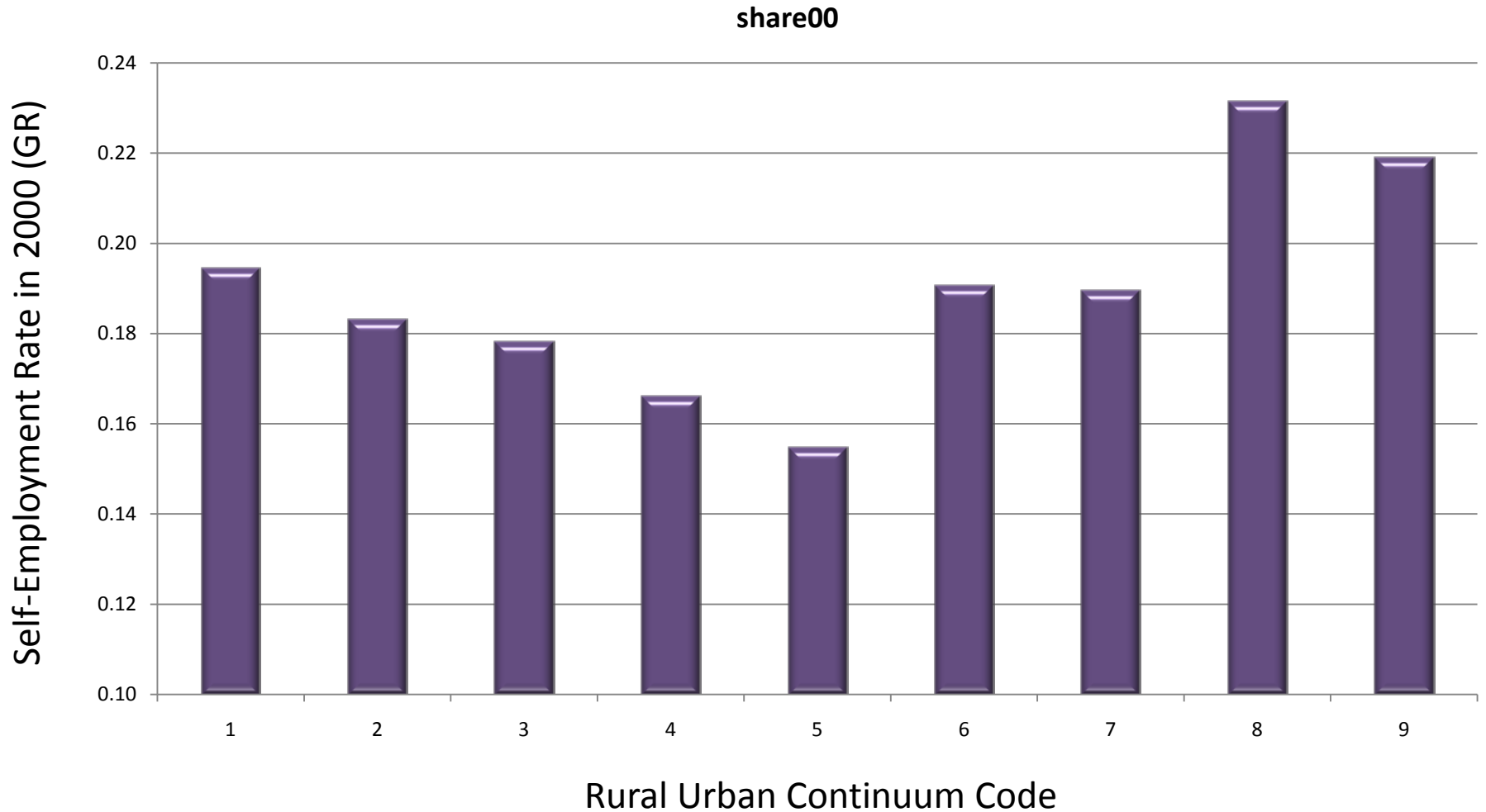


Source: USDA, Economic Research Service.



# Self-Employment Rate ( $se_t/ws_t$ ) in 2000

by Rural-Urban Continuum Code

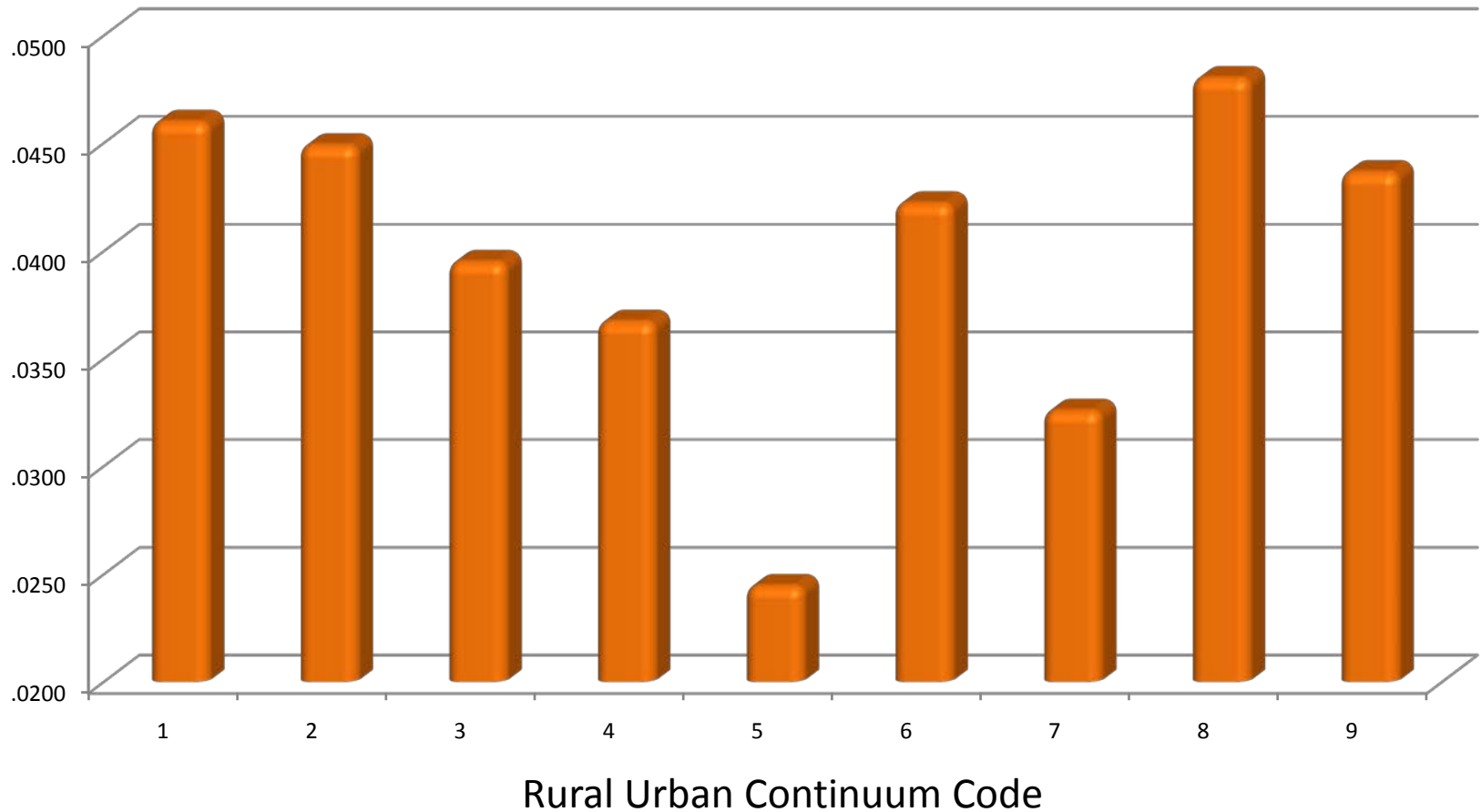


# Change in Self-Employment Rate 2000-09 (GR)

$(se_{2009}/ws_{2009}) - (se_{2000}/ws_{2000})$  by Rural-Urban Continuum Code

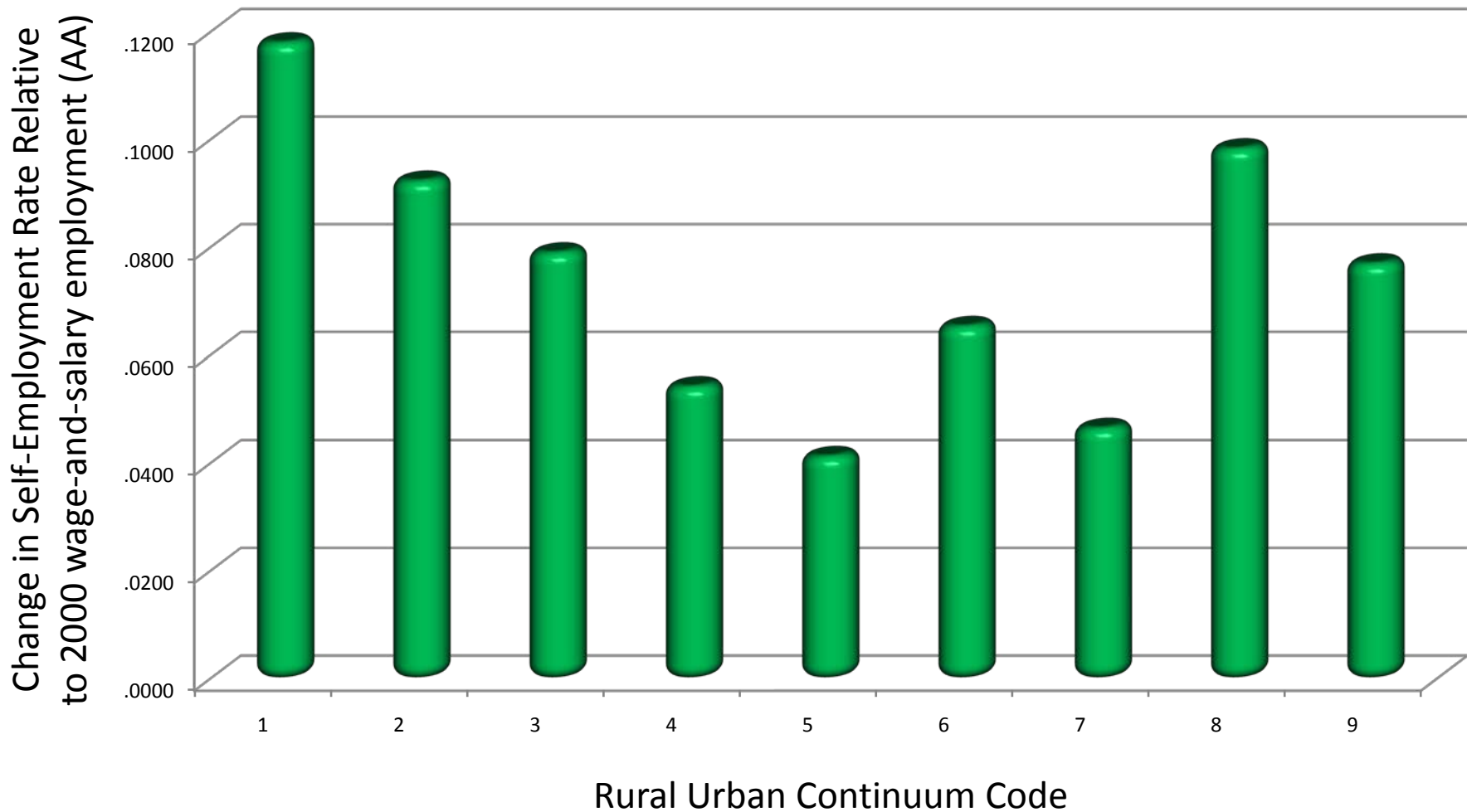
Change in Self-Employment Rate, 2000-09 (GR)

GrowSh00\_09



# Change in Self-Employment 2000-09 relative to 2000 Wage-and-Salary Employment (AA)

$(se_{2009} - se_{2000}) / ws_{2000}$ , by Rural-Urban Continuum Code



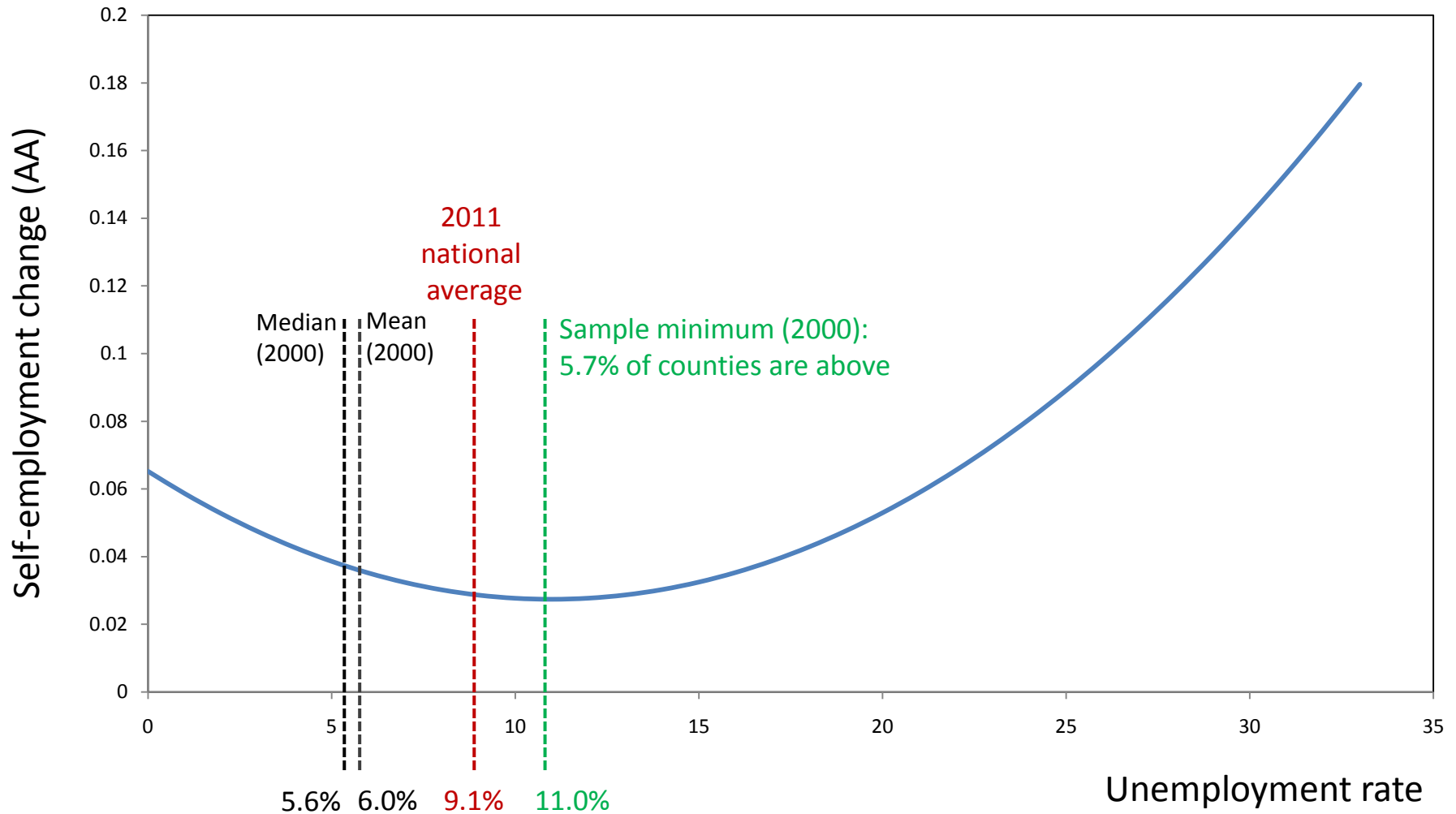


# Overall Regression Results for Rural Areas, 2000-09 (AA dependent variable)

- Results in terms of self-employment growth are generally consistent with those in AA (despite use of different time period, data)
  - Avg. Establishment size: U-shaped effect
  - Population, income growth: positive effect
  - Both low and high education have positive effects
  - Self-employed share has a positive effect
  - Sector specialization: retail trade has negative effect
  - Unemployment rate: U-shaped effect



# Effect of Unemployment Rate on Self-Employment Change (AA), 2000-09



# Overall Results, continued (1)

- Compared to Goetz and Rupasingha (2009), results are mixed
  - Higher returns to both self-employment and wage earnings have positive effect on SE growth
  - Greater risk reduces self-employment growth
  - Home ownership rates and median home value have negative effects, but interaction is positive
  - Bank deposits and branches per capita: no statistical effect
  - Dividends, rents, interest payments: positive effect




# Overall Results, continued (2)

- Compared to Goetz and Rupasingha (2009), results are mixed
  - Higher age: first increases, then suppresses SE
  - Greater ethnic diversity increases self-employment
  - More female labor force participation reduces it
  - Population density has strong positive effect
  - Higher per capita income has negative effect
  - Natural amenities have no effect on self-empl.
  - Greater labor market freedom has a strong effect



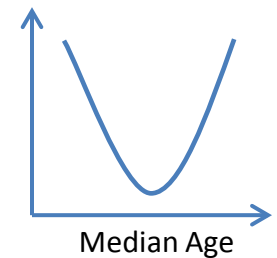
# Regression Results for Rural Areas, by Rural-Urban Continuum Code (1)

- Population-driven growth is important in metro-adjacent counties, regardless of size
  - College grads not important in larger, metro-adjacent counties, but are in non-adjacent
  - Higher risk of self-employment is a statistically significant deterrent in code 7 and 9 counties
  - Deposits/capita positive only in code 6 counties
  - Bank branches per capita have positive effects in code 8 and 9 counties
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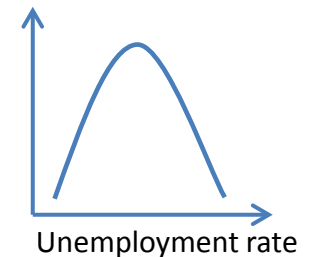
# Regression Results for Rural Areas, by Rural-Urban Continuum Code (2)

- Effect of median age: U-shaped in code 4, inverse U-shaped in code 5 (and 7, 8 counties)
  - Promote youth entrepreneurship in code 4 counties
  - Consider senior/junior mentoring programs in code 5 counties, offer *succession planning*
- Unemployment rate: inverse U-shaped effect in code 4, U-shaped in code 7 and 8 counties


Growth in self-employment



Growth in self-employment



# Regression Results for Rural Areas, by Rural-Urban Continuum Code (3)

- Amenities have positive effects in code 8 and 9
  - Smaller size of government means *less* self-employment growth in code 7 counties
  - Takings and discriminatory taxation: more freedom means less self-employment growth in code 7 counties
  - Greater labor market freedom is important in all counties *except* the smallest: code 8 and 9
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# Some Implications for Practitioners

- Technical assistance to increase productivity
- Help with business plans and marketing
- Promote general business services
- Provide programs that stimulate the entrepreneurial culture of a community
- Policy change with respect to issues such as healthcare, taxation
- New data collection methods
- Help with access to capital(?)





# Conclusions/implications, future research, data needs

- Self-employment is vital to rural economies
- All rural areas are not the same, and different policies are needed to stimulate self-employment
  - e.g., population size (critical market size/mass)
  - e.g., access to markets: proximity to metro areas
- More refined analysis of self-employed, non-employer statistics, micro-firms, local vs. non-locally owned
- Better financial data needed, starting with SBIC, SBIR/STTR, CRA lending portfolios at county-level



Small Business and Entrepreneurship  
during an Economic Recovery

# Strengthening Entrepreneurship Opportunities in Urban and Rural Communities

**Moderator: Jeremiah Boyle**, Federal Reserve Bank of Chicago

**Capital Availability in Inner Cities: What Role for Federal Policy?**

Teresa Lynch, Initiative for a Competitive Inner City

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**Discussant: Timothy Bates**, Wayne State University