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
Washington, DC, November 9-10, 2011
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
Figure 1: Rural Wage-and-Salary Employment, Self-Employment, and Ratio, 1969-2009

Unprecedented expansion since 2001

- $w_{st}$
- $se_{st}/w_{st}$
- $se_{st}$

2000
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

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

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

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

Goetz-Rupasingha:
\[ \frac{se_t}{ws_t}; \text{LEFT Axis} \]

year-to-year change

Acs-Armington:
\[ \frac{(se_{t+\delta} - se_t)}{ws_t}; \delta=[1,\ldots,9]; \text{RIGHT Axis} \]
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-proximinity; control for population density
## County characteristics by RUCC*
(Rural-Urban Continuum Code)

<table>
<thead>
<tr>
<th>rucc03</th>
<th>Total Population</th>
<th>Mean Population</th>
<th>Pop./mile$^2$</th>
<th>Counties, #</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>14,259,827</td>
<td>66,948</td>
<td>101.1</td>
<td>213</td>
<td>Urban pop. 20,000+ adj.</td>
</tr>
<tr>
<td>5</td>
<td>5,207,328</td>
<td>51,558</td>
<td>64.5</td>
<td>101</td>
<td>Urban pop. 20,000+ not adj.</td>
</tr>
<tr>
<td>7</td>
<td>8,248,109</td>
<td>18,874</td>
<td>30.8</td>
<td>437</td>
<td>Urb. pop. 2,500-19,999 not adj.</td>
</tr>
<tr>
<td>8</td>
<td>2,405,935</td>
<td>10,415</td>
<td>21.7</td>
<td>231</td>
<td>Completely rural - adjacent</td>
</tr>
<tr>
<td>9</td>
<td>2,741,321</td>
<td>6,638</td>
<td>12.6</td>
<td>413</td>
<td>Completely rural - not adjacent</td>
</tr>
<tr>
<td>Total</td>
<td>47,860,200</td>
<td>24,026</td>
<td>1,992</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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 status is measured along two dimensions:

**Population Size:**
- Larger
- Medium
- Smaller

**Metro-adjacency:**
- YES
- NO

<table>
<thead>
<tr>
<th>YES</th>
<th>Medium</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>9</td>
</tr>
</tbody>
</table>
Self-Employment Rate ($se_t/\omega s_t$) in 2000
by Rural-Urban Continuum Code

![Bar Chart]

Self-Employment Rate in 2000 (GR)

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

Bar chart showing the change in self-employment rate from 2000 to 2009 for different Rural-Urban Continuum Code levels.
Change in Self-Employment 2000-09 relative to 2000 Wage-and-Salary Employment (AA)

\[
\frac{se_{2009} - se_{2000}}{ws_{2000}}, \text{ by Rural-Urban Continuum Code}
\]
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

Sample minimum (2000): 5.7% of counties are above Mean (2000) and Median (2000). 2011 national average: 6.0%
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-adjacents
• 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
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
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
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
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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Stephan J. Goetz, Northeast Regional Center for Rural Development and Pennsylvania State University

Discussant: Timothy Bates, Wayne State University