How Market Structure Affects Firm Entry in Rural and Urban Communities: Evidence from Rural Iowa

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Research Questions

■ Do market factors believed to encourage urban economic growth apply to rural markets as well?

■ Are effects of market factors on firm entry different depending on establishment ownership?

Introduction

■ Sources of agglomeration economies

Sources	Predictions for local economic growth
Specialization (CLU_{kc})	+ Marshall, 1920; Porter, 1990
Local monopoly (MON_{kc})	+ Marshall, 1920; Schumpeter, 1942; Arrow, *RES*, 1962; Romer, *JPE*, 1986 - Porter, 1990
Industrial concentration (IND_c)	- Jacobs, 1969
Proximity to upstream firms (UP_{kc})	+ Porter, 1990
Proximity to downstream firms ($DOWN_{kc}$)	+ Porter, 1990
Educated workers (EDU_j)	+ Lucas, *JME*, 1988

■ Numerous studies have tested whether the factors above lead to the growth of cities.

■ However, few studies have explored the roles of the factors in rural economic growth.

■ This study compares the roles of the market factors in rural markets with those in urban markets in terms of new firm entry.
▪ Firm entry is more sensitive to relative profitability across areas than aggregated economic measures such as employment.

Model

■ Under a spatial equilibrium where wage and rent are adjusted to local productivity, the reduced-form profit function of a firm i in industry k in market c and area j and year t is given by:
$\pi_{ikcjt} \equiv m_{kcjt}\gamma_m + \gamma_z z_{jt} + u_{ikcjt}$
where m_{kcjt} : a vector of local agglomeration measures, z_{jt}: local demand shifters, u_{ikcjt}: random shock uncorrelated with all other explanatory variables.

■ Under the Conditional Logit, start-ups choose one with the highest profitability out of 930 ZIP codes.

■ Local agglomeration measures (m_{kcjt})
▪ CLU_{kc} is measured as the relative size of proportion of establishments in industry k in county c to proportion of establishments in industry k in Iowa.

▪ MON_{kc} takes a value of 1 if county c has no incumbent firm in own industry k, and 0 otherwise.

▪ IND_c is the sum of squared wage shares of 10 broad industry categories in a county.

▪ UP_{kc} (or $DOWN_{kc}$) measures the relative availability of suppliers (or customers) in industry k in county c in terms of the number of upstream (or downstream) firms and purchases from them (or sales to them).

▪ Education (EDU_j) is measured by the proportion of residents over age 25 with at least a two-year college degree in ZCTA j.

Data and Results

■ Data sources

Variables	Definition
ZIP code-level locations of start-ups in 1999-2004	National Establishment Time Series (NETS) by Walls & Associates
Input-output industrial matrix	1997 Standard Use Table, Bureau of Economic Analysis
Wage by sector	Quarterly Census of Employment and Wages, Bureau of Labor Statistics
ZIP code-level education and household income in 2000	Summary file 3, 2000 Decennial Census, U.S. Census Bureau

■ Agglomeration measures in rural markets have the consistent signs of effects with those in urban markets.

Dependent: Choice of ZIP code area	Urban (RUCC 2-5)	Rural (RUCC 6-9)
CLU_{kc}: Location quotient in k, c	0.39***	0.22***
MON_{kc}: No incumbent in k	0.001**	0.004**
IND_c: Herfindahl Index in county c	0.84***	0.13***
UP_{kc} : Proximity to upstream firms	0.26***	0.12***
$DOWN_{kc}$: Proximity to downstream firms	0.05***	0.04***
EDU_j : Share of population with14+years of schooling	1.06***	1.36***
ZCTA-lelel income and RUCC-specific dummies	Yes	Yes
Obs.	46,183	26,761

Results reported as elasticities.
***: significant at 1%, **: significant at 5%.

■ Similar results for stand-alone and expansion start-ups

Discussion

■ Hypothesis: workers will commute to communities with high agglomeration levels.

■ Test: Agglomeration measured by predicted local firm entry probability based on local agglomeration measures.

■ Result: workers atypically commute to urban and rural counties with high predicted agglomeration

Agglomeration Quartiles, urban counties	Quartiles by an agglomeration economies index of top 10 work destination county			
	Top	Second	Third	Bottom
Top (17)	**0.98**	0.01	0.01	<0.01
Second (1)	0.29	**0.71**	-	-
Third (1)	0.24	-	**0.76**	-

Agglomeration Quartiles, rural counties	Quartiles by an agglomeration economies index of top 10 work destination county			
	Top	Second	Third	Bottom
Top (8)	**0.90**	0.05	0.04	<0.01
Second (24)	0.38	**0.55**	0.04	0.03
Third (24)	0.31	0.06	**0.60**	0.03
Bottom (24)	0.32	0.05	0.06	**0.57**

Note that the numbers of the corresponding counties are in the parentheses. The sum of each row is 1.