Does Rural Entrepreneurship Pay?

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RURAL ENTREPRENEURSHIP can help stimulate local economies by creating local jobs and providing goods and services that improve the quality of life of nearby residents. However, as Reynolds et al. (1995) note, rural entrepreneurs can face difficulties through lack of sufficient capital, infrastructure, and access to educated labor. These hardships often result in lower firm entry rates when compared to urban areas and businesses characterized as low-income and low-growth. This leads to the common notion that rural entrepreneurship is necessity driven—entrepreneurs create rural businesses in order to remain in, or relocate to, a rural location (Tosterud and Habbershon 1992).

Recent research, however, has shown that the factors that affect rural business location also increase the likelihood that business will survive (Artz, Guo, and Orazem 2015), suggesting that rural entrepreneurs possess location-specific capital that increases the probability of becoming an entrepreneur and offers greater returns relative to being a wage earner. In order to fully analyze and understand the location choices of entrepreneurs, we analyze survey results from 4,448 Iowa State University alumni who graduated between 1982 and 2007. Furthermore, we assess returns to location-specific human capital by location and the relative earnings of rural and urban wage earners and entrepreneurs.

Our research shows that alumni that live in a rural location are more likely to become entrepreneurs than their urban counterparts, and that rural entrepreneurs earn more than rural wage workers and earn roughly the same as urban entrepreneurs.

Entrepreneurship choice

While there are many factors that influence the choice to become an entrepreneur, two factors—education and family background—have the largest impact. Educational attainment provides some of the necessary skills to become a successful business owner (Bates 1990); however, there is a tipping point, as there is evidence suggesting that earning an advanced degree (MS, Ph.D., etc.) may actually lower the likelihood of becoming an entrepreneur (Matthews and Human 2004).

Familial background can influence entrepreneurial decisions as well, as Matthews and Human (2004) show, entrepreneurial parents can impart their offspring with the necessary skills and may be willing to transfer financial wealth to their offspring.

When examining the earning potential of entrepreneurs, Hamilton (2000) finds that entrepreneurship doesn't pay—the self-employed seem to earn about 25 percent less over the course of 25 years than a wage worker of similar skill level. The assumption is that entrepreneurs are willing to accept a lower rate of pay for the non-financial benefits associated with being self-employed.

Rural Location Choice

Numerous factors must be accounted for when examining the likelihood of choosing to reside in a rural location. Education, labor markets, age, marital status, and the presence of children are all considered important factors in location choice. Even among those born in rural areas, educational attainment has been shown to reduce the likelihood of choosing to reside in a rural areas (Mills and Hazarika 2002). Unlike the choice to become an entrepreneur, there is no tipping point in education—those with higher education levels are less likely to reside in a rural area. While we would expect those born in a rural location would be more likely to reside and operate a business in a rural area, the evidence does not support that hypothesis.

Graves (1979) finds that for adults in their 30s and 40s quality of life and family issues are factors that heavily influence location choice—they are more likely to choose areas that have lower crime rates, more affordable housing, and lower population densities. However, rural labor markets are usually considered "thin" and the return on educational investment is lower in rural areas than in urban areas.

Location-specific Capital

Location-specific capital—an asset accumulated over time from living in a specific place—is an important factor in choosing not only self-employment, but where to locate a business. Location-specific capital can be advantageous to new rural businesses through knowledge of local resources and needs and local social networks that provide access to credit, customers, suppliers, and information.

Despite Mills and Hazarika's (2002) finding that educational attainment reduces the likelihood of residing in a rural area, even for the rural-born, previous research (Artz and Yu 2011) shows that growing up in a rural area is the most significant predictor of choosing a rural residence after college.

Data

The data in our analysis was taken from a 2007 survey of Iowa State University alumni that graduated with a bachelor's degree between 1982 and 2006. Surveys were sent to a random selection of the 84,917 alumni that graduated with a bachelor's degree in that time. Ultimately, we received 4,448 usable observations.

Our data show that 34 percent of our respondents were raised in a rural area, but only 13 percent currently resided in a rural area. Though the majority of alumni raised in a rural area had moved to an urban area, respondents that were raised in a rural area were more likely to reside in a rural area than those raised in an urban area. The proportion of alumni that were raised in rural and urban areas and became entrepreneurs was roughly equal—approximately 11 percent for each group; however, roughly 45 percent of rural-raised entrepreneurs located their business in a rural area, compared to only 14 percent of urban-raised entrepreneurs.

Our data also show that urban residents earn nearly 40 percent more than rural residents, though this statistic wasn't adjusted for cost of living.

Results

The results of our survey reveal many of the contributing factors that lead to becoming self-employed and those that lead to living in a rural area. Having grown up in a rural area does not impact the likelihood of becoming an entrepreneur; however, it does positively impact the likelihood of living in a rural location after college graduation. Graduates of the College of Agriculture and Life Sciences are more likely to live in a rural location and become an entrepreneur than are graduates of the College of Liberal Arts and Sciences.

Older alumni, married alumni, alumni raised by entrepreneurial parents, and alumni with an advanced professional degree (i.e., law degree, medical degree) or that graduated from the College of Design are all more likely to become entrepreneurs, though many from these groups are less likely to reside in a rural area.

Individuals with a more diversified work experience are more likely to live in a rural area and become entrepreneurs. Also, individuals that grew up in a rural area and return to their home state are more likely to become a rural entrepreneur; however, those that grew up in a rural area and don't return to their home state are less likely to become a rural entrepreneur. The positive relationship between rural origin and entrepreneurship for returned individuals confirms that location-specific capital is important to rural entrepreneurship.

Why are rural location and entrepreneurship associated?

We find two likely reasons that rural entrepreneurship and rural location may be associated with each other. The first reason is that rural residents are more likely to start a business because of the thin labor market for wage labor. The second reason is that rural locations are a good match for some entrepreneurs, consistent with the idea of location-specific capital—some entrepreneurs have a productivity advantage due to region-specific knowledge and local social networks that make access to things such as credit, suppliers, and customers more accessible.

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Research Questions Moving Forward

The federal government spends tens of billions of dollars annually on clean water programs (Keiser 2017). Despite its substantial contributions to poor water quality in the United States, the agricultural sector is largely unregulated by existing federal CWA rules. One of the few exceptions is animal feeding operations, making the sector particularly interesting to environmental economists.

A fundamental economic principle is that the efficient level of production in any industry occurs where, on the margin, private and public production costs equal the benefits of additional production. In our setting, that means that the efficient size of hog feeding operations weighs the benefit of additional hog production against both the additional cost of raising and feeding hogs *and* the additional cost to local communities (and society more broadly) of increasing an operation's size. Left alone, markets will not internalize this second category of costs, leaving room for regulation to improve market outcomes.

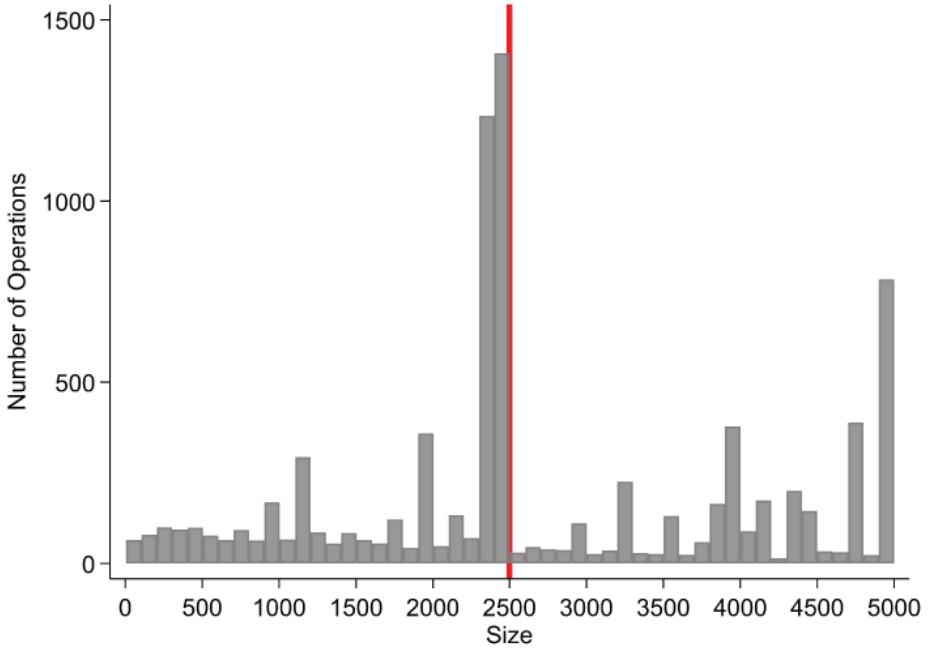

Figure 3. Iowa hog-operation size and CAFO limits

Source: Iowa Department of Natural Resources 1982–2012)

Thus, from an economic perspective, the question is not whether environmental regulations of feeding operations could benefit society, but (*a*) what types of regulations are most efficient; and (*b*) whether less efficient policies still benefit society. Size-based regulations are inefficient ways to regulate most polluting industries. Thus, the focus of our future research relates to this second class of questions. Specifically, we will work on quantifying CAFO regulations' effects on environmental outcomes and weigh them against the costs of these regulations to producers.

Preliminary evidence suggests that these regulations have a large impact on producers. This is best evidenced by Figure 3. Here, we graph the distribution of AFO sizes in Iowa using recent data from the DNR. The red vertical line corresponds to the CAFO limit. Immediately apparent is that many producers avoid regulation by limiting their size to be just below the CAFO threshold. While this is not a new finding (see, e.g., Sneeringer and Key 2011), many questions remain as to the implications of this strategic avoidance. For example, how much do CAFO regulations benefit the local environment? How do these benefits compare to producer costs of meeting CWA requirements? Are there other implications for industry productivity and structure due to the adverse incentives created by the CAFO rules? We will explore these questions and more in future APR articles.

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production is still quite large. The 4.27 billion bushels would be the third-largest soybean crop, following the record crop from last year and the bin-buster from 2016 (see Table 4).

USDA's early projections for 2018 soybean usage will likely face some major revisions given the trade dispute. While domestic usage is expected to continue to grow this year, exports were the major vehicle for the growth in USDA's usage projections. As Table 4 shows, USDA had projected a strong rebound in soybean exports, mainly driven by China. As China represents roughly 60 percent of that export total, the tariff announcements cast a long shadow over these projections. A 25 percent tariff would be a major impediment for US soybeans to overcome and any slowdown in the flow of soybeans will create issues for the market. While other markets would grow to absorb some of the Chinese allocation, it is highly unlikely that the combined growth would match the loss in the Chinese market. ■

Table 3. US Corn Balance Sheet

		2014	2015	2016	2017	2018
Area Planted	(mil. acres)	90.6	88.0	94.0	90.2	88.0
Yield	(bu./acre)	171.0	168.4	174.6	176.6	174.0
Production	(mil. bu.)	14,216	13,602	15,148	14,604	14,076
Beg. Stocks	(mil. bu.)	1,232	1,731	1,737	2,293	2,182
Imports	(mil. bu.)	32	67	57	50	50
Total Supply	(mil. bu.)	15,479	15,401	16,942	16,947	16,308
Feed & Residual	(mil. bu.)	5,280	5,120	5,473	5,500	5,475
Ethanol	(mil. bu.)	5,200	5,224	5,432	5,575	5,650
Food, Seed, & Other	(mil. bu.)	1,401	1,422	1,450	1,465	1,495
Exports	(mil. bu.)	1,867	1,898	2,293	2,225	1,900
Total Use	(mil. bu.)	13,748	13,664	14,649	14,765	14,520
Ending Stocks	(mil. bu.)	1,731	1,737	2,293	2,182	1,788
Season-Average Price	($/bu.)	3.70	3.61	3.36	3.35	3.40

Source: USDA-WAOB

Table 4. US Soybean Balance Sheet

		2014	2015	2016	2017	2018
Area Planted	(mil. acres)	83.3	82.7	83.4	90.1	89.0
Yield	(bu./acre)	47.5	48.0	52.0	49.1	48.5
Production	(mil. bu.)	3,927	3,926	4,296	4,392	4,272
Beg. Stocks	(mil. bu.)	92	191	197	302	550
Imports	(mil. bu.)	33	24	22	25	25
Total Supply	(mil. bu.)	4,052	4,140	4,515	4,718	4,847
Crush	(mil. bu.)	1,873	1,886	1,901	1,970	1,980
Seed & Residual	(mil. bu.)	146	122	139	133	135
Exports	(mil. bu.)	1,842	1,936	2,174	2,065	2,300
Total Use	(mil. bu.)	3,862	3,944	4,213	4,168	4,415
Ending Stocks	(mil. bu.)	191	197	302	550	432
Season-Average Price	($/bu.)	10.10	8.95	9.47	9.30	9.25