

Chicago Fed Letter

The intersection of Midwest agriculture and rural development

by David B. Oppedahl, business economist

On November 9, 2010, the Federal Reserve Bank of Chicago held a conference on rural development and the role of midwestern agriculture. Experts from academia, industry, and policy institutions discussed rural employment generated by agriculture, the impacts of agricultural amenities on rural areas, and policy directions for agriculture and rural development.

A theme that unified the conference was the dynamic nature of the linkages between agriculture and rural development, particularly in terms of entrepreneurship and policy discussions.

David B. Oppedahl, Federal Reserve Bank of Chicago, began the conference by illustrating some avenues by which agriculture promotes rural development in the Seventh Federal Reserve District.¹ He noted that the entrepreneurial nature of agriculture and policies that foster agricultural entrepreneurs are vital to the process. In particular, surging agricultural exports, exploding organic food production, direct marketing of agricultural products, agricultural tourism, and biotechnologies may enable rural areas to develop companies and additional employment opportunities based on agriculture.

Rural America today

Mary Ahearn, U.S. Department of Agriculture (USDA), examined indicators for agriculture and rural communities and linkages between agriculture and rural areas. She portrayed U.S. agriculture as healthy, with a large increase in net cash income in 2010 from 2009 and rising sector asset values and equity. Also, Ahearn emphasized the diversity of agriculture, from the majority small farms that have losses and rely on off-farm income to a small percentage of large farms

that dominate the value of output and farm income. Moreover, there have been long-term trends toward the concentration of production and the increasing usage of production and marketing contracts, which have changed the risks of farming. Overall, rural households tend to trail farm households in terms of financial position. Only 5% of rural jobs are in agriculture, fishing, and forestry, so diverse sources of income remain essential in rural areas. Additionally, higher levels of education are a key driver for development. Ahearn pointed out that greater economic linkages between communities and agriculture exist for certain activities: agritourism, local food production near metropolitan areas or vacation destinations, biofuel plants, and slaughterhouses near livestock production. Furthermore, the nature of farming has been linked to the quality of life in communities, attributes of the food supply (such as quality, safety, and location), and natural resource management. Many of these linkages vary “in the eye of the beholder” in terms of their value to rural areas. The roles of beginning and small farmers will become increasingly important, Ahearn concluded, especially with regard to nonfarm opportunities for work.

Stephan J. Goetz, Pennsylvania State University, presented his analysis of present-day rural America using network science. This discipline categorizes value

More information about the conference is available at www.chicagofed.org/webpages/events/2010/agriculture_conference.cfm.

chains, comprising nodes and links, by types of structures and degrees of centralization. Through examples, he illustrated key measures of various networks: the number of direct connections, the quality of connections, and the lengths of communication paths. Goetz emphasized that maintaining ties between nodes requires effort, such that the benefits need to outweigh the costs. In typical networks, a few nodes have many connections, but most have few connections. Benefits tend to accrue to those who develop more connections. Goetz's

clustering, which involves sectoral interdependence, and spatial clustering by geography. The rural component of an economy can be broken down further by functional specialization. The definition of "rural" matters, since seemingly rural areas may exist in metropolitan regions. Based on the 2000 U.S. Census, Feser calculated that 49% of the U.S. rural population lived in nonmetropolitan areas, while 60% of the farm population lived in these locations. Also, 5.2% of the rural population lived in urban areas, with the rest living in metropolitan locations

industries related to motor vehicles also ranked highly.

David Swenson, Iowa State University, focused on the potential for employment generated by local food production in the Midwest. Swenson presented two scenarios for growing fresh fruits and vegetables in the region comprising Illinois, Indiana, Iowa, Michigan, Minnesota, and Wisconsin. The first scenario assumed each state consumes its own production; the second scenario had farmers sell to buyers in the major metropolitan locations. The starting point for the analysis was existing levels of production in 2007. Vegetable acres per 1,000 people in 2007 ranged from 1.4 in Illinois to 9.9 in Wisconsin, with an average of 4.6 for the region (compared with a national average of 9.3). Non-citrus-fruit bearing acres per 1,000 persons in 2007 ranged from 0.3 in Illinois to 9.6 in Michigan, with an average of 2.7 for the region (compared with a national average of 6.4). The analysis included 28 crops suitable for the Midwest climate and not already produced in excess of regional demand. Both scenarios accounted for offsets from displaced conventional farming, but differed with regard to the movement of food across state boundaries. Under the first scenario, about 45,000 additional acres devoted to fruit and vegetable production would be needed per state, generating over \$3 million in retail sales. This scenario would create almost 5,200 jobs directly, for a total employment boost of 9,302 along with indirect and induced jobs. Another 9,652 workers would be required in retail if 50% of the local food production was directly marketed. However, close to 2,600 jobs related to corn and soybean farming would be displaced.

Swenson's second scenario centered local food demand on the major metropolitan areas of the region. Meeting the needs of the metropolitan markets would require almost 200,000 acres, generating about \$2.4 million in retail value. Nearly 6,700 jobs would be created, while about 1,900 jobs would be displaced. Under this study's assumptions, both scenarios produced employment gains for the region. However, Swenson warned that important factors of land

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analysis of food supply chains by network science revealed important relationships. Clusters of food producers can band together and move beyond information sharing to compete and cooperate with each other (for instance, as part of a regional branding initiative). Also, a "middle man" can create value and earn profits in the network. In addition, producers that distinguish their products from raw commodities can network to gain entry into high-end markets, as has happened in the Northeast.

Network science has also helped farms to increase their profits enough to avoid the encroachments of urban areas. Agricultural entrepreneurs can capitalize on opportunities in local and regional foods, especially when connecting in food value chains to discover new markets and increase profits. This requires entrepreneurs who understand the local landscape, as well as markets farther away. Mapping and understanding networks of key enterprises can provide a starting point for planning and can assist rural development efforts.

Agriculture and employment

Edward Feser, University of Illinois at Urbana-Champaign, developed the idea of national value chains as applied to geographic regions and their implications for rural employment. He explained the differences between economic

within rural or mixed rural areas. Rural nonmetropolitan counties accounted for 4.7% of U.S. private nonfarm employment in 2002, but in 28 out of 45 national value chains, rural nonmetropolitan employment was at least 5%. These value chains were mostly based on natural resources and agriculture, yet also included many types of manufacturing. This led Feser to conclude that rural America has close ties to a wide range of national industries.

A further refinement in methodology provided a better measurement of industry linkages along several dimensions: proximity in an extended value chain, direction of exchange, and magnitude of exchange between industries. For the nonmetropolitan Midwest in 2008, this technique showed that 217 of 399 core industries had relatively higher location quotients, indicating stronger linkages. Of these 217 industries, 123 also had relatively higher location quotients for linked industries. Interestingly, of the 159 industries with lower location quotients, 32 exhibited relatively high levels of linked industries in rural areas. These highly linked industries can be thought of as a "shadow" economic base for the Midwest, generating jobs related to industries not typically considered midwestern. In terms of the number of workers, agricultural clusters dominated the rankings, although

productivity, climate, energy costs, population shifts, and public policy have contributed to the comparative deficits in fresh fruit and vegetable production in the region and these factors will continue to influence markets and shape the future of local food production.

Michael W. Sands, Liberty Prairie Foundation, explained how innovative farm enterprises can profit from the marketing opportunity presented by a growing consumer base for food with “values.” These values vary with production methods (such as organic, sustainable, grass-fed, and hormone-free) and product features (proximity, specialty, taste, and freshness, for example), as well as the real and perceived benefits to consumers. Moreover, food producers need to utilize distribution channels that support price premiums (for instance, on-farm stands, farmers’ markets, community-supported agriculture, and Internet sales). Sands offered Prairie Crossing as an example of a conservation community that was designed to include an organic farm. The organic farm had much higher sales and returns per acre than a traditional farm. Moreover, six jobs were created on just 40 acres, whereas a traditional farm would have created fewer than two jobs on 1,000 acres. It was a natural extension, Sands said, to build a farm business development center to help entrepreneurs attain the skill set necessary to succeed in local food production; experience can be gained and individual business plans can be refined before entrepreneurs branch out on their own. Along with projects in other parts of the country, Prairie Crossing is an example of how agriculture can generate entrepreneurial activity and employment opportunities while meeting the growing demand for local foods.

Role of the U.S. Department of Agriculture

Deputy Secretary Kathleen A. Merrigan, USDA, gave the keynote address at the conference. Merrigan highlighted the USDA’s efforts to implement the 2008 Farm Bill and the American Recovery and Reinvestment Act (ARRA) of 2009 and use the available tools to foster rural development. She acknowledged that there’s a perception that agriculture and

rural development have run on separate paths, but she said the current administration has put agriculture “front-and-center” in forging rural development strategies. Merrigan touched on some of the problems facing rural America: poverty, population loss, outdated infrastructure, and inadequate education levels. To help counter these challenges, the USDA’s rural development division has dispersed over \$2.5 billion from the ARRA in the Seventh District. Moreover, traditional USDA loans and those from a new initiative, the Rural Micro-entrepreneur Assistance Program, promote growth by helping more small businesses. A big increase in net farm income and rising farm asset and equity values will guide rural areas toward a sustainable recovery.

Merrigan explained that rural development involves long-term challenges that will require the resources of agriculture and the entrepreneurial spirit of rural America. The USDA has identified five pillars of long-term development: renewable fuels, developing local/regional markets, broadband access, natural resources, and ecosystems markets. The USDA promotes research on biofuels and their feedstocks, helps install retail infrastructure for biofuels, and partners to support biofuel usage in the federal government. Hundreds of biorefineries will bring jobs to rural America and new opportunities for agriculture. By working together, Merrigan said, rural communities can boost productivity, maximize scarce federal resources, and become more robust.

Impacts of agricultural amenities

Steven C. Deller, University of Wisconsin-Madison, laid out a framework for analyzing the impacts of agricultural amenities on rural communities. Understanding the interplay between urban and rural areas was the starting point for his analysis. Proximity to an urban center provides a premium on the price of land, which declines with distance from the center. At the urban fringe, the price of agricultural land determines the edge of the city. Population density follows a similar pattern, creating lower density areas on the urban fringe. Deller argued that a key driver in urban growth (and

the loss of farmland) is the quality of life in surrounding rural areas. However, views on the quality of life can differ among people and can change over time. For instance, a quaint dairy farm with a red barn may contribute to the “rural cultural landscape,” but an urbanite may view even a small livestock operation as a nuisance. Thus, Wisconsin changed the law to enshrine a “right to farm,” preventing lawsuits after someone moves next to a working farm. Furthermore, the assigning of property values to land is complicated by amenities and disamenities. Market imperfections can result in either too little or too much value (in terms of dollars) placed on the land. Also, small-scale agriculture has regained the ability to thrive and contribute to rural development, given the increase in demand for local foods and associated amenities.

Pete Eshelman, of Joseph Decuis, decided to farm at the age of 50, after working in the insurance industry. Eshelman discussed the stages of growing an amenity-based enterprise, while also jumpstarting the revitalization of a community. With ideas and projects driven by necessity, Roanoke, Indiana, has undergone a renewal, in part due to the presence of Joseph Decuis. Joseph Decuis has become

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ISSN 0895-0164

a gourmet destination—a restaurant, farm, emporium, culinarium, and inn. As part of the restaurant’s development, Eshelman began to raise Kobe beef on his farm using traditional Japanese techniques. Eshelman contended that a new rural-based culinary industry is emerging in the Midwest. Entrepreneurial farmers will be empowered by the “Farm to Fork” movement, not only to create restaurants, but also a culinary culture in rural areas.

Role of public policy

Mark Partridge, Ohio State University, emphasized that policy must account for the reasons places prosper and align with the economic fundamentals of a competitive world. After all, regions compete both nationally and internationally to be good places for business and high-quality places to live. Without competing, rural areas will decline and people, entrepreneurs, and investment will leave. Partridge noted that communities too often attempt a quick fix or hop on a fad without knowing whether the previous fad worked (for instance, clean energy). Also, diversified regions do better than ones that focus on clusters of firms, which involve relatively small gains and divert scarce resources from higher value uses. Moreover, a backward focus can blind communities to new opportunities. Healthy places will attract healthy industries and businesses, he argued. However, sector-based policy often conflicts with location-based

policy. Good development strategies recognize rural–urban interdependencies (regionalism), attract knowledge workers by leveraging assets (education), and focus on business retention and expansion (entrepreneurship). Entrepreneurial small firms tend to buy locally and innovate, producing better products and lowering costs. Partridge noted that farmers have experience and assets that rural communities need to tap into for entrepreneurial leadership.

David R. Terrell, State of Indiana, discussed the missions of the Indiana Office of Community and Rural Affairs and the Indiana Department of Agriculture. Both focus on partnering at the local, state, and national levels in order to promote economic opportunities. Agriculture remains important to Indiana, especially with regard to market diversification, international trade, livestock production, and biofuels. Moreover, a robust rural economy is viewed as critical to the success of the agricultural sector. Wealth creation and retention, entrepreneurial support, infrastructure, and economic capacity are key issues for healthy rural areas, according to Terrell. Rural economic development must involve capacity building for resiliency, strategic action, collaboration, and regional approaches. Terrell argued that regions should be organic and should identify ways to generate economic value within their boundaries. At the state level, he said, training staff to assist local communities and foster community conversations

will promote rural development at the local level.

Curtis Wiley, USDA, cautioned that more needs to be done with less, as the USDA’s budget for rural development will likely shrink given diminished appetites for deficits at the federal level. It will be important for the USDA to demonstrate a record of success before debate begins on the new farm bill. Leveraging the USDA’s resources is essential. A dollar of public funds can generate much more in private activity. Loan guarantees remain a key technique to boost investment in rural America by bolstering the private credit structure. Wiley said he saw big opportunities to invest in the next generation of biofuels. The USDA has an array of programs designed to support rural community development through job creation and retention.

Conclusion

In summary, the conference portrayed agriculture and rural development as partners in the continuing revival of midwestern communities. Agriculture’s entrepreneurial bent can bring a lot to the table in rural regions, as development plans get hatched and implemented. Finally, rural development policies at all levels can benefit from accounting for the roles of agriculture and food as industries and job creators.

¹ The Seventh Federal Reserve District is made up of five midwestern states—all of Iowa and most of Illinois, Indiana, Michigan, and Wisconsin.