

Unlocking Rural Competitiveness:

The Role of Regional Clusters

By Sam M. Cordes, Christine Nolan, Brigitte Waldorf, Jerry Conover, Carol Rogers and Thayr Richey

Rural areas face new realities and opportunities in today's global economy. A successful strategy recognizes the importance of a regional frame-

work and linkages between rural and urban America. Key to navigating this new environment is an understanding of industry clusters.

In recognition of these challenges and opportunities, the U.S. Economic Development Administration released a major report in 2004, "Competitiveness in Rural U.S. Regions: Learning and Research Agenda." This project was led by Professor Michael Porter and the Institute for Strategy and Competitiveness at Harvard Business School. As noted in the March 2004 EDA Update:

The Porter research is particularly helpful in outlining some clear strategies for rural regions to be successful, detailing the flaws in current understanding of rural economies, and dismissing the myth that every rural region is the same.

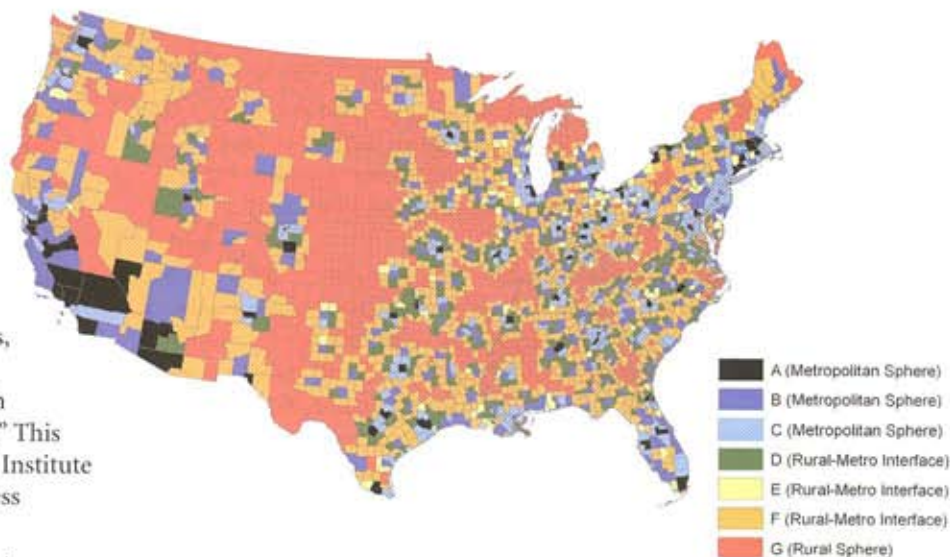
The research also suggests that America's rural regions have tremendous potential that past efforts have failed to unlock, and that a fresh and collaborative approach – based on new thinking about regional economies – is needed.

In keeping with Porter's observation, EDA commissioned a follow-up project led by Purdue University's Center for Regional Development, in partnership with Indiana Business Research Center at Indiana University and Strategic Development Group, Inc. The project included the following components: analysis to provide insights into several important rural research and policy issues; development of web-based data and analytics on all U.S. counties for use by economic development practitioners; and a pilot application of these data and analytics.

The research component

The three broad themes EDA asked the research team to address were:

1. The linkages among cluster structure, degree of rurality and economic performance;



The Relative Rurality of U.S. Counties

2. The spatial clustering of industrial clusters and the interface between rural and metropolitan regions in emerging agglomeration economies; and
3. Growth trajectories for counties that are differentiated by cluster makeup, degree of rurality and distance to metropolitan areas.

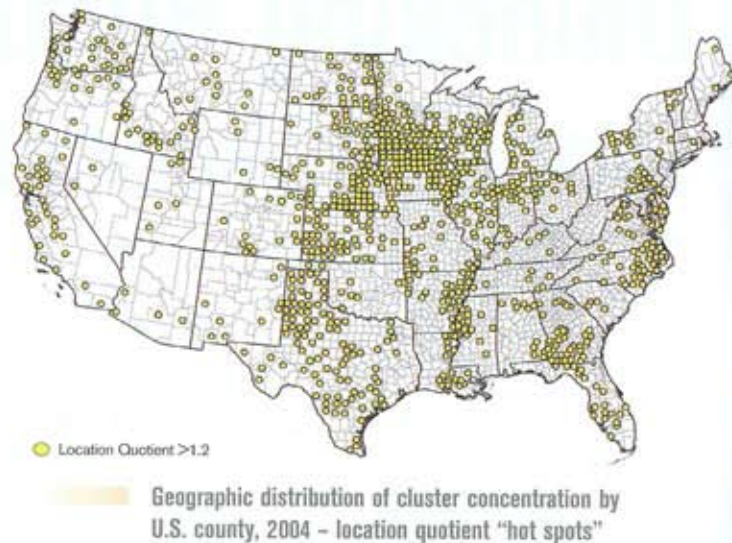
One of the new constructs developed was an Index of Relative Rurality (IRR). Most contemporary approaches to "defining" rurality use discrete categories, e.g., classifying counties as either metropolitan or non-metropolitan. In contrast, the IRR is a continuous measure or scale (with values ranging from 0 to 1) that is responsive to the multi-faceted nature of rurality, namely population density and size, and remoteness. As such, it is sensitive even to small changes in one or several of the defining variables. Values on the IRR then were used to classify counties into seven categories, with three of those categories representing the "metropolitan sphere" of influence; three categories representing the "rural-metropolitan interface;" and the seventh category labeled as the "rural sphere" of influence.

Another prerequisite for the analysis was the development of a meaningful and manageable set of business and industry clusters. Much effort went into this important task, basing the cluster construction upon the North American Industry Classification System (NAICS). The final product was an array of 17 clusters, with the manufacturing "supercluster" disaggregated into six sub-clusters. Table 1 shows the full array of clusters used throughout the project.

The unit of analysis for the research was the county, with data readily available for 3,108 of the nation's counties.¹ Key findings from the extensive research and analysis include the following:

- Different clusters are distributed in very different ways across the nation's geography. For example, fewer than 100 counties have a significant concentration in the business and financial services cluster. In contrast, well over 1,000 counties have significant specialization in the agribusiness, food processing and technology cluster. However, contrary to traditional thinking, most rural economies are not dependent upon agriculture.
- The overall location patterns of the 17 clusters support the common perception of regional variation in economic activity, e.g., manufacturing specialization in the Midwest and the concentration of the textile industry in the Southeast.
- There is considerable co-location of clusters, contrary to the conventional wisdom of a single dominant cluster in any given region. Hence, categorizing a region around a single cluster or type of economic activity is too simplistic; it is better to think in terms of how clusters interrelate.
- Most of the 17 clusters tend to be concentrated in urban counties. The three clusters with the strongest rural orientation are: agribusiness, food processing and technology; forest and wood products; and mining. Both the manufacturing supercluster and the chemical and chemical-based products cluster generally have an urban orientation. However, non-metropolitan counties adjacent to a metropolitan county are the most specialized in these two clusters. Finally, remote rural counties are generally the most

AgriBusiness, Food Processing and Technology Cluster



disadvantaged with respect to all 17 clusters, although these counties did fare reasonably well with respect to mining and the agribusiness, food processing and technology cluster.

- About 12 percent of U.S. counties do not specialize in any of the clusters.
- There is evidence, albeit quite tentative, that the long-standing disparity between the economic performance of urban and rural areas is narrowing.
- Regardless of a county's degree of rurality, the percentage of college graduates has a strong positive correlation with income growth, reinforcing the need for rural counties to invest in education.

The web-based data and tools

One of the important products from this project is a web-based set of information, data and analytics that can be accessed from either of the following URLs:

<http://www.ibrc.indiana.edu/innovation/>

<http://www.purdue.edu/dp/pcrd/innovation>

Although these sites contain the EDA report in its entirety, the following county-based data are likely to be of even greater interest to economic development practitioners:

- Definitions of each of the 17 clusters, using six-digit NAICS codes;
- The number of establishments, employment and wages for each of the 17 business and industry clusters;
- Variables for population, income, housing and education;
- The Index of Relative Rurality (IRR); and
- Distance to the nearest metropolitan area.

Additionally, the website includes a large number of maps, each of which shows the county-based dimensions of a particular variable. For example, one series of maps highlights U.S. counties that specialize in each of the 17 clusters. Another series displays the county-based values of the IRR.

These data, maps and analytics can be very useful to local economic development practitioners and others who wish to

TABLE 1: List of Study Clusters

1. Advanced Materials	13. Transportation and Logistics
2. Agribusiness, Food Processing and Technology	14. Manufacturing Super-cluster (6 sub-clusters)
3. Arts, Entertainment, Recreation and Visitor Industries	• Primary Metal Manufacturing
4. Biomedical/Biotechnical (Life Sciences)	• Fabricated Metal Product Manufacturing
5. Business and Financial Services	• Machinery Manufacturing
6. Chemicals and Chemical-Based Products	• Computer and Electronic Products Manufacturing
7. Defense and Security	• Electrical Equipment, Appliance and Component Manufacturing
8. Education and Knowledge Creation	• Transportation Equipment Manufacturing
9. Energy (Fossil and Renewable)	15. Mining
10. Forest and Wood Products	16. Apparel and Textiles
11. Glass and Ceramics	17. Printing and Publishing
12. Information Technology and Telecommunications	

understand the structure of their local economies and how they fit into the larger regional and national economies. The data and maps will be updated continually by the Indiana Business Research Center.

The pilot application

The research team chose an eight-county area in southern Indiana to determine how well the data and tools developed for EDA can work in "the real world," and what insights and refinements are important when taking this type of approach to economic development. The region is one of 11 Economic Growth Regions delineated by the Indiana Department of Workforce Development and is referred to as EGR 8. EGR 8 includes four metropolitan and four non-metropolitan counties.

The research team was quite deliberate and strategic in laying the groundwork to introduce the project into EGR 8. The key organizational component was the establishment of a Regional Advisory Committee (RAC) with 25 members from across the eight-county region. The lead economic development official from each of the eight counties served on the committee, as did a Purdue Extension educator from each of the counties. Other RAC members included representatives from business, government and the nonprofit sector.

In engaging the RAC and other stakeholders, the research team made extensive use of the data on clusters and other secondary information. Additionally, the team generated primary data through surveys, focus groups and interviews with existing businesses, local economic development organizations, local and regional plan commissions, and other knowledgeable stakeholders in the eight counties. These data provided insights into the quality of the region's business environment and generated an inventory of regional assets and liabilities.

Many of the key assets in this region are located in Monroe County, the county with the largest population and the home of Indiana University. Analysis was done with and without Monroe County. Results suggest the need for an integrated, two-pronged development strategy: One component would attempt to take advantage of existing cluster strengths in the more rural areas of the region, while the other would attempt to build stronger connections between the more rural counties in EGR 8 and the metropolitan assets and capacity in Monroe County.

Based on the information generated, the RAC agreed on two specific priorities:

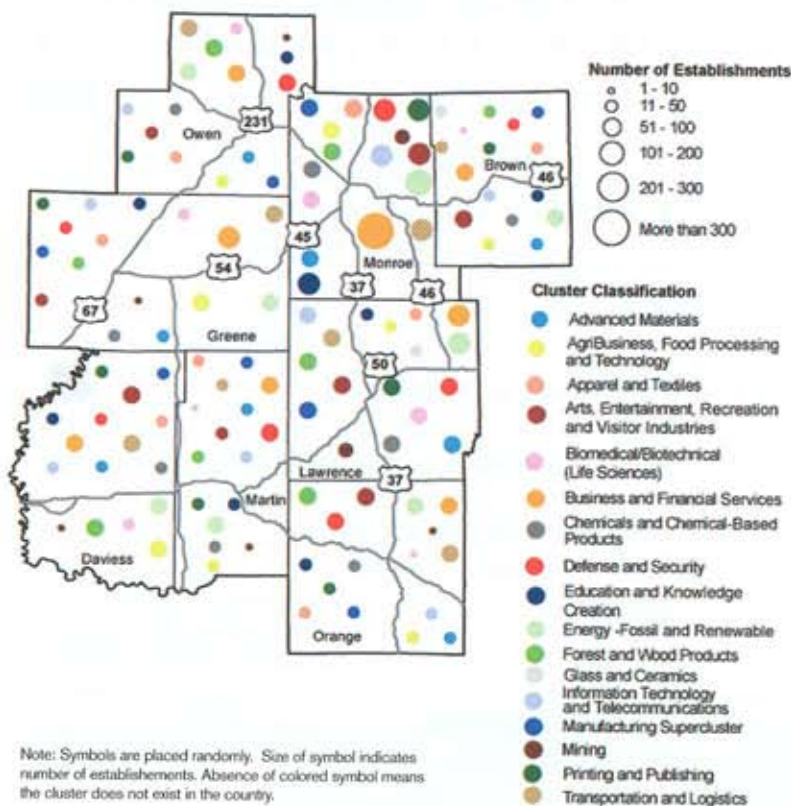
- Exploiting potential synergy among the following three clusters: energy; forest and wood products; and agribusiness, food processing and technology. Biomass development was identified as one specific tactic or project that could build on the strengths of all three clusters.
- Exploiting potential synergy between the advanced materials and biomedical/biotechnology clusters. One tactic or project identified was to activate a hospital/healthcare roundtable to help small local healthcare groups survive and thrive in a difficult rural environment. Another initiative identified was to help small advanced materials and manufacturing firms retool to supply the rapid growth in the biotechnology sector under way in two of the region's metropolitan counties.

Other strategies, tactics and projects were identified in relation to four other clusters.

Putting insights to work

This work sets the stage for the development and implementation of regional initiatives to stimulate new investment and job creation in rural America. The findings and insights generated are important in helping to guide future policy deliberations, and the web-based data, tools and analytics have practical utility for local stakeholders, including local economic development practitioners.

Cluster Establishment Distribution in the Counties of EGR 8



One of the most important insights from our work in EGR 8 is that the concepts and techniques of cluster analysis appear to be a useful tool for regional leadership. When cluster analysis is combined with other data (including primary data from within the region on assets, liabilities and other factors), a robust understanding of the regional economy and intra-regional linkages and dynamics emerges. This type of understanding and the conversations it generates helps rural stakeholders become more comfortable with regional frameworks and rural-urban interdependencies – realities that otherwise may be difficult to embrace. ★★

This article was written by staff of Purdue University's Center for Regional Development, the Indiana Business Research Center at Indiana University, and Strategic Development Group, Inc. For more information, visit <http://www.purdue.edu/dp/pcrd>, <http://www.ibrc.indiana.edu> or <http://www.sdg.us>.

¹ Hawaii and Alaska were omitted from the study due to issues of comparability with other U.S. counties.