

# THE RURAL SOUTH: Preparing for the Challenges of the

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## Industrial clusters: Enhancing rural economies through business linkages

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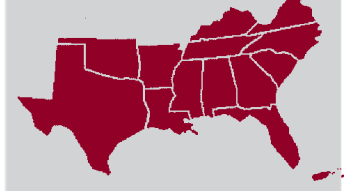
### Introduction

Rural development policy has cycled through a number of phases. These phases include traditional business recruitment, human resource development and education, tourism and more recently social capital. However, new thinking has emerged over the last decade regarding the effectiveness of economic development options. Business or industrial clusters have emerged as critical forces in this new thinking. Clusters enhance a community's competitiveness in the marketplace by strengthening existing and new businesses.

### How do industrial clusters benefit businesses?

Industrial or business clusters are based on the physical proximity of firms in one area or region [10]. At first glance, this proximity may be considered unhealthy leading to serious competitive pressures. In fact, research and real world experience indicate that industrial clusters may be beneficial for both firms and the communities where they exist.

The theory behind the benefits of industrial clusters is based on economies of scale, technology transfer and the availability of human capital. As firms physically congregate in one region, spillovers of knowledge, people and technology occur. These spillovers lead to increased productivity and reduced costs for all firms in the region. There are four major sources of productivity and cost benefits that can be linked to industrial clusters: (1) access to inputs and infrastructure (2) labor and human resource pooling (3) access to information and performance measures and (4) complementary products [8,3]. These benefits occur both directly and indirectly to firms within a regional industrial cluster.



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The first benefit arises from so-called “localization economies.” This is simply a term for the reduction in costs to firms being located in close proximity. These cost savings are due to the availability of specialized inputs such as information and technology or business services. Further, specialized infrastructure may exist in such a cluster. This infrastructure, such as a job-training center, can facilitate work force development. Examples of these services and infrastructure include the Textile/Clothing Center in North Carolina or the Advanced Furniture Manufacturing Center at Itawamba Community College in Mississippi [9]. Because these specialized inputs and infrastructure are subject to economies of scale, a group of firms demanding similar services can lead to a larger carrying capacity for up front fixed costs.

Along with access to physical inputs and support infrastructure, another benefit is increased access to labor and human resources. Labor pooling occurs when firms compete for the same types of occupations and workers. As these workers are drawn to a region with multiple employment opportunities, firms benefit by having access to a large and appropriate set of potential employees from which to draw upon. The existence of a labor pool, if tied to technical or vocational training facilities, may raise general worker skill levels and reduce the transaction costs associated with conducting an employee search.

Access to information exchange and performance benchmarks is intangible, but it remains an important benefit of industrial clusters. Firms in close proximity can more closely monitor and gauge performance of both potential competitors and suppliers. By setting high standards and challenging each other, cluster-based firms can seek higher productivity solutions and products. Firms within a region can attempt to engage in innovative practices and product ideas in order to outflank competitors. This drive for innovation and technological spillovers can lead to improvements in the long-term competitiveness and sustainability of local businesses. Spillovers may involve direct or indirect cooperation. Direct cooperation is facilitated via meetings between suppliers and buyers, as well as linkages between firms using similar technology or work force not engaged in direct competition. Indirect cooperation is often facilitated by trade associations, chambers of commerce and other local business organizations [9].

Physical proximity can lead to complementary products and marketing relationships. The product of one firm may have an important influence of the activities of other firms. For example, the activities of main street retailers can be critical in the attractiveness and opportunities for activities that impact local lodging. Hotels and motels, catering to tourists, depend on other businesses for tourist activities and attractions. Further, retailers and lodging facilities in a community may wish to engage in joint marketing in order to expand their overall market demand. Clusters of these types of businesses can spread the fixed costs of coordination over more firms.

These benefits are strictly due to the existence of a community-based industrial cluster. These same benefits could not be replicated through

the existence of an individual firm or firms not located in close physical proximity. It is important to explain the rationale behind these community-wide benefits in order to engage a town or county in such a process. Rural communities and firms in particular face several challenges in seeking the benefits of cluster-based development. Physical proximity between businesses in rural areas is often limited due to lower population densities, smaller towns and a less diverse industry base. Thus, in considering the benefits of a cluster-based strategy to the firms involved, rural firms may face barriers absent in more urbanized regions.

### How do industrial clusters benefit communities?

For rural communities to pursue clusters as a development strategy, there must be concrete benefits to area residents comparable to alternative strategies. Community benefits come in two major forms. First, clustered groups of linked businesses tend to have higher productivity and are able to pay higher wages to residents. Second, the employment and income spillovers from clustered businesses may be greater than other forms of economic development.

Recent empirical evidence suggests that industrial clusters do raise local productivity and wage levels. Henry, Barkley and Zhang [5] find that in the Tennessee Valley Authority (TVA) region, the existence of clusters does result in higher rural incomes. However, an important caveat is that the

### The Issues

- ◆ During the past decade, business and industrial clusters have emerged as critical forces in economic development strategic planning. As communities begin exploring this development option, questions arise concerning how these clusters benefit businesses and communities.

### Benefits to Businesses

- ◆ *Localization economies.* This benefit arises when firms using similar specialized input (i.e., information, technology or business services) are located near one another.
- ◆ *Labor pooling.* This occurs when firms compete for the same type of occupations and workers, drawing qualified employees to the region for multiple employment opportunities.
- ◆ *Access to information and performance benchmarks.* Firms in close proximity can more closely monitor and gauge performance of both potential customers and suppliers.
- ◆ *Complementary products.* Due to proximity, the product of one firm may have an important influence over the activities of other firms. Further, complementary businesses may choose to engage in joint marketing that will benefit each by expanding the overall market demand.

### Benefits to Communities

- ◆ Clustered groups of linked businesses tend to have higher productivity and are able to pay higher wages to residents.
- ◆ Employment and income spillovers from clustered businesses may be greater than other forms of economic development

### Types of Clusters

- ◆ *Value chain.* The most common form of business clusters, value chains are groups of businesses that buy and sell from each other.
- ◆ *Labor pool.* These clusters are based on occupational categories, allowing firms who use similar types of occupations and worker skills to draw from a larger pool of potential employees.

### Promoting Clusters

- ◆ In order to promote clusters as a feasible development option, a community must first identify potential clusters in its region.
- ◆ Once clusters have been identified, communities need to decide if the support infrastructure is in place to fully complement the value of a cluster.
- ◆ Community and business/industry leaders, along with education providers, will be critical players in promoting clusters.

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growth rate in these counties is often slower than in other rural counties. Gibbs and Bernat [4] find that industry clusters do exist in many parts of rural America. They argue that wages can be higher in clusters due to division of labor and job specialization. Further, proximity can result in higher “learning by doing” and better skill usage leading to higher wages. Using regression analysis, the authors find that wage premiums based on clusters do exist, but they tend to vary by industry type. Bernat [2] states similar findings were evidenced from a sample of Southern rural counties. To date, a mild consensus exists that clusters do raise local wages and local income, but there is a need for further research.

As new businesses develop in a community, they demand materials, equipment, real estate and personnel. These needs are partly translated into expenditures in the local community. Other businesses in the community then experience higher demands for their goods and services. The employees of these new businesses likely will purchase new consumer goods due to higher household incomes. The more a local community is able to respond to these new business and consumer demands, the more job and income growth that is likely to occur locally. The linked nature of business clusters implies stronger local spillovers as purchases are made locally.

The financial and technological benefits to firms also translate into community or social benefits. These benefits include new job opportunities and employment creation, wealth and income creation and greater level of economic growth overall when compared to regions without clusters [2].

### Types of clusters

- Value chain

A number of different typologies or taxonomies have been developed to classify cluster-based forms of development. The most common form of business cluster is the so-called value-chain cluster [3]. Value chains are groups of businesses that buy and sell from each other. Examples of value-chains include auto manufacturers and parts suppliers, food processing facilities and farmers, timber stands and sawmills and hospitals and pharmacies. The physical proximity of suppliers and buyers allows for lower costs and better matching of supply and demand. Just-in-time inventories require close cooperation between companies.

Value-chain clusters may be subdivided into three categories: marshallian districts, hub and spoke, and satellites [1]. A marshallian district, derived from European cluster studies, consists of groups of small and mid-sized companies cooperating to achieve economies of scale regarding supply relationships, infrastructure and other supportive institutions. An example of an urban-based marshallian district is Silicon Valley. The hub and spoke system is based on groups of larger companies competing in the same market surrounded by smaller supply companies [1]. Finally, satellite clusters are simple groupings of large, branch plant type firms. Many rural regions have satellite type firms, although this does not automatically imply that they constitute a cluster.

The benefits of this type of value-chain cluster are indirect, based on physical closeness, rather than any direct cooperation.

- **Labor pool**

A second form of cluster development is the labor pool [3]. Labor pool clusters are based on occupational categories. Firms who use similar types of occupations and worker skills can draw from a larger pool of potential employees. For example, software manufacturers and more traditional manufacturing firms may require similar skills in terms of software developers. The close proximity of these firms attracts these occupations to the area for multiple job opportunities. This type of cluster lowers the cost of employee searches and often raises the productivity of all workers in the region. Training academies, technical schools and other forms of training require larger volumes of students for survival. As these types of workers congregate in certain areas, these training institutions can thrive economically and raise the overall level of productivity in the region.

### **Techniques for identifying clusters**

Location quotients are one technique for beginning to identify clusters. This technique examines whether a given industry in a particular place has an export-base market or a local-base market. An export industry draws dollars into a community from outside consumer or other outside sources. Export industries include tourism, manufacturing, agriculture and some other types of services. The theory behind this method is that most cluster-based industries will be export-based. However, the existence of an export industry does not automatically imply that a cluster exists. Once an export-based industry is identified, other techniques can be used to assess whether or not clusters exist.

Input-output models are one technique for identifying the existence of a cluster, particularly a value-chain cluster in a region [9,3]. This type of model depicts the purchasing patterns of businesses between one another. For example, an automobile manufacturer may purchase steel, rubber, plastic, digital equipment and other inputs from a variety of firms. Farmers might purchase chemical fertilizers, pesticides and machinery. If these input purchases occur within the local region or community, they represent a potential value-chain cluster.

However, these input-output transactions are not the only way to define an industrial cluster. In fact, person-to person relationships or labor markets may be an even stronger source of competitive advantage when firms are located in close proximity to one another. These types of relationships are more difficult to measure than input-output purchases. Some techniques have been developed to overcome this problem. For example, communities can use business surveys or focus groups to identify key linkages between local businesses. Another technique, more recently developed, is keystone analysis that identifies information flows between organizations in a community [6].

The labor market cluster can be identified using occupational and

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industry data available from state and federal Departments of Labor [9]. The key issue is whether firms from different industry categories use the same types of occupations and occupational skills. In this way, firms benefit by locating close to one another and being able to attract and draw from a larger labor pool.

### **How do you promote industry clusters?**

The most important role for governments is to use the techniques described above to identify potential clusters in their region. Information about clusters is critical in crafting intelligent policies. Clusters can be classified into existing and emerging clusters [3]. In some cases, existing clusters are easily identified, while in other instances they are less evident. It often depends on their size and age. Local governments may need to work with consultants or universities to properly use cluster identification techniques.

Once clusters have been identified, communities need to decide if the support infrastructure is in place to fully complement the value of the cluster. As discussed in previous sections, training facilities, business services, physical infrastructure, work force skills and availability should all be assessed from the standpoint of the industrial cluster. Discussions with business leaders will be critical in determining the need and mix of skills necessary to increase cluster productivity. This information can then be used to improve or enhance local training facilities or create new options. Physical infrastructure will most likely require cooperation and funding from state or federal authorities. Cluster identification and information can be used to argue the case for targeted infrastructure investments.

### **Are clusters for everyone?**

An important question is whether a community should pursue cluster-based economic development. Like other economic development strategies, clusters are not a silver bullet or single answer to all rural economic problems. Whether or not a cluster is appropriate depends on community characteristics, past industrial development and current economic conditions [1].

Some analysts claim that government cannot and should not attempt to choose which clusters should “win” [7]. Therefore, the role of government is to create an even playing field and allow markets and private participants to undertake investments in clusters and decide which group of businesses will emerge. The role of government is to create and maintain public infrastructure, develop human capital through formal education, and reduce regulations to encourage entrepreneurship. Under the right conditions, business clusters will form relative to the strengths and weaknesses of the region.

It may be very difficult for rural communities to prosper using a cluster-based strategy. Some analysts claim that unless a community has an established cluster base, it is very unlikely to benefit from such a strategy [1]. This is partly due to the high costs of establishing a cluster and the difficulty of being competitive with more established clusters

## In Summary

- ♦ Business/Industry clusters can be a valuable option in a community's strategic economic development planning. However, as with other economic strategies, clusters are not a silver bullet nor a single answer to all rural economic problems.
- ♦ Whether a cluster is appropriate depends on community characteristics, past industrial development and current economic conditions.
- ♦ The promise of higher productivity, wages and incomes must be balanced against the risks of economic dependence on linked industries.

elsewhere. Also, the contention has been made that a cluster-based strategy does require determining which industries will likely be successful or unsuccessful. This may prove to be difficult in an environment of imperfect data and imperfect foresight [1].

Generally speaking, clusters as a form of economic development require strategic choices by government agencies. These choices must reflect the type of cluster investments that should and should not be made. To some extent, the choice of investments depends on which clusters, emerging or existing, hold the greatest potential for a region. Despite some claims that cluster development is unlike industrial policy in that it does not require "picking a winner" or choosing which "industry will be successful," it is unlikely that a government can simultaneously promote all clusters. Choices will have to be made regarding which clusters will receive strategic investments. Partly, this is due to the fact that different clusters will likely require industry-specific investments. Finally, if a region does not have a cluster, an explicit choice must be made regarding support to develop a new cluster.

In deciding which strategy is right, rural areas have conditions that are unique and different from their urban counterparts. These schools of thought were mostly developed in regards to urban conditions and do not necessarily reflect the nuances of rural communities. Rural areas are lower density regions of business activity and entrepreneurship. They also have less access to infrastructure and often suffer human capital gaps, especially in the areas of health, education and training. Rural areas may also be more limited in terms of potential clusters.

Ultimately, rural communities need to decide on their goals and objectives. Once these goals are agreed upon, regional industrial clusters can be assessed relative to other economic development options. The promise of higher productivity, wages and incomes must be balanced against the risks of economic dependence on linked industries. Other strategies may be more suitable for a community that is considering its development options. Such a strategic planning process will lead a community to either accept or reject clusters as a visible approach for strengthening its economic health.

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