Version 2.2

Targeting Regional Economic Development: An Outline of a National Extension Educational Program

or: TRED: A How-To Guide

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Abstract: A national network of university researchers and extension specialists is working together to develop a collection of educational materials on targeted regional economic development (TRED). Building on the notion of Michael Porter's cluster development a collection of tools and educational processes is outlined.

Introduction

Community and regional organizations vested with the promotion of economic growth and development are constantly searching for effective tools and methods to advance their efforts. The interest in cluster developments that has been spurred by the work of Michael Porter has renewed interest in targeted economic development efforts. There has been a concerted movement away from the old philosophy of "shoot anything that flies and claim anything that lands" to more strategic behavior in identifying the specific types of industry to promote at the local and regional levels.

Policymakers and economic development practitioners are now asking the more focused question: in what types of industry does our region have a competitive advantage? Despite this explosion of interest there are few if any educational or teaching resources available for practitioners interested in initiating, conducting or even evaluating TRED efforts in their local community. The purpose of this paper, along with the accompanying slideshow and the related curriculum resources and materials (in development), is to fill this void. These materials draw from the forthcoming book, *Targeted Regional Economic Development* (Goetz, Deller and Harris, editors, 2008), and outline a set of resources that practitioners can use in community economic development planning.

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Overview of Clusters, and Michael Porter's Work

The basic idea behind an economic cluster is that firms are more productive when they are co-located or concentrated in a region than when the firms are not clustered. There are a number of important reasons why this is the case, including the spillover of knowledge and sharing of workers with specialized skills. Another reason is the benefit that arises when firms in a similar or related industry both compete and collaborate with one another, becoming stronger and more productive in the process. Many states and sub-state regions are seeking to identify and improve their existing clusters, or spawn altogether new ones. Examples include studies in countries around the world, South Carolina and, more recently in Utah, where Porter's consulting firm reportedly earned $500,000 to conduct a cluster study.

According to Porter,

> Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region. Clusters arise because they increase the productivity with which companies can compete. The development and upgrading of clusters is an important agenda for governments, companies, and other institutions. Cluster development initiatives are an important new direction in economic policy, building on earlier efforts in macroeconomic stabilization, privatization, market opening, and reducing the costs of doing business.
>
> (http://www.isc.hbs.edu/econ-clusters.htm) accessed May 19, 2007

A basic cluster study for a region typically identifies those industries that are relatively more important locally than nationally, that are sizeable in terms of employment, and that are, preferably, growing over time.

There are two general ways in which the clusters are identified. The first method uses employment or income data by industrial sector and a simple analytic tool called Location Quotients (LQs).[2] If the LQ is greater than one there is evidence that the region may have a comparative advantage within the particular sector. By mapping these LQ within a GIS system one can gain insights into any spatial clustering of industries. If a spatial cluster is observed, then one can reasonably conclude that the area or region has a comparative advantage or an industry cluster.

Two examples of this method are presented in Maps 1 and 2.[3] In Map 1 we examine the food manufacturing sector by mapping LQs for all the counties in the lower 48 U.S. states. Not surprisingly we find clusters of food processing industries in areas that are

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[2] A Location Quotient is simply the percent of total regional economic activity in an industry divided by the national percent. Or $LQ_s^i = \left(\frac{e_s^i}{e_s^t}\right) \Big/ \left(\frac{e_n^i}{e_n^t}\right)$ where e_s^i is the level of economic activity for the region (*s*) in industry *i* and e_s^t is total economic activity and *n* represents the national data.

[3] These maps are drawn from a clustering project undertaken by the University of Wisconsin-Extension Center for Community Economic Development. Available on line at: http://www.uwex.edu/ces/cced/economies/GIS/naicsdescindex.cfm

closely tied to agricultural production. For example, most of Wisconsin, southern Minnesota and northern Iowa has LQs consistently larger than one, indicating a potential comparative advantage and a cluster. Stronger food processing clusters can be seen in western Arkansas, southern Idaho and central Washington to name just a few. Map 2 shows LQs for wood production industries and we can again see strong evidence of clustering in north central Wisconsin, northern Minnesota, much of Maine and eastern West Virginia. This type of analysis, specifically that in Map 2, was used in Wisconsin to expand the set of "official" clusters promoted by the state to include wood product manufacturing.[4]

The second approach, which is more commonly advocated by Porter and his followers, expands on the simple LQ in two ways. First, these advocates suggest that looking at a static LQ, or at only one point in time, does not tell the practitioner whether the sector is growing or declining. Thus it makes sense to examine how the LQ is changing over time. Second, to determine whether or not an effective cluster is present requires a scale element in the analysis (i.e., the size of the workforce employed in the sector). The LQ is scale independent, and a sector with a high and growing LQ may be a very small part of the regional economy. For illustrative purposes we have conducted such an analysis for Outagamie County, Wisconsin which contains Appleton, the host city of the 2007 Community Development Society meetings. This illustrative example is provided in Table 1.

Table 1: Location Quotients for Outagaime WI

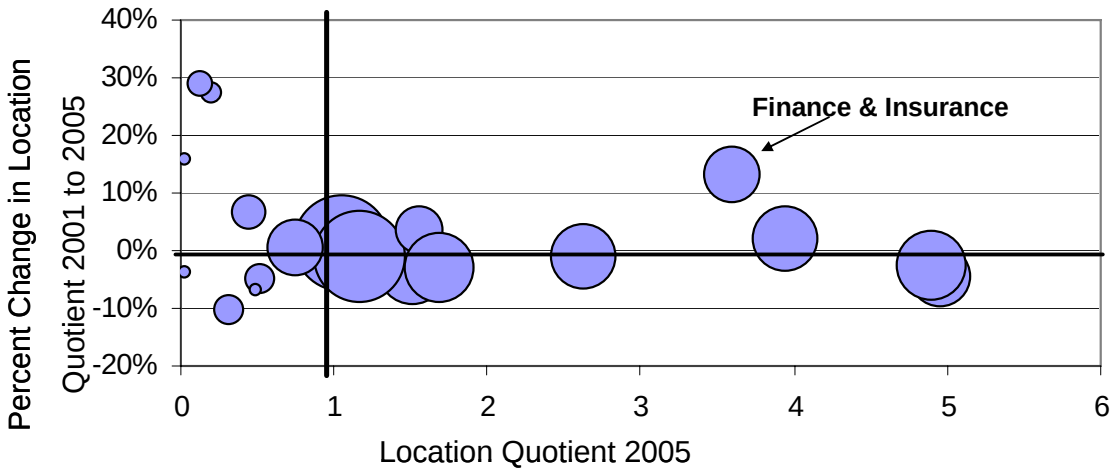
	LQ 2005	Percent Change in LQ 2001-2005	Percent of Employment
Construction	1.518	-3.5%	8.6%
Manufacturing	1.055	1.2%	16.1%
Retail trade	1.172	-1.1%	13.7%
Information	0.518	-5.1%	1.8%
Finance and insurance	3.603	13.2%	6.0%
Real estate and rental and leasing	0.447	6.7%	2.2%
Professional and technical services	1.558	3.5%	4.4%
Management of companies and enterprises	0.206	27.3%	0.9%
Administrative and waste services	4.964	-4.6%	6.2%
Educational services	0.322	-10.2%	1.5%
Health care and social assistance	4.908	-2.6%	8.6%
Arts, entertainment, and recreation	0.137	28.7%	1.5%
Accommodation and food services	3.948	1.9%	7.3%
Other services, except public administration	0.746	0.5%	5.3%
Government and government enterprises	1.687	-2.9%	8.9%
Federal, civilian	0.028	15.8%	0.4%
Military	0.492	-6.9%	0.4%
State government	0.030	-3.8%	0.3%
Local government	2.634	-1.1%	7.8%

[4] For a more detailed discussion of the Wisconsin cluster effort see: http://www.commerce.state.wi.us/MT/MT-IndustrialClusters-stateclusterinitiatives.html

Examining only the LQ for 2005 a handful of sectors rise to the top including finance and insurance (LQ=3.603), administrative and waste services (LQ=4.964), health care and social services (LQ=4.908), accommodation and food services (LQ=3.948) and local government (LQ=2.634). By adding the change in the LQ, or in this example, the percent change 2001 to 2005, as well as the scale of the industry measured by percent of total employment within the sector, a clearer picture of potential clusters emerges. Consider the health care and social services sector, which has a large LQ and accounts for a relatively large share of total employment at 8.6 percent, but a stagnant and slightly declining LQ.

An alternative way of visualizing the analysis presented in Table 1 uses what is referred as a "bubble chart" where all three metrics can be envisioned. Such a representation is presented in Figure 1.

Figure 1: Porter Cluster: Outagamie County WI



On the horizontal axis is the LQ for the most current year, the vertical axis captures the change in the LQ over time, and the size of the "bubble" is the relative size of the industry (the larger the "bubble" the larger the size of the industry). The idea is to focus on those industries that appear in the northeast quadrant, particularly those with larger "bubbles". In this example finance and insurance appears to be an immerging cluster for Outagamie County, Wisconsin.

Another insight that can be gained using this approach is the identification of large sectors (large "bubbles") that have LQ above one but are declining over time. For Outagamie County health care and social services appears to fall into this category and may warrant further consideration.

While there are important criticisms of the way in which Porter identifies clusters (Woodward and Guimarães 2008)[5], it is clear that the basic idea of clustering and focused

[5] All 2008 citations refer to Goetz, Deller and Harris, editors, forthcoming.

or targeted economic development has gained widespread interest and acceptance. This raises the question, are systematic and reliable tools available for community decision-makers to "pick" appropriate industries or sectors to be favored?

One of the primary criticisms beyond the methods of analysis is the process by which the clustering analysis is conducted. Often the analysis is conducted by outside consultants and amounts to little more than a technical report provided to local economic development officials. As discussed in detail in Shaffer, Deller and Marcouiller (2004), for community or regional economic development initiatives to be sustainable they must occur from the grassroots where the process as well as the analysis is a product of active local involvement. There must be local ownership in the process and analysis for change to be sustainable.

An example of such a process is the Northeast Wisconsin Economic Opportunity Study.[6] While a full discussion of this effort is beyond the scope of this paper, an overview of the process and analysis illustrates how a complex grassroots process coupled with involvement in all steps of the data analysis can be structured. The study originated with a detailed analysis of the economic opportunities of Outagamie County, Wisconsin that was undertaken in 2001 (Muench and Deller 2001). This earlier study involved the work of a "research team" of 15 members of the broader community including representatives of local chambers of commerce, city and village administrators and local economic development practitioners. The principal authors of the study conducted the analysis but the research team provided invaluable decisions at each step of the process in terms of filters to apply to the data. By providing these decisions the local community "owned" the analysis, more fully understood the implications of the analysis, and was able to determine effective strategies to move the region forward.

The success of the Outagamie County Study spurred interest in a larger regional analysis which resulted in the Northeast Wisconsin Economic Opportunity Study. The Study, widely known as the NEW Study, was originated by the Fox Valley Workforce Development Board which is composed of a seven county region. One of the motivations for the study was the realization that northeast Wisconsin, particularly the area known as the Fox Valley which ranges from Fond du Lac in the south to Green Bay in the north, is an integrated economy. While the Study had several objectives, for our purposes here there were two central objectives. The first was the economic analysis itself and the second was to use the economic analysis as a catalyst to form a regional perspective and build regional partnerships for economic development.

In terms of the latter objective the Study was a strong success. As word of the Study spread neighboring counties asked to participate in the effort and the final region was defined to include 18 counties in northeast Wisconsin. The region now thinks in two levels, local efforts and how those local efforts complement and bridge into the larger regional economy. Indeed, the success of the NEW Study spurred the City of Milwaukee to approach its suburbs to initiate a dialogue for thinking in terms of a regional approach to economic development. One could argue that the study area became too large and

[6] http://www.neweconomyproject.org/

difficult to manage. While in the Outagamie County study a major component of the effort was the input of the research team at every step of the analysis, in the NEW Study the number of "players" involved made the input into the economic analysis almost impossible. Ownership of the economic analysis and resulting policy recommendations did not evolve as in the Outagamie County study.

Targeting Industries for Economic Development: How To

The first question that arises in this context is, which industry or group of industries should be chosen for targeting efforts? In other words, it does not make sense to recruit any and all industries that exist somewhere in the nation but instead a careful selection of prospects should be made. Presumably, this will depend on how well a firm or industry fits into a community, in terms of its input needs, and how well it fulfills the expectations of local residents on a number of dimensions. It is clear, however, that if the firm cannot operate profitably in the local community, then it will eventually fail. The question is, what does the firm need and what does the community offer?

The Porter approach that uses the LQ analysis outlined above is but one of several approaches that have been developed over the years by economists. Below we list and review a sampling of analytical tools and methods that have been developed to help in identifying good prospects. Each of these approaches and others are outlined in more detail in Goetz, Deller and Harris (2008). Some of these are simple and straightforward while others require sophisticated statistical techniques and other methods. Another important question is, what are the preferences of local residents in terms of industries to locate? Conceivably, residents care not only about jobs but also about how much those jobs pay and what, if any, impacts a new firm may have on local taxes, the environment and quality of life generally.

Econometric/Statistical Tools for Identifying Industries to Target: Location Models

All else held constant, firms seek out locations where costs are minimized leading to maximized profits. Firms might locate at the city center where transportation costs are minimized but rents are high. As firms locate further away from the city center, rents may decrease but increased transportation costs offset these gains. In the early 1900's, Alfred Weber (1929) identified several factors influencing the location of industries including: product weight and shipping distances, proximity to raw materials, and wages. Goode and Hastings (1989), as an extension to the work of Weber and Losch (1954), investigated the importance of transportation and accessibility on the location of manufacturing plants in both metropolitan and non-metropolitan areas. They hypothesized that transportation services as well as agglomeration effects would play important and different roles for different types of manufacturing plants. They found that both the transportation and accessibility measures were important influences in location decisions but these impacts varied over manufacturing sector and metropolitan and non-metropolitan areas.

Bartik (1985) investigated how a branch plant's decision to locate is influenced by a state's socio-economic characteristics. He employed a multinomial logit model to determine the importance of state-specific variables in a manufacturing firm's state location decisions. He found that land area, unionization, and corporate and property taxes were important factors in location decisions.

Newman and Sullivan (1988) provide a review of the effect of business taxes on industrial location. The authors focus primarily on the econometric specifications of previous studies but do not find evidence that taxes hinder location decisions. The studies are limited to only metropolitan areas so it is not possible to relate these results to non-metropolitan areas. Focusing on food manufacturing industries and all US counties, Goetz (1997) found that higher property taxes deterred dairy, fats & oils, and beverages producers from locating. At the state-level, higher corporate income taxes kept away fruit & vegetables, confectionary, and fats & oils producers, while other sub-industries were not affected.

Gabe and Bell (2004) find evidence that indicates businesses favor communities that spend high amounts on public goods and services, even if these expenditures are financed through local taxes. Walker and Greenstreet (1990) investigate the effect of government incentives and assistance on manufacturing. The authors look specifically at the following incentives: site-specific infrastructure, low-interest loans, training subsidies, and tax breaks, among others. They find that industrial incentives have the intended effect of attracting new manufacturing firms. In addition, the effective tax rate is a deterrent to locating in an area, which is inconsistent with Gabe and Bell's result.

Holmes (1998) found that the manufacturing's share of total employment increased by approximately one-third when crossing from an anti-business state to a pro-business state. A right-to-work law bans the union shop. This crude measure of a pro-business environment might be too broad, particularly measured at the state level, to capture the location decisions of individual manufacturing firms.

Leatherman et al's (2002) industrial targeting analysis investigated the impact of community economic conditions, community social attributes, community infrastructure, and industry input/market conditions on the growth of manufacturing firms for counties in the Great Plains region. A binary logit model was employed where the dependent variable took on a value of one if there was a growth of firms, by industry, in a county, and zero otherwise. Variables such as population, poverty levels, and industry employment levels appeared to consistently be significant determinants of firm growth. Unfortunately, the model does not capture the magnitude of growth. Counties that grew by 200 firms would receive the same value as a county that grew by only one firm. Counties that lost firms would receive a zero value as would counties where no firms existed at all.

Reum and Harris (2006) employed double hurdle procedures for count data of the number of three-digit county-level NAICS manufacturing firms for the mountain states. Double hurdle models are employed in cases of a large number of zero observations.

Results of the double hurdle model suggest economic factors, such as tax revenues or average earnings, attract firms to an area. While these factors can be easiest to manage by government officials, it appears that it is possible for a community's infrastructure and industry input characteristics to make more of a difference between being an attractive or an unattractive area for firm location. Thus the policy implications are more complex. As opposed to controlling fiscal policy, government officials should instead try to target improvements in education and local infrastructure while maintaining a large population.

Frank Goode at Pennsylvania State University and Steve Hastings at the University of Delaware in the early 1980s developed the very first targeting tool within the Land Grant Extension system for use by community economic development practitioners. They focused on the probability that a particular industry will be present in any given community by estimating a statistical relationship between existing local conditions in communities and new firm formations in an industry over time. This provided a coefficient (number) for each local condition or variable measuring how that variable affects the firm location. For example, the quality of the local labor force may have a certain impact in attracting an industry, and the level of local taxes may have another impact. Once these coefficients are known, any given community in the study area can apply its own values for the different conditions (such as the level of educational attainment or taxes) to the coefficients to calculate its odds or chances of promoting a firm in a particular industry.

To illustrate, suppose we are interested in explaining growth in automobile manufacturing plants over time, denoted as ΔY, as a function of educational attainment (X_1) and levels of property taxes (X_2) at the county-level. With data on US counties, we could estimate the following statistical relationship:

$$\Delta Y = a + bX_1 + cX_2 + e$$

Here a is a constant term and e denotes a statistical error term. The parameters b and c tell us how educational attainment and levels of property taxes influence the location of automobile manufacturing plants. Presumably b will be positive while c will be negative, to the extent that capital-intensive manufacturers avoid high-tax communities.

Suppose further that the average educational attainment in these counties is 12 years of formal education and that parameter b is estimated to be 0.5. In that case, raising the average educational attainment of the county's residents by two years would be predicted to increase the number of establishments in the county by 1.0 establishment (= 0.5 establishments per year of education x 2 additional years of education). Clearly, one would have to compare the cost of increasing educational attainment to the expected benefit of the additional manufacturing plant.

There is another important way in which any given county can use the results from an industry targeting model. In particular, a given county can plug in its own values for X_1 and X_2 into the above equation to calculate the expected change in establishments in a given industry that it might expect to enjoy over time. This could be done for the various

industries of interest, and it can be done in terms of the odds of attracting a firm in the different industries.

Then, once the odds of attracting firms in different industries have been ranked, the county could actively seek to recruit firms in the most highly-ranked industries knowing that, based on historical location patterns, the county has a fairly good chance of landing such a firm (e.g., Leatherman et al. 2008). While this analysis is very useful, it has to be complemented with supplementary information. For example, one would want to know whether or the industry in question is generally expanding or in decline, before investing resources in attracting firms in that industry.

Input-Output Analysis for Identifying Industries to Target

Another useful tool for identifying key industries to target draws on the working of the local economy to identify those firms and industries that have especially strong local linkages with other existing firms. These are desirable targets because as they expand their operations, they also benefit other local firms by demanding more goods and services from them. Thus the initial investment in the industries has important additional second-round effects on the local economy. Two approaches will be outlined.

One example of this approach is that developed at Clemson University, known as the Regional Economic Development Research Laboratory (or REDRL) approach (Barkley and Henry 2008) and the second has been developed at the University of Wisconsin – Madison/Extension and used in the Northeast Wisconsin Economic Opportunity Study discussed above (Deller 2008).

The Clemson method sets up the following three screens to sift among promising industry prospects. Certain screens use a number of different criteria or benchmarks that an industry must meet in order to pass. This increases the rigor of the analytical and empirical approach. The three screens with component measures listed where applicable are as follows (Barkley and Henry 2008).

Screen 1. The industry must have experienced recent growth in employment, must have a minimum number of firms (e.g., 3) and total workers (e.g., 200) and satisfy two specialization and competitiveness criteria as measured by the location quotient and shift-share analysis.

Screen 2. The industries surviving screen 1 are ranked according to the strength of their local purchases (inputs) and sales (outputs), using the IMPLAN software. As Barkley and Henry note, the firms on the other side of these transactions (input sellers and output purchasers) are excellent candidates for a second phase of industry targeting.

Screen 3. In this last step, candidate industries are evaluated according to national employment growth, firm size, wages paid, fixed assets, income multipliers and import substitutions possibilities.

Out of the above sifting the Clemson method can isolate a subset of industries that is particularly worthy of attention in industry targeting efforts.

The Wisconsin approach which was used as part of the larger Northeast Wisconsin Economic Opportunity Study also uses input-output modeling and in particular the IMPLAN modeling system. While the Wisconsin approach is designed to be an interactive learning as well as an analytical tool, it follows several steps in common with the Clemson approach but with one key difference. Using a technique called "gap and disconnect analysis" the Wisconsin approach focuses on Screen 2 of the Clemson approach using the detailed IMPLAN data on local sales, imports and exports. One of the powers of IMPLAN is that it provides extremely detailed estimates of industry imports and exports through the use of regional purchase coefficients.

The logic of the gap and disconnect analysis hinges on the basic concept that regional firms (industries) can sell their goods and services to local firms or export them outside of the region. At the same time industries can purchases input used in their production processes from local firms or import them from outside the region. The gap and disconnect analysis looks for patterns in those import/export and local transactions. Now consider both gaps and disconnects in turn.

A gap in the local market is identified when a large volume of a particular good or service purchased by a regional firm (industry) is imported into the region because the good or service is not available from local industries. For example, there is a growing plastics manufacturing industry in Wisconsin that has been identified as a potential cluster based on the simpler Porter approach outlined above. Using the IMPLAN model a detailed analysis of expenditure patterns on inputs used by the plastics industry reveals large amounts of imported plastic resins. Plastic resins are not produced in Wisconsin and based on the nature of the production process of plastic resins it is widely agreed that this industry is not "desirable" for Wisconsin. Other gaps may be more suitable and acceptable to the region and can become industries "of interest" for targeting. The size of the gap and the wage structure and quality of jobs can be used as further screens.

A disconnect in the local market is identified when input suppliers and users of the inputs are both present in the local economy but the industries are not conducting business. The Outagamie County study discussed above identified a disconnect between the milk and cheese processing industry in the county. Both industries are sizable in the county but nearly all of the milk produces in the county is exported while at the same time nearly all of the milk used by local cheese plants is imported. The question for the community becomes why does such a disconnect exist and should efforts be put in place to better connect the two industries, thus building a stronger cluster within the county.

A potential downside to the Clemson and Wisconsin approaches is the sheer volume of data that are produced, as these can overwhelm the research team as well as the community development practitioners. Because of this potential problem it is imperative that a comprehensive process be put into place to walk the research team through each

step of the analysis with the team making critical judgment calls along the way to steer the study and take ownership in the final analysis.

AHP Methods

Location quotients, shift-share analysis, input-output and location models all provide important data about the economic structure of a particular region, and can be used to examine the strengths and weaknesses of local economies (Blair, 1990). Each of these procedures, however, has drawbacks. Location quotients and input-output models are static in time, giving no insight into changing economic conditions (Blakely, 1994). Also, input-output models do not offer spatial perspectives for industry location. Shift-share analysis examines changes in economic structure over time, but does not explain why those changes occurred (Blair, 1990). Location models employ the influence of socio-economic factors on firm location (Reum and Harris, 2006). None of these models examine non-economic factors for industrial locations and therefore cannot incorporate the broader focus of contemporary economic development practices which include consideration of social and environmental impacts (Mountain Association for Community Economic Development, 1997; Galston and Baehler, 1995; Blakely, 1994; Bonnett, 1993).

Perhaps most importantly, all of these methods are positive, rather than normative. Their objective is to describe the economic structure of a community or region, rather than to discuss what the economic structure should be. Because they are not intended as normative processes, none of these methods considers the economic development goals of community residents (Blair, 1990). Thus, while they are based on accurate information and analysis, these methods can recommend targeted strategies that bear little resemblance to local residents' visions for their community. Without local resident preferences, the positive approaches may yield economic development targets that are not sustainable over the long run.

The recognition that community participation is vital to sustainable economic development decision-making has led to the creation of several models that allow communities to discuss their goals for economic development (Mountain Association for Community Economic Development, 1997; North Central Regional Center for Rural Development, 1997; Community Development Academy, 1996). These models also acknowledge the interaction between economic, social, and environmental impacts of development. Unfortunately, these models offer no concrete procedures to determine the community's best opportunities for realizing those goals. In addition, the possible tradeoffs between economic, environmental, and social impacts that might be involved in targeting a specific industry cannot be considered.

Studies by Cox (1996) along with Cox, Johnson and Alwang (1997) have attempted to bridge this gap. Community leaders in three Virginia counties were asked to formulate economic development goals using seven indicators of economic, environmental, and social impact. The Analytical Hierarchy Procedure was used to determine the relative importance of each goal to the community.

The AHP gives local leaders a way to include their preferences for economic, public, and environmental impacts that a new or expanding firm might have on the area. The diversity between each community's preferences and the articulation of these preferences during the process of making pair-wise judgments highlight the need for states to include local leaders in the industry targeting process and also in other areas of economic development.

Groups of citizens could also take part in ranking industry impacts. AHP does not limit the number of people in the group or the number of groups participating in the pairwise judgments. The judgments from each group, or even from each individual, can be integrated into one set of priority weights, using methods such as voting or averaging (Saaty 1990). The size of each group would only be limited by logistical concerns.

In general, industry rankings changed dramatically as preference weights were introduced. An industry that has potentially high economic impacts may in fact not be preferred because of its non-economic impacts. Impacts such as pollution or average wage or salary paid have greater effects on preferences toward an industry than the number of jobs.

Community Business Matching Model

The Community-Business Matching Model (CBM) attempts to focus economic development efforts by using the goals and assets of the community to find businesses that are likely to both meet the communities' goals for economic development and find the community an attractive place to locate. The best ''matches'' occur when the goals of the community correspond to the benefits provided by a business, and when the assets of the community correspond with the demands of the business.

Two indices, desirability and compatibility, are used in the CBM model to identify and rank potential matches. The desirability index measures how well a business matches with the goals of the community along dimensions such as jobs, environmental protection, wages, taxes, and increased business for other local firms.

As Cox (1996) and Cox, Johnson, and Alwang (1997) recognized, identifying businesses that are desirable from the communities' point-of-view fulfills only half of the targeted economic development effort. Businesses also analyze a community to see if the community's assets match the business' requirements. The CBM model adds another dimension to targeted industry analysis -- that of compatibility. Compatibility measures how well the assets of the community match the requirements of the business. Businesses will be more likely to locate in a community that meets their demands for infrastructure, space, and labor. The compatibility index is derived from factors that the businesses have indicated were important to them in making location decisions. A significant amount of research has been done on business location decisions (King, 1997; McNamara et al, 1995; Blakely, 1994; Glaser and Bardo, 1991), which when combined with the primary data collected for the business database used by the CBM model yields the information that serves as the basis for the compatibility index.

The best matches for a community are those businesses which most closely meet the community's economic development goals, indicated by a high desirability value, and which are simultaneously best served by the existing assets of the community, indicated by a high compatibility value. CBM identifies sectors to target for short- and long-term development based on these desirability and compatibility measures, each defined in terms of a number of quantifiable indicators.

Despite the quantitative nature of CBM and other development tools, however, economic development is not an exact science. CBM cannot conclusively identify the ''best'' sectors for a particular community to target, because many subjective factors such as management style will have a strong impact on the business' appropriateness to a community. This makes the information provided by the CBM model's detailed analysis of the desirability or compatibility scores very useful. Community leaders can take this detailed information and make subjective decisions about which development opportunities to pursue.

Phase II of the National TRED Effort

The national effort of university-based researchers and extension specials that is outlined in this paper is composed of two parts, what we are loosely calling Phase I and Phase II. Phase I takes the form of the edited book outlined above which is aimed at an academic audience and is intended to lay the scientific foundation for the TRED methods being used across the nation. Phase II of the effort is aimed at practitioners who are working with communities that wish to further analyze their regional economy but require more hands-on materials. In our work in community economic development we have found that most of the available cluster studies using the Porter approach or more directly conducted by Porter are at the state level and are intended to help craft state-level policies. As these state efforts are becoming more widespread, interest in conducting cluster analysis at the local level has grown rapidly. The intent of this national project is to help those local or sub-state efforts.

The intended audience of Phase II is community development practitioners who have a limited background in economics and/or business analysis. One challenge we face is what defines that limited background. We have two models that we propose to follow. The first is the Community Economic Analysis: A How To Manual authored by Ron Hustedde, Ron Shaffer and Glen Pulver published by the Northcentral Regional Center for Rural Development at Iowa State University.[7] From the Preface:

> *"This manual is intended for the individual interested in the analysis of a community's economy. It is not designed for direct use in citizens' meetings. Rather the publication is designed to assist individuals who need to bring information to a group of citizens or decision makers concerned with the economic future of a community."*

[7] This manual is available at http://www.ncrcrd.iastate.edu/pubs/contents/rrd186-readonly.pdf

The manual is aimed at non-economists and proceeds by asking a progressive series of questions to which the authors provide answers. As an Extension outreach educational tool it represented the first attempt to introduce tools such as Location Quotients into broader community discussion. In addition to providing a "layman's" discussion of analytical tools like Location Quotients, Shift-Share, and Trade Area Analysis, the manual provides insights into why and how economic analysis should be introduced into community economic development efforts.

What the Hustedde, Shaffer and Pulver manual does not do is provide a detailed process by which the economic analysis can be used within the community of interest. Our experience with TRED efforts is that the vast volume of data that can be introduced can overwhelm the practitioner but more importantly local citizens and decision makers. Some argue that the simplicity of the Porter "bubble chart" tackles this problem directly. The challenge is how to strike a balance between oversimplifying a complex issue and overwhelming practitioners and decision makers with too much analysis.

To help the practitioner work with the community to implement a TRED analysis and craft appropriate strategies and action plans we turn to the Take Charge program developed by Janet Ayers and others and also published by the Northcentral Regional Center for Rural Development at Iowa State University.[8] The Take Charge program combines the analytical tools outlined in Hustedde, Shaffer and Pulver and elements of strategic planning to form not only an educational program but also an effective process for working with communities in economic development. Variations of the Take Charge program include Wisconsin's Community Economic Analysis program developed by Ron Shaffer and Glen Pulver and the Illinois Institute for Rural Affairs Mapping program developed by Norm Walzer.[9]

One potential approach for such a program is outlined by Deller, Leatherman and Shields (2008). The proposed method suggests that there be two overlapping teams composed of the practitioners and members of the community. The research team helps craft the economic analysis that forms the backbone of the TRED effort. Here the practitioner reviews the various methods that can be employed and the team elects the research method to be used. A research schedule is outlined and adhered to where the various screening processes are applied to help the team focus on the industries that will form the clusters. At the end of this research effort a handful of potential cluster industries are identified along with the strengths and weaknesses of each cluster.

The second team, which overlaps with membership from the research team, enters into a structured strategic planning process. Here a Take Charge type process is employed. The process can be composed of three to four workshops. The first workshop outlines the results of the TRED analysis and an overview of the strengths and weaknesses identified by the research team. The intent of this first meeting is to educate the second

[8] Availability of the program is available at http://www.ncrcrd.iastate.edu/pubs/contents/153.htm
[9] For a detailed discussion of a family of programs such as Take Charge, Community Economic Analysis and Mapping see Norman Walzer (editor) (1996) Community Visioning Programs: Practices and Experiences.. Praeger Press.

team as to the economic structure of the clusters and finalize the set of clusters that the community wishes to focus upon. The second workshop focuses on a review of economic development strategies specifically aimed at the promotion of the selected clusters. Strategies can range from working with existing businesses within the clusters to building institutional capacity and firm networking to traditional business retention and expansion type programming to traditional recruitment strategies. The third workshop is focused on identifying specific action steps that the community can pursue: which strategies will be implemented, who will take responsibility for implementation, if funding is required, how will the funding be secured, and development of a detailed follow-up plan. Based on our experiences it is vital that these tasks do not fall to the practitioner. Members of the second team must be willing and able to step up and be actively involved in implementing the strategies, evaluating progress and be willing to report back to the full team. The practitioner's role is to serve as a resource to the action team in providing additional materials as needed, organizational roles and perhaps even be a cheerleader to the team.

The final product of Phase II should provide the practitioner with a "game plan" for conducting a TRED analysis at the local level. The practitioner then works with the community to develop and implement an action plan to build clusters.

Summary and Conclusions

The object of this paper is to outline a national effort underway by university-based researchers and extension specialists that involves a range of possible TRED efforts at the local level. Because the Porter approach to cluster development has sparked so much interest at the national and state levels, local communities are now asking if cluster development is appropriate for local economic development activities and, if so, how they can proceed to implement them.

The national network is undertaking a two phase project. The first phase is an edited book that lays the research foundation for TRED efforts at the local level. An overview of the strengths and weaknesses of cluster development is provided and a range of methods is detailed. In addition, potential approaches to using TRED analysis at the local level are reviewed. This edited volume is aimed at an academic audience and practitioners who have an economics or business background.

The second phase is aimed at providing a specific How To manual aimed at practitioners who find themselves working with communities that want to explore cluster development but lack the economics or business background. In addition to providing a step by step process for collecting data, analyzing the data and working with the community throughout the analysis, a strategic planning process to help guide the community to an action plan for building clusters is provided.

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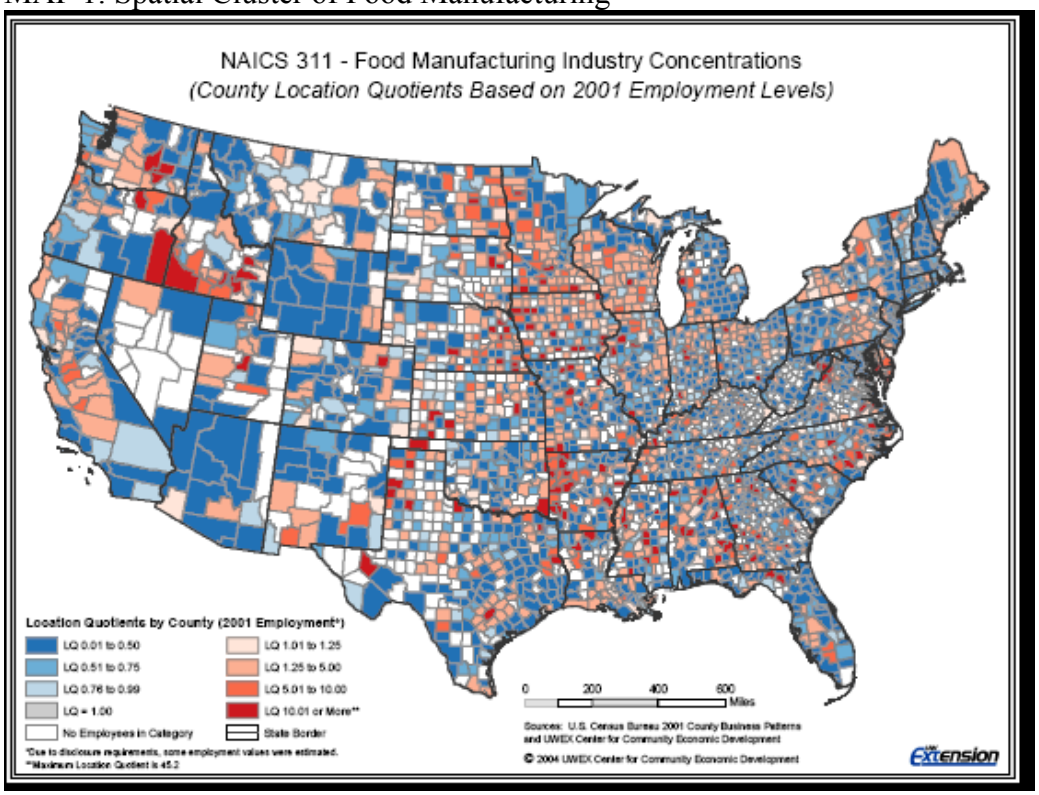
MAP 1: Spatial Cluster of Food Manufacturing



Map 2: Spatial Cluster of Wood Product Manufacturing