

# **Community-Business Matching: A New Model for Rural Economic Development**

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## **Brief Abstract**

Identifying target industry sectors for community economic development is a complex problem. The Community-Business Matching (CBM) Model is a tool that assists in identifying desirable industry sectors for sustainable economic development. The framework of the model is based on two measures, "Desirability" and "Compatibility", between a community and industry sectors. A case study of two Vermont communities will be presented.

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## Extended Abstract

States, cities, and small towns spend billions of dollars every year on economic development activities, often including generous economic incentives for businesses that wish to locate in their region. Planners and public officials often try to maximize the effectiveness of economic development spending by focusing on one or a few key sectors (Barkley, 1995; Bonnett, 1993; Phillips, 1990). However, it is unclear how these key sectors were identified. When these sectors are identified by a few political or business leaders with little input from community residents, the sustainability of these efforts is questionable (Courant, 1995). There can be significant negative effects on the social and environmental fabric of communities. One of the key goals of community economic development should be managing a community's resources so that *everyone* in the community has a chance to participate in the development process (Blakely, 1994; Reid and Sears, 1995).

Several models exist that can help identify industrial sectors for economic development. They include location quotients, shift-share analysis, and input-output models. None of these incorporate non-economic considerations, such as the social and environmental impacts of development (Blair, 1991). Models which do incorporate non-economic concerns often lack rigor and fail to acknowledge that tradeoffs are sometimes necessary between, for example, economic and environmental goals (MACED, 1997; NCRCED, 1997). The need for a model incorporating the strengths of both economic and non-economic approaches is clear.

The Community-Business Matching Model (CBM) developed by the authors is such a model. The model incorporates both economic and non-economic goals of a

community. CBM helps communities weigh their goals for economic development, inventory the assets that will help them achieve those goals, and match it with industry sectors that will be most likely to meet those goals and assets. This paper describes CBM's unique two-dimensional framework and its application in two Vermont communities.

The framework of CBM is based on two measures: "Desirability" and "Compatibility". *Desirability* measures how likely a business is to meet a community's goals, and *Compatibility* measures how likely the business is to locate in the community. Combination of the two measures leads to the development of short term and long term economic development strategies for a particular community.

The results from two successful applications of CBM have shown that community goals for economic development can be measured and quantified, and these measurements can be used to identify industry sectors that are the most promising for economic development. Furthermore, the results suggest ways to improve the match between communities and businesses in selected sectors.

The differences in the results from the two pilot communities also demonstrate the versatility of CBM. The first community's most prioritized goal for economic development was protection of the environment; the second community considered job creation more than twice as important as environmental protection. The first community is near the Burlington metropolitan area while the second is a more rural town on the Canadian border. As a result of these and other differences, CBM develops notably distinct recommendations for the two communities.

The authors are currently developing manuals and software to make the CBM model easily executable in any community in the Northeast. CBM generates a wealth of information for a community which includes both short term and long term plans. These plans can be incorporated as an integral part of a community's economic development strategy.

## Justification

Billions of dollars are spent every year on economic development efforts, including generous economic incentives, to entice businesses to relocate. Planners and public officials often try to maximize the effectiveness of such spending by focusing on a few key sectors (Barkley, 1995; Bonnett, 1993; Phillips, 1990). However, when these sectors are identified by a few political or business leaders with little input from community residents, the sustainability of these efforts is questionable (Courant, 1995). There can be significant negative effects on the social and environmental fabric of communities. One of the major goals of community economic development should be managing a community's resources so that *everyone* in the community has a chance to participate in the development process (Blakely, 1994; Reid and Sears, 1995).

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The Community-Business Matching Model (CBM) developed by the authors incorporates both economic and non-economic goals of a community. CBM helps communities weigh their goals for economic development, inventory the assets, and match them with industry sectors most likely to meet those goals and assets. While CBM proved very successful in its first application, a second case study was necessary to ensure that the success was replicable and that the model

would produce different results for communities with different economic development goals. This paper describes CBM's unique two-dimensional framework and its application in two Vermont communities, and compares the results from those two communities.

## **Literature Review**

A number of tools have been used by economic development practitioners to identify sectors for their targeted efforts, including location quotients, shift-share analysis, and input-output models (Blakely, 1994). Unfortunately, none of these tools has proved to be very effective, as Courant (1995) observed. This may be in part because they are positive rather than normative methods, describing the existing economy rather than examining what community goals are and which industry sectors match their goals. Moreover, these tools do not take into account non-economic factors that may be of great importance to communities (Blair, 1991).

Recent frameworks for economic development decision making build on the models described above in two important ways (Community Development Academy, 1996; Mountain Association for Community Economic Development, 1997; North Central Regional Center for Rural Development, 1997). First, they rely heavily on the involvement of community residents, rather than being exclusively in the domain of economic analysts and planners. Second, they focus on sustainability that incorporates the links among economic, environmental, and social impacts.

Unfortunately, these conceptual frameworks generally do not have an explicit model for communities to prioritize and measure the potential tradeoffs between these impacts. They generally focus on “discussion” (MACED, 1997: page 6) and on vague definitions (Buescher,

1998). A realistic view of the interactions among economic, environmental, and social impacts must recognize that changes in one of these factors require some tradeoffs in others.

CBM is strongly rooted in the two underlying assumptions of these models: first, that the involvement of local community members is crucial, and second, that it is important to consider environmental and social impacts along with the economic impacts of development activities. However, CBM differs from these models in two aspects. First, CBM acknowledges the tradeoffs when considering multi-valued goals. Second, CBM uses sound quantifiable measurements to conduct the matching process.

Every community has certain goals with implicit priorities. The tradeoff of community economic development goals in CBM is incorporated using a quantitative method first adopted by researchers at the Virginia Polytechnic Institute (Cox, 1996; Cox, Johnson, and Alwang, 1997). Cox, Johnson, and Alwang used the Analytical Hierarchy Process (AHP) with groups of community leaders and citizens to determine what facets of economic development were most important to them. The model presented here is based on a similar framework, also using AHP, but expands upon it by developing a two-level decision process so that more factors can be taken into account, as Cox (1996) suggests.

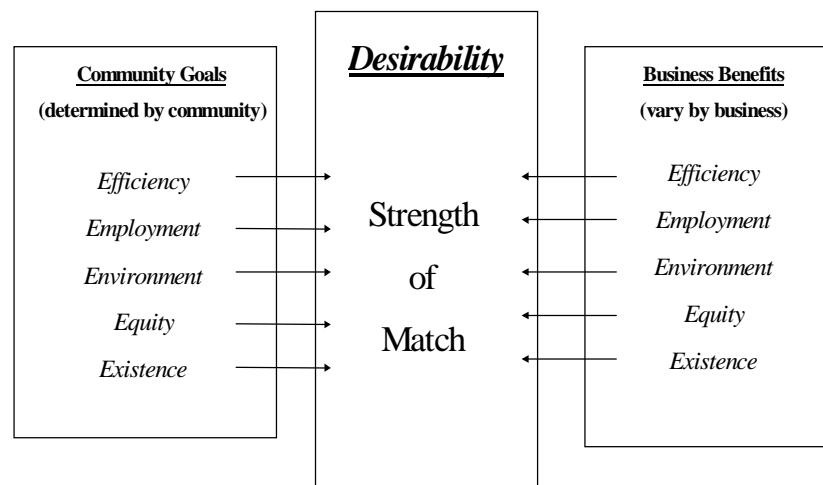
CBM also incorporates Cox' s suggestion (1996) that the quantification of the tradeoffs among community goals be supplemented by a model of business location decisions. Building on a model called "Screening Matrix" first developed by Hunker to find target industry sectors (Hunker, 1974; R. Shaffer, 1989), the Community-Business Matching Project extends the traditional matrix model in two ways. First, more variables are incorporated, including social and environmental impacts of development as well as many other measures related to business location decisions. Second, CBM replaces the linear function used to measure the

“ Desirability” index with a nonlinear function so that, ceteris paribus, a balance between economic development goals will be preferred over a situation where one goal dominates the others. This balance is a cornerstone of multi-valued models for economic development (MACED, 1997; NCRCD, 1997; Community Development Academy, 1996), but has not been incorporated into any quantitative model until now.

## Conceptual Model

CBM is based on two measures: *Desirability* measures how likely a business is to meet community goals, and *Compatibility* measures how likely the business is to locate in the community. They are calculated using methods developed by Cox, Johnson, and Alwang (1996, 1997) at Virginia Polytechnic Institute, then incorporated into a framework based on Hunker’ s screening matrix (Blair, 1991) to develop short- and long term economic development strategies.

The “ Desirability” index is a measure of match between Business Benefits and Community Goals, based on twenty individual indicators in five categories (Figure 1). There are two economic categories, “ Economic Efficiency” and “ Employment Opportunities” and

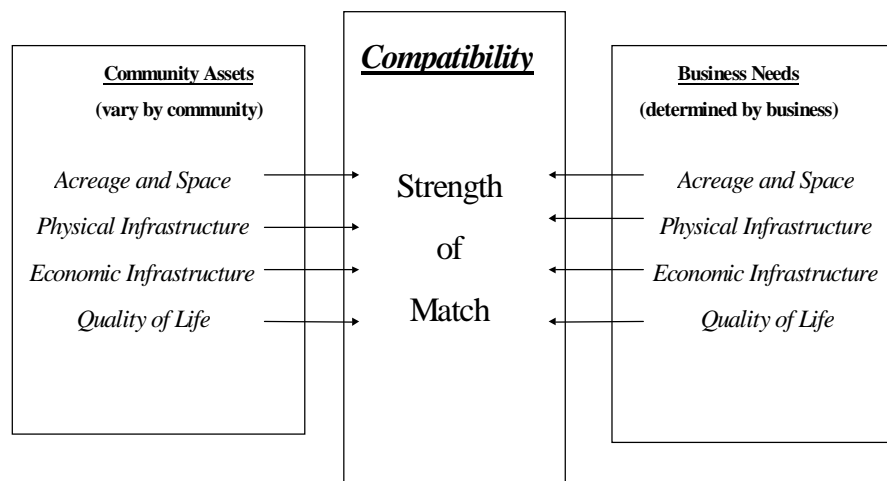


**Figure 1. Desirability Framework**



three non-economic categories, “ Protection of the Environment” , “ Social Equity” , and “ Guaranteed Minimal Quality of Life” which reflect environmental and social concerns.

Similarly, the “ Compatibility” index is a measure of match between Community Assets and Business Needs, based on nearly 40 indicators of business location decisions in four categories (Figure 2). The “ Acreage and Space” category covers businesses’ needs for land and buildings; “ Physical Infrastructure” includes transportation, communications, and utilities; Economic Infrastructure” measures the availability of labor, financing, customers, and suppliers; and “ Quality of Life” covers the amenities found to be attractive to businesses, including local crime rate, the quality of schools and medical care.



**Figure 2. Compatibility Framework**

## Methodology

In order to operate the CBM model, two major categories of information, Community profiles (Goals and Assets) and Business profiles (Needs and Benefits) are gathered. The development of Community profiles involves several steps. Leaders in the participating communities identify a group of approximately ten representative stakeholders in the development project to quantify the tradeoffs among the Community Goals. One or two project leaders are identified who meet with

the CBM researchers to ensure that CBM is an appropriate tool to use in the overall economic development process and to gather data on Community Assets.

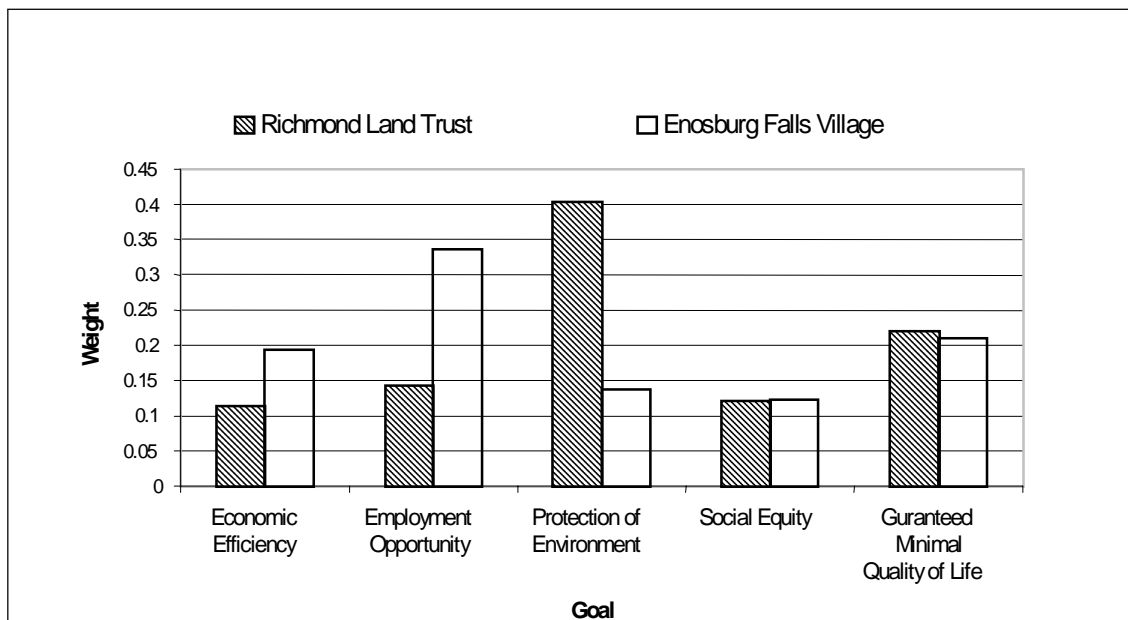
A survey of small and medium sized enterprises in the northeastern United States (MA, VT, NH, CT, ME, RI, NY) provided most of the data for the Business Profiles. In the first pilot study, the community was only concerned with businesses in the agricultural, forestry, and associated value-added sectors (SIC 01, 02, 07, 08, 20, 22, 23, 24, 25, 26, 27). For the purpose of comparison, the same Business Profile was used for the second community.

A self-administered mail questionnaire was sent to a random sample of 1800 small New England and New York businesses in the above mentioned sectors. Employing a modified Dillman (1978) method, the researchers sent respondents an acknowledgment /reminder card after one week. 312 completed questionnaires were returned from the first mailing and upon telephone follow-up resulting in a response rate of 19.3%, which compares favorably with a similar study of business location decisions (Moore, Tyler & Elliot, 1991).

Additional data sources included input-output data from IMPLAN and published reports from the United States Census Bureau and the United States Environmental Protection Agency (EPA). The input-output model provided information on multipliers, business spending, and proprietor income that was not available elsewhere. The Census Bureau reports provided information on local population and incomes, as well as national figures for comparison. The EPA reports provided data on the impacts of various businesses on air and water quality.

## **Analysis**

So far, two rural communities in Vermont have used the CBM model and the results differ in several dimensions. First of all, the priorities of goals for community economic development are not similar, as shown in Figure 3:



**Figure 3. Comparing priorities for economic development**

Richmond Land Trust, the community situated near the Burlington Metropolitan Area, regards "Protection of the Environment" by far the most important goal (0.403); all other goals are almost equally weighed. By contrast, Enosburg Falls Village, a more rural community on the Canadian border, sets their highest priority on "Employment Opportunities" (0.336), while "Environment Protection" is the second least important. Such a difference is expected given the fact that Enosburg Falls has very high unemployment rate, second highest in Vermont, while Richmond Land Trust is seeking suitable businesses to sustain its preservation efforts for two historically significant Monitor Barns. The noticeable dissimilarity between the two communities in terms of goals precludes the possibility for businesses to be equally desirable for both. For example, a furniture maker may be welcome by Richmond Land Trust because of its minimum use of energy and less waste disposal requirement. However, since a typical furniture maker in New England hires only four employees, well below the average level across all the sectors in this study (9 employees), and tends to offer very few benefits and little training to its workers, it obviously

doesn't seem as attractive to Enosburg Falls. A similar case can be made of the dairy processing industry, which ranks the third (out of a total of thirty) most desirable industry to Enosburg Falls, but only the nineteenth to Richmond Land Trust. Only five other sectors are worse than dairy processors in the protection of the environment. Part of the explanation lies in the fact that dairy processing impacts the water quality through phosphorous and other nutrient runoff. The five most desirable industry sectors for the two communities respectively are as follows:

**Table 1. Top five desirable sectors for two communities**

<i>Rank</i>	<i>Richmond Land Trust</i>	<i>Enosburg Falls Village</i>
1	Forest Products	Woodlots
2	Logging	Animal and Veterinary Services
3	Animal and Veterinary Services	Dairy Processing
4	Woodlots	Tree Fruit
5	Christmas Trees	Forest Products

The "Compatibility" score for each business reflects the extent to which the physical, economic, and social assets within a particular community meet the needs of that business. Given the demographic, socioeconomic and structural differences between the two studied communities, it is no surprise that the sectors differ in their "Compatibility" with Richmond Land Trust and Enosburg Falls.

**Table 2. Top five compatible sectors with two communities**

<i>Rank</i>	<i>Richmond Land Trust</i>	<i>Enosburg Falls Village</i>
1	Logging	Logging
2	Furniture	Dairy Processing
3	Forest Products	Landscape Services
4	Landscape Services	Animal and Veterinary Services
5	Tree Fruits	Baked Goods

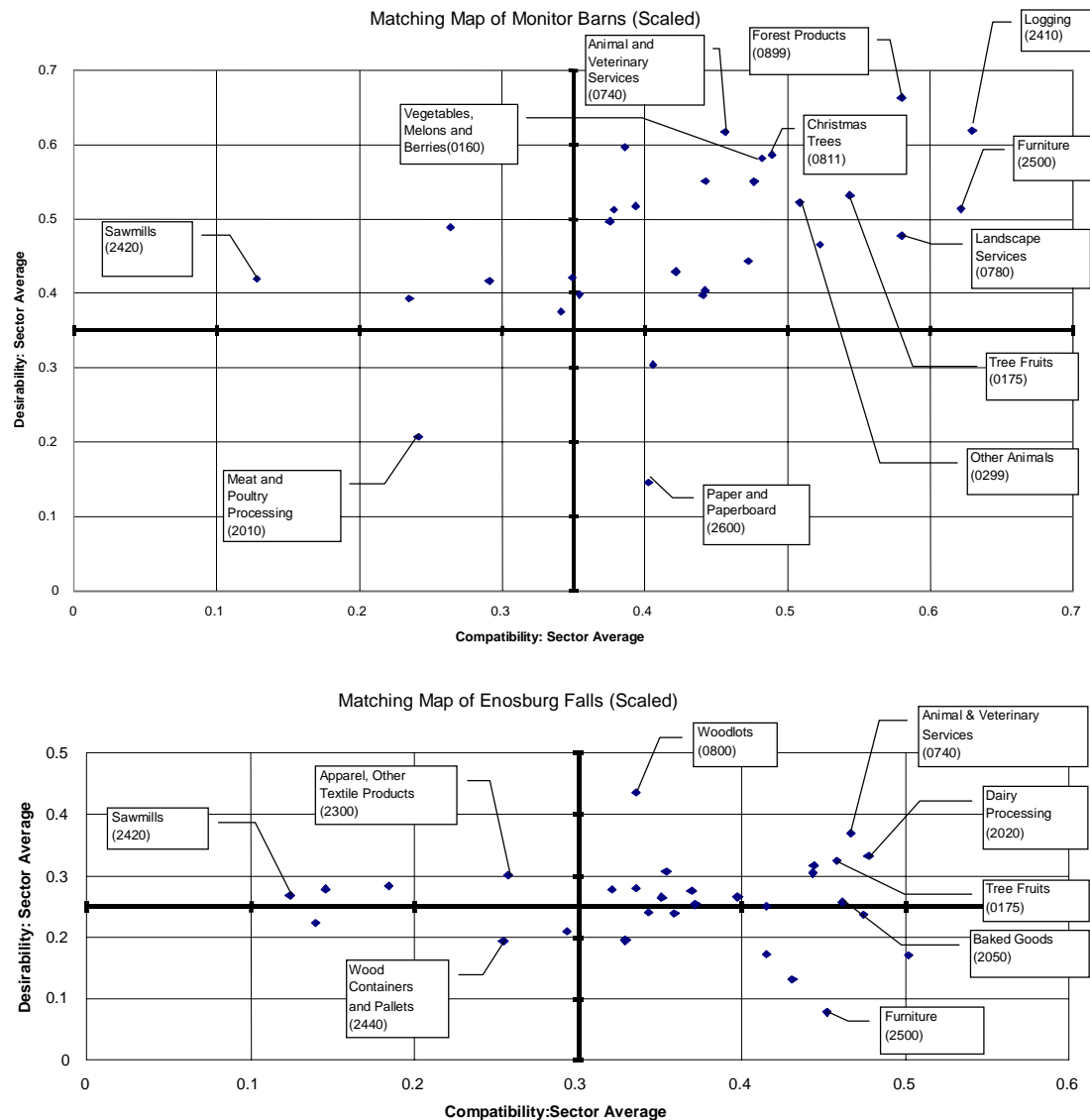
As measured by the forty indicators, Richmond Land Trust possesses the strongest "Asset" in "Quality of life", such as high environmental quality, abundant recreational

opportunities, easy access to retail shopping, and good quality of local schools. Its "Economic Infrastructure", however, is rather weak, as reflected by insufficient supply of unskilled labor, high local tax rate, lack of transportation for workers, and an unfavorable interest rate on commercial loans. The situation is reversed in the case of Enosburg Falls, where "Economic Infrastructure" is fairly strong, although "quality of life" is weaker as compared with Richmond Land Trust. Enosburg Falls also enjoys advantage over the latter in "Physical Infrastructure", since high volume water supply and wastewater capacity are available in this community, whereas these constitute constraints in Richmond.

Logging tops both lists for the simple reason that both communities rank high in assets highly valued by this industry sector, such as access to interstate and three-phase power. Its requirement for availability of local customers, quality schools, and quality medical care are readily satisfied by the current conditions in both communities. In addition, a logging business takes only around two thousand square feet on average, much less than the space required by other sectors, thus making it even more compatible. Dairy processing ranks the second in terms of compatibility for Enosburg Falls, because its requirements of high wastewater capacity, low crime rate and low cost of living in the local area are better satisfied there.

Combining the "Desirability" and "Compatibility" together provides a comprehensive picture of the likelihood for various sectors to be targeted by the community in the short term and long term (Figure 4). Both axes in the two maps are scaled from 0 to 1 so that the results are comparable. The Compatibility and Desirability scores of each industry sector are relative to the whole data base. Thus the most desirable and compatible individual business has a theoretical coordinate of (1,1). Apparently there are more desirable industry sectors for Richmond Land Trust than for Enosburg Falls, i.e. more in the northeast quadrant. That is because most of the

businesses in the database employ only a few people and seldom offer hefty employee benefits, which falls short of the most prioritized goal, Employment Opportunity, of Enosburg Falls. Were the weights of Richmond Land Trust used instead, such a difference would disappear.



**Figure 4. Average Desirability and Compatibility of different sectors: Richmond Land Trust (upper), Enosburg Falls (lower)**

In the short term, communities can attempt to attract investment in highly "Compatible" sectors, since these are the sectors where businesses are most likely to find the community an attractive place to locate. The "Desirability" score equips the community with negotiation power

when approached by businesses considering locating to the site, since it points out where the average business in each sector tends to fall short of the goals of the community. In the long term, an examination of the components of the "Compatibility" scores can reveal "assets" in which improvement through investment will most likely result in better match of the businesses with community goals.

The above two graphs suggest logging may be the sector suitable for both short-term and long-term target for Richmond Land Trust. Furniture and forest products are possible short-term targets, and animal and veterinary services can serve as a long-term target so long as the community takes action to improve the supply of natural gas, water, and wastewater along with mass transit for workers. On the other hand, Enosburg Falls can go after animal and veterinary services and dairy processing in the short run, keeping in mind that dairy processing facilities generally don't contribute to the diversification of local economy, especially when Enosburg Falls is already known as the "Dairy Center of the World", and that animal and veterinary services usually don't provide a great many jobs or benefits comparable with other sectors. In the long run, the local school system of Enosburg Falls needs to be improved and social opportunities enriched in order to attract woodlots businesses that match the goals of the community. Local tax rate is also crucial for enhancing the match.

It should be noted, however, that there is variability within sectors, good opportunities for economic development may be overlooked if communities using the CBM model focus only on sectors with the highest average scores. Individual businesses within a sector can be significantly more desirable and /or compatible than the average for their sector.

## Conclusions and Future Work

The results from two successful pilot applications of CBM have shown that the tradeoffs among community goals for economic development can be quantified and then used to identify sectors that are the most promising for economic development. Furthermore, the results suggest ways to improve the long-term match between communities and businesses in selected sectors.

The differences in the results from the two pilot communities also demonstrate the versatility of CBM. The first community's highest priority for economic development was protection of the environment; on the other hand, the second community considered job creation more than twice as important as environmental protection. The first community is near the Burlington Metropolitan Area while the second is in a more rural town on the Canadian border. As a result of these and other differences, CBM develops notably distinct recommendations for the two communities.

The authors are currently developing manuals and software to make CBM easily replicable in any rural community in the Northeast, perhaps through Extension agents. CBM's wealth of information for both short term and long term planning developed through extensive community input help make it an integral part of a community's economic development strategy.



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