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September 2015

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McNamara, Kevin T., "Recruiting Manufacturing Firms as a Community Development Strategy" (2015).  
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## **EC-659**

**Purdue University**

**Cooperative Extension Service**

**West Lafayette, IN 47907**

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# **Recruiting Manufacturing Firms as a Community Development Strategy**

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**Kevin T. McNamara**

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Community leaders often focus local development efforts on recruiting manufacturing firms to locate in their area. While this was successful for many communities throughout the 1960s, researchers suggest that many communities will be unable to attract new manufacturing investments in the future. Currently there is a migration of many low-skill, low-wage employers to third world countries and a shift to service employment in the U. S. economy. Moreover, manufacturers interested in labor, capital, transportation, and other resources prefer to locate near metropolitan areas. Community leaders must realize that rural communities that were once prime locations for firms seeking low-skill, low-wage labor, now face stiff competition in their efforts to attract new manufacturing investments.

Despite the growing consensus that rural communities lack resources to attract new manufacturing investment, state and local governments and economic development organizations continue to invest in industrial recruitment as a primary economic development strategy (Smith and Fox). However, research suggests these are not wise investments. Communities must consider their chances of success in industrial recruitment. Community leaders need to determine their community's potential for successful industrial recruitment and identify which local investments would have the greatest return in terms of increasing the community's growth. These considerations are the focus of this paper.

The first section discusses a firm's industrial site location process and provides an overview of regional plant locations in the United States during the past four years. The second section discusses research that has examined regional and community attributes that impact location decisions. The third section discusses the results of a recent location study of Georgia counties, and the last section describes how those results are useful to local leadership.

Among the factors that local leadership can control, investments in public services such as fire protection have a greater impact on plant location probability than do investments in industrial sites. Furthermore, investments in industrial sites will yield a benefit only if they actually attract an industry, whereas improvements to fire protection will yield added

benefits in the form of reduced insurance premiums paid by county residents. Benefits gained from analysis of local decisions should be an educational program which encourages county leadership to be realistic in their planning efforts for economic development. Indeed, the results indicate that some counties face extreme locational disadvantages, and leadership should refocus its development strategy away from industrial recruitment.

## New Manufacturing Location

**United States.** Concerns about the growth of new manufacturing in the United States can be eased by examining recent trends in manufacturing investment. New plant investment data from 1986 through 1989 indicate 5,824 major investments were made in the 48 contiguous states (Conway Data, Inc.). These data include manufacturing investments that exceeded a value of one million dollars, created in excess of 50 jobs, or had a minimum of 20,000 square feet of new floor space. Table 1 shows the annual number of new manufacturing investments made in the United States in nine regions. While all regions attracted new investment over the four year period, most investments were concentrated in four regions, East North Central, South Atlantic, East South Central, and West South Central (see Table 1 for states in these regions).

**Table 1. New Manufacturing Investment in 48 Contiguous States, 1986-1989"**

REGION <sup>2</sup>	YEAR				TOTALS
	1986	1987	1988	1989	
New England	41	33	38	43	155
Middle Atlantic	92	84	60	120	356
East North Central	369	208	173	242	992
West North Central	102	80	88	131	401
South Atlantic	332	432	411	469	1644
East South Central	166	185	209	258	818
West South Central	108	197	162	250	717
Mountain	57	59	61	62	239
Pacific	117	123	109	153	502
<b>TOTALS</b>	<b>1384</b>	<b>1401</b>	<b>1311</b>	<b>1728</b>	<b>5824</b>

<sup>2</sup> East North central includes: Illinois, Indiana, Michigan, Ohio and Wisconsin; South Atlantic includes: Delaware, D.C., Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia and West Virginia; East South Central includes: Alabama, Kentucky, Mississippi and Tennessee; west South Central includes: Arkansas, Louisiana, Oklahoma and Texas.

\*Source: Conway Data, Inc., 1987, 1988, 1989, 1990

Investments in these four regions accounted for 71.6% (4,171 investments) of the total 5,824 investments. Clearly, with more than 1,300 new manufacturing investments made in the United States each year during the 1986-1989 period, some communities can still benefit from new manufacturing investment. The critical question for rural development policy, however, is whether rural communities can compete for this new manufacturing investment.

**Indiana.** While not leading the region in new manufacturing investment, Indiana has been successful in attracting new manufacturing investment during the past four years. The State attracted 141 new plant investments (Conway Data, Inc.), with Allen, Madison, Marion, and Wayne counties attracting the greatest number of new manufacturing investments (Figure 1.). The distribution of new manufacturing investment in the State is weighted in and around metropolitan areas, and along the interstate corridors. Forty counties did not attract new manufacturing investment in the 1986-1989 period--most are rural counties in southern and West Central Indiana.

## Number of New Manufacturing Locations 1986-1989

## Plant Location Decisions and Local Recruitment Strategies

The decision-making process for the location of a footloose manufacturing firm is a multi-stage process that begins when the firm decides to invest in a new manufacturing facility. The first stage of the process involves the selection of a geographic region that will optimize production input supply and product markets. Once a region is selected, the firm examines sub-regions to identify a specific site that will minimize the cost of production. Sub-regions may include states, cities, counties, or other areas that meet some criteria considered critical in influencing the cost of production. Selection of a specific site within the sub-region is based on cost factors that include labor availability and costs, human capital, agglomeration economies, the community's eagerness for industrial development, access to production inputs and product markets, and miscellaneous cost factors (Kriesel; McNamara and Kriesel). Local quality of life factors, such as good schools and recreation services, also influence a firm's location decision (Hekman).

State and community development efforts that focus on attracting new manufacturing investment attempt to convince footloose firms that the state or community offers the firm a low cost of production site. Marketing efforts focus on factors believed to influence a firm's costs, incentives that offer specific benefits to firms that locate in the state or community, or investments in local infrastructure that attempt to improve competitiveness.

State or community efforts to attract new manufacturing investment focus on firms planning to expand their operations through investment in a new plant. State development personnel identify and target firms seeking a site in their region or adjacent regions. State or local development groups then use marketing, and perhaps location incentives, to recruit firms to their community or state.

Research on factors that influence industrial location at the state level provides limited guidance for state policy which attempts to attract new manufacturing investment. State programs generally focus on marketing various attributes of the state that have a positive impact on cost of production and/or provide tax incentives or other inducements to firms willing to locate facilities in the state. Several studies (Carton; Bartik; Wasylenko and McQuire; Schmenner, Huber and Cook) have attempted to identify factors that influence either location or manufacturing employment growth at the state or metropolitan level. Even though these studies suggest factors that influence location decisions, the research provides limited insight into which state policies could be implemented to influence location decisions.

The studies found several attributes of a state's economy to be associated with the state's ability to attract new manufacturing investment. The size of the state's manufacturing base (Carlton; Bartik; Schmenner, Huber, and Cook), building costs (Bartik; Schmenner, Huber, and Cook), available technical expertise (Carlton), labor force unionization (Bartik; Schmenner, Huber, and Cook), and energy costs (Carlton; Bartik) reflect state attributes associated with manufacturing location. State policies, generally through tax abatement or infrastructure incentives, were not consistently associated with location decisions. Carlton; and, Schmenner, Huber, and Cook found that taxes and state incentives did not influence firms' location decisions. Bartik's research, however, suggests that state tax levels do influence location. Newman and Sullivan looked at the impact of state taxes on industry location and determined that research results on the impact of state tax policy on firm location are inconclusive.

State policy makers lack clear research guidance on the effectiveness of specific strategies to attract manufacturing investment. Nevertheless, studies examining firms' selection of specific sites within a state provide local officials with insight into their community's probability of attracting new manufacturing investment. The studies are of two general types manager surveys and econometric models. Both studies suggest investments communities could make to increase their probability of attracting manufacturing investment.

**Survey Studies.** Business establishment surveys have been conducted to determine which factors a firm considers to be important location determinants. An analysis of a national study by the U.S. Department of Commerce, "*Survey of Industrial Location Determinants 1971-1975*," by Deaton and Gunter provided a comprehensive look at community attributes listed as critical determinants to location choice. Fire protection rating, distance to a major highway, availability of natural gas service, contracting trucking and local police protection were the five factors considered critical by the greatest number of survey respondents. In a study of firms that located in the southeast during the early 1980s, Hekman found state/local business climate, labor productivity, transportation, land availability/room for expansion, and cost of land and construction to be the five factors rated as important by the greatest number of firms. Epping's study of firms that considered site locations in Arkansas in 1980 found that labor, taxes, industrial sites, special inducements, and legislative laws/structure were the most important location factors. Results of a 1990 survey

by McNamara and Barkley indicated that land availability, highway access, water and waste facilities, access to markets and availability of skilled labor were the most important location factors for both domestic and foreign firms.

In summary, results of the location survey-studies suggest that firms consider transportation linkages (roads and airport), land availability, and labor availability as critical determinants in their site selection. These factors were mentioned in the earlier as well as the later studies. Other factors mentioned in the studies as influencing the location decision, are ones that influence firms' costs.

**Econometric Studies.** The econometric studies are different from the survey studies in that the econometric studies used secondary data to estimate the relationship between the socioeconomic attributes of a community and some measure of manufacturing growth. A summary of the findings of these studies is presented in Table 2.

In general, the results of the econometric studies are consistent with those of the survey studies. Agglomeration factors, cost saving associated with large centers of people and business activity, were significant location determinants in all studies reviewed. This suggests that firms find cost advantages when they locate in an area having an existing economic base. All else equal, firms would prefer to locate near a concentration of population and business activity.

## Table 2. Community Location Factors

- A. Agglomeration factors  
 population (1), (3), (5), (6)  
 population density (5)  
 commercial employment (1)  
 number of manufacturing plants (5)  
 distance to SMSA (2), (3)  
 industrial site attributes (4)
- B. Labor quality/cost/availability  
 labor force size (2)  
 unemployment rate (4), (8)  
 wage rate (1), (5)  
 percent of adult population with  
 high school diploma (6)  
 labor productivity (1)  
 distance to vocational school (5)  
 distance to four year college (2), (7)
- C. Transportation facilities  
 interstate highway access (2), (4), (5), (7)  
 distance to airport (5)
- D. Site facilities and services  
 site quality (2), (7)  
 public site ownership (2), (7)  
 site price (4)  
 sewer capacity (5)  
 zoning (5)  
 location incentives (8)  
 funded development group (6)
- E. Taxes  
 property tax rate (3), (8)  
 freeport (4)
- F. Access to Capital  
 bank assets (5)  
 bond financing (2), (7)
- G. Public services  
 per pupil school expenditures (2), (7)  
 high school math achievement test score (6)  
 fire protection rating (2), (4), (7)

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- (1) Agthe and Billings  
 (2) Debertin, Pagoulatos and Smith  
 (3) Dorf and Emerson  
 (4) Kriesel and McNamara  
 (5) Kuehn, Braschler and Shonkwiler  
 (6) McNamara, Kriesel and Deaton

(7) Smith, Deaton and Kelch  
(8) Walker and Calzonetti

Labor availability and quality factors also were significant in most of econometric studies. Labor force size, wage rates, unemployment rate, and labor productivity were among the variables that were associated with manufacturing firm locations. These results underscore the importance of labor to location decisions. As manufacturing facilities become more capital intensive, a well-trained workforce will be an increasingly important factor in firm location decisions.

Transportation costs are a continuing concern of manufacturing firms. Access to interstate highways is a critical factor in location. The reviewed studies used various measures to capture the importance of highway access, but in general they show highway access to be an important location determinant.

Site facilities and services were significant factors in location studies. Site quality, service attributes, and ownership influence location decisions. Firms consider the cost implications of operating at sites having various desired attributes and then select the site that would offer the lowest operating cost. Ownership of the site is important because the price of a publicly held site is fixed or more stable than that held by a developer. Firms, therefore, can reduce the costs by negotiating for sites that are publicly held. A few studies found local taxes to be an important factor in location decisions. However, when communities consider local industrial tax policy, the costs associated with reducing taxes must be carefully weighted against any possible gains associated with the industrial growth.

Local public services, education services, and fire protection quality have been shown to influence location decisions. Communities considering various investments to attract new manufacturing investment should evaluate the quality of the local public services. Investments in fire protection and education tend to make the community more attractive to industry. These investments also provide direct benefits to local residents even if industrial expansion does not occur. A general conclusion from location studies is that a community's attributes influence location choices for new manufacturing investment. Community leaders, however, must be cautious in their interpretation of these results and their application to local development planning.

Location decisions are based on assessment of how well specific industrial development sites meet minimum cost and other location criteria. Communities that offer some characteristics desired by firms, such as low property taxes and public ownership of industrial sites, may not be competitive because they lack other desirable location factors. These may include business services associated with the agglomeration of manufacturing activity, quality local public services, or an adequate labor supply.

Community leaders, therefore, need to realistically assess their community's probability of attracting new manufacturing investment before they consider specific strategies, or investments, that their community considers part of local industrial recruitment efforts. If a specific community has a relatively high probability of attracting new manufacturing investment, community leaders need to determine which local investments would have the greatest return in terms of increasing the community's probability of attracting new manufacturing investment.

A manufacturing location model is a useful tool in evaluating the appropriateness of industrial recruitment strategies of specific communities. The next section uses a model developed by Kriesel and McNamara to illustrate how community leaders can assess their probability of attracting manufacturing investment and examine how their probability will change in response to local investment to improve community characteristics.

## **A County Level Industrial Location Model**

A county level industrial location model determines a community's probability of attracting new manufacturing investment and identifies community factors that affect location decisions. Kriesel and McNamara specified a manufacturing location model that included community location factors classified as either factors that are beyond a community's ability to influence change or factors which a community can directly control and change through specific local investment. An econometric model was used to estimate the probability of a community to attract a manufacturing plant. The model and complete results are described in Kriesel and McNamara.

Of the six location factors not controlled by communities that were included in the model, three were found to be



significant in predicting plant location: the unemployment rate, mileage of interstate highway within a county, and the population's racial composition. Local unemployment rate was included in the model as a measure of labor availability. Its positive significant relationship to plant locations suggests that firms consider local labor availability an attraction. The inclusion of racial composition is suggested by Till's research: counties with a high proportion of blacks attract fewer manufacturers. This variable's significant, negative relationship may be explained in part by a desire to avoid areas with unions, as is the case in many southern rural towns having a high proportional minority population. The interstate mileage variable was included as a measure of access to transportation routes. This variable's positive association with locations suggests that transportation facilities are important location determinants. While these variables provide insight into a community's attractiveness to industry, they do not measure location factors that community leadership can directly impact.

Three other variables in the model were statistically significant, local fire protection rating, passage of inventory tax relief referendum, and the quality of local industrial development sites. These variables represent factors that can be controlled, or influenced, by local leadership. The results suggest that communities enacting local inventory tax relief reduce a firm's local tax liability and thereby increase the probability of attracting manufacturing investment. The local fire protection rating also influenced location decisions. Communities that take actions to lower their fire protection rating (a low value is a better rating) will have a positive impact on attractiveness. The third locally controlled variable associated with location decisions was a measure of local industrial site quality. The measure derived from an analysis of industrial sites estimated a dollar value for industrial sites based on the sites attributes and location. Results suggest that communities can invest in one of several industrial site attributes to increase a community's attractiveness to firms seeking industrial sites.

Site quality is related to three site specific attributes: lot size, the site's distance to an interstate highway, and the distance to an airport. Community characteristics that influence site quality are the educational attainment of adult population, the size of the local manufacturing base, the civilian labor force size, and whether or not the community is in a metropolitan area. While communities can improve the quality of local industrial sites by purchasing larger tracts of land that have good highway and railroad access, there are other community characteristics, such as educational attainment and labor force size, which limit the impact communities can have on improving the quality of their industrial sites.

## Implications of the Results

A county's leadership can use these results to evaluate its chances of attracting a manufacturing plant and to develop alternative strategies of attracting a plant. With the location model's estimated coefficients, point estimates of location probability are calculated using a computerized spreadsheet. Estimates give local development officials an idea of their county's chances of ever receiving benefits from industrial development. This model indicates that, in general, leaders in communities having limited labor availability, a lack of interstate highway access, and have a high minority population should realize that their community will not compete well with similar communities having available labor, highway access, and a homogeneous population. Such deficient communities may wish to pursue development strategies not linked to industrial recruitment.

Analysis of counties with less than a 50% probability of attracting a plant shows the need for substantial improvements in existing industrial sites (approaching \$1 million) would be needed to increase their probability an additional 5%. Improving the fire protection by one rating point, on the other hand, increases the probability by nearly 8%. If a county can achieve this increment in fire protection for less than \$1 million, then investments in fire protection (and similar public services) would be the most cost effective recruitment strategy. By adopting inventory tax relief, a county increases its probability by about 8%. There is also a cost to consider with this option, but it can be estimated by tax records.

It is also important for a county's leadership to realize a vital distinction between investing in industry-specific items versus better public services. A speculative shell building, paved access roads, or industrial tax breaks yield benefits only if the county actually attracts a new plant wanting those investments. On the other hand, public services such as police and fire protection, schools, and public utilities provide benefits to county residents even if the county does not attract manufacturing investment. In the case of improved fire protection, residents benefit immediately by paying

lower insurance premiums.

## Summary and Conclusions

The findings of industrial location research and a review of recent industrial location patterns suggest that rural communities are at a disadvantage compared to urban communities in attracting new manufacturing investment. Small, rural communities, especially those not in the East North Central or Southern regions, should be very cautious with investments to attract industry. Location trends (Table 1) and recent location research (Table 2) provide general insight into a specific community's potential for attracting new manufacturing investment. Location trends over the past several years suggest that communities in the South and the East North Central regions are the most attractive locations in the United States. States in these regions attracted 4171 new manufacturing investments during the past four years, about 72% of the total new manufacturing investments made in the United States over the period. Communities in the other regions appear to be at some disadvantage in attracting industry because of the limited number of firms that have identified those regions as acceptable for location.

Location research (Table 2) lists factors important to firms seeking locations for new facilities. A large population, significant economic activity, labor availability and quality, existence of air and highway transportation facilities, availability of quality industrial site, and the existence of local public services were important location factors in most of the research cited. Larger communities with an available labor force, an existing manufacturing base, and access to facilities associated with metropolitan areas appear to be the communities that will be most successful in attracting new industry. Rural counties, which tend to have smaller populations, less labor availability, smaller existing manufacturing, and fewer local services, are at a disadvantage in competing against larger communities for manufacturing investment.

Even though all communities should be cautious when investing in manufacturing recruitment, rural communities should carefully consider the potential benefits associated with the investment. Published research provides a useful tool for communities to assess their potential for attracting manufacturing investment and for determining attractiveness to industry-which local investments will have the greatest impact on attraction. Rural communities with a low probability of attracting new manufacturing investment should consider other development strategies offering greater potential for local economic growth. These strategies include retention and expansion of existing business and industry, recreation and tourism development, and local business development.

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### ***New 4/91***

*Cooperative Extension work in Agriculture and Home Economics, state of Indiana, Purdue University, and U.S. Department of Agriculture cooperating; HA Wadsworth, Director, West Lafayette. IN. Issued in furtherance of the acts of May 8 and June 30, 1914. Purdue University Cooperative Extension Service is an equal opportunity/equal access institution.*