

THE INFLUENCE OF PERSONAL FACTORS ON  
RECENT INDUSTRIAL LOCATION DECISIONS IN KANSAS

by

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## CHAPTER ONE

### INTRODUCTION

One basic question which geographers ask is: "How are certain phenomena located and arranged on the landscape\*?"<sup>1</sup> This could also be posed as a why question by stating "Why are these phenomena located and arranged the way they are?" Within this context, economic geography is the subfield of geography concerned with the spatial patterns of economic phenomena and with identifying the processes which produced those patterns. This investigation falls into the subfield of economic geography because it examines the relative importance of factors which influence the locations of industrial production facilities.

A goal of geographical research is to provide an understanding of the events and decisions which have led to the distributions of certain activities.<sup>2</sup> The spatial distribution of economic activities within an economic system is ultimately the result of a multitude of human decisions made over time. Clearly, then, economic geography has a behavioral component concerned with human location decisions.<sup>3</sup> The locational pattern of industry is the product of a multitude of individual decisions, made as decision-makers react in different ways to different circumstances in

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\*The term landscape can be defined as the surface of the earth. Economic landscape refers to the arrangement of economic activities on the surface of the earth.

pursuit of their own business or personal objectives. Smith defined industrial location analysis as the study of the spatial arrangement of industry, resulting from those individual decisions.<sup>4</sup> Economic geographers have been interested in determining how locational factors interrelate and which have been more important in industrial location decisions. As an extension of this, in the last two decades geographers have recognized decision-makers' perceptions and personal preferences as factors which may influence locational decisions.

#### BACKGROUND

Up to about twenty years ago, industrial location analysts had taken two different approaches to account for industrial location decisions and the resulting patterns and distributions which have emerged: the normative approach and the descriptive approach. The descriptive approach can now be further subdivided into the inventory approach and a modification of this approach, which has appeared in the last two decades, and incorporates personal preferences and behavioral concepts.

The normative approach is based on the works of the economists, Alfred Weber and August Lösch, and attempts to determine the appearance of the optimum spatial arrangement of activities. Weber was concerned only with costs, and determined that the optimum location for an industry is the point where total costs are minimized. Lösch, on the other hand, was concerned exclusively with demand and profit maximization. He believed that the optimal location for an industry is the place where the largest possible market is secured. The normative approach attempts to determine what would be the best or optimum location for a particular

industry or for all economic activities, depending on whether a partial or general equilibrium approach is used. Lösch's philosophy is clearly summarized by his statement that "The real duty of the economist is not to explain our sorry reality but to improve it. The question of the best location is far more dignified than determination of the actual one."<sup>5</sup> Scholars refer to the body of literature which has evolved from the location theories of Weber and Lösch, as classical location theory.<sup>6</sup>

The past two decades witnessed a sustained assault on classical location theory, along with attempts to broaden the perspective of industrial location analysis.<sup>7</sup> Many geographers claim that classical location theory is inadequate in explaining actual locational decisions and locational patterns of industry. They argue that because the theoretical formulations found in classical location literature, such as Weber's least cost approach and Lösch's profit maximization approach, are normative in nature, they are limited to prescribing what the location should be, given a set of assumptions, rather than explaining why certain locations were chosen.<sup>8</sup>

The approaches taken by Weber and Lösch both rest on two vital assumptions. For either of these approaches to be practical, a decision-maker must first possess information on all possible locations, and second, must be able to use and apply this information with all the characteristics of a "rational economic man". The rational economic man is omniscient and motivated to find the optimum location, which is defined as the location at which profits can be maximized. This person (the economic man) does not have the limitations of imperfect knowledge, but has infinite powers of perception, reasoning and prediction. Thus, the economic man's location decisions are made with complete economic rationality.

Traditionally, while economists were working toward models that addressed the question of best location, geographers were taking a more inductive approach.<sup>9</sup> The deductive industrial location models produced by Weber and Lösch began from a set of assumptions and attempted to develop predictions about location behavior. The inductive approach stresses the observation of real events and inductive models are based on generalizations made about those events. Geographers have been more concerned with making generalizations based on empirical research and case studies. The geographers who take this descriptive approach examine the locational patterns of industries on the landscape and attempt to determine what kinds of processes brought those locations about.

Dissatisfaction with the assumptions and deterministic framework of existing economic location theory has encouraged the development of a behavioral school of industrial location analysis, consistent with the growth of a behavioral trend in all of human geography. The behavioral approach can be viewed as supplementing traditional theoretical formulations, as classical location theory is not sufficient for answering questions concerning actual human behavior. Pred argued that the perfect knowledge assumption of economic man is particularly unrealistic because information is something that must be obtained through search and experience rather than something that can be taken as a given.<sup>10</sup> Flows of information from the external environment may be filtered by the individual's perception process, which can be influenced by such things as geographical location, cultural group affiliation, socio-economic status, age and past experience, education, and personal aspirations.<sup>11</sup> The behavioral approach can be seen as focusing on questions concerning real-

world location decisions and the information gathering and internal decision-making structure of the firm. Behavioral studies are interested in the components of the decision-making process and how subjective factors such as attitudes, beliefs, values, expectations, and aspirations may affect a decision maker's locational decision.

The behavioral approach to industrial location analysis is an extension of the descriptive approach and stresses the search for generalization through empirical research. It was the accumulation of empirical evidence that finally brought the influence of personal factors on location decisions to the surface. A study of plant location practices in Michigan revealed that non-economic factors may play a significant role in location decisions under certain circumstances. The conclusion which emerged from this study and similar studies was that the process of industrial location is clarified if preferences in addition to the desire to maximize profits are recognized.<sup>12</sup>

When judged against the criteria established by classical location theory, the plant location practices of most firms would appear to be sub-optimal. However, the plant location process is inter-twined with other decisions concerning the operation of the firm: whether to invest in a new plant or expand an old one, how much money can be allocated for investment, and the overall trade off between short-run profit and long-term growth. Also, a tremendous array of factors and economic variables have an impact on the firm's cost structure. Lack of data prevents an accurate analysis of the cost trade offs present at each potential location. This complexity makes determination of the most profitable or lowest cost location impossible. Generally, the search for an industrial plant location is not for one that is optimal but one that satisfies the needs of the decision maker.

The behavioral approach has led to a much greater understanding of the locational behavior of industrial firms and opened up new avenues of research. Despite these empirical contributions, geographers haven't provided a working model which could be used in the explanation of specific location patterns. A general theory incorporating the variety of human motivations and actions that enter into the location decision-making process, has yet to be produced. Smith has characterized the behavioral movement as empirical findings in search of a theory.<sup>13</sup>

Clearly, the strength of the behavioral view lies in the insights it provides rather than as a basis for prediction of the locational behavior of firms. One of these insights is that an industrial firm does not have the time or resources to gather the full range of relevant, obtainable information about all possible location alternatives, and even if it did, it would not have the ability to creatively use all of that information. A systematic method which elicits from decision makers the way in which they identify and weigh the advantages of one location versus another, would be useful in drawing generalizations about the influence of personal considerations on the final location decision.

#### STATEMENT OF PROBLEM

The arrangement of industrial plants in the United States is the aggregate reflection of individual and corporate locational decisions. This study will examine the locational decisions of firms that have recently established industrial plants in Kansas and will attempt to determine the factors that influenced the firm's selection of a particular community as the site for its plant. Although it is inherently difficult to measure



the influence of a subjective locational factor such as an entrepreneur's perception of a community's desirability as a place in which to live or do business, I believe such subjective influences exist.

It is very important to make a distinction between the factors which a firm sees as prerequisites for a profitable operation (access to inputs, access to markets, sufficient labor supply) and factors which determine the actual community in which they choose to locate.<sup>14</sup> The plant locator ultimately restricts his search to those communities which can provide the basic prerequisites for the firm's operation. Generally, there is a choice between a number of communities within a region that can satisfy the firm's requirements. It is at this point that the factors which distinguish one community from another enter into the process. These are the factors that may ultimately determine which community is chosen. The plant locator must make a subjective evaluation or else establish some criteria by which the alternative choices (communities) can be weighed against each other.

The fact that any location decision will necessarily be made on the basis of a limited search, during which the decision-maker will not be able to assimilate complete information about the alternatives, means that factors like business intuition, personal preference and previous experience with an area may become important in the ultimate decision. By examining the reasons a firm chose one location, from a range of satisfactory alternatives, it may be possible to gain some insight as to how much influence the personal preferences of the decision-maker had on the final selection of that community as the location for a plant site.

This study is based on the premise that a distinction can be made between what decision-makers see as basic prerequisites for the successful

operation of their firm and actual community specific attributes which may influence them to locate in a particular community. It will focus on community attributes that are non-economic in nature, those attributes that have no direct effect on the cost and revenue structure of the firm. In other words, I wish to address the basic question as to whether or not decision-makers actually identify and weigh the so-called non-economic "personal factors." If they do, "how do these personal factors interrelate with economic locational factors?" And related to this, I wish to determine if there is a sequence by which these personal factors are evaluated by the decision-maker.

#### METHOD OF APPROACH

To meet the objectives of my study, a mail-back questionnaire was designed and sent to manufacturing firms which had located in or expanded their existing facilities in the state of Kansas in the period 1977-mid 1981. The purpose of the questionnaire was to elicit the qualities that attracted manufacturers to the community in which they located. The survey was confined to recent location decisions because it is often difficult for decision-makers to identify, retrospectively, the factors which most influenced their decision to locate in a particular community. Only those manufacturing firms with twenty or more employees were included in the survey.

The questionnaire and an explanatory cover letter were mailed in August 1981 to officials of the firms meeting the criteria mentioned. The list of firms meeting these criteria was compiled with the aid of the Kansas Directory of Manufacturers and the Kansas Department of Economic Development. Altogether, questionnaires were mailed to 140 firms.

Entries in the questionnaire asked for some basic background information about each firm, including employment size, ownership characteristics and major product(s) produced. However, the heart of the questionnaire consisted of four open-ended questions, designed to elicit unconstrained responses from the respondents. By making the questions open-ended, I was attempting to avoid the simplistic listing or ranking of key location factors which is the form most locational surveys have taken. The use of follow-up questions and the probing of areas of personal opinion and preference are best undertaken in an interview situation. Therefore, I selected eight firms for intensive, follow-up interviews. A more detailed explanation of my method of approach is included in Chapter Three.

#### JUSTIFICATION

If we can agree that geographers are concerned with exploring how people behave spatially in real-life situations, it seems reasonable to insist that behavioral and perception studies should make some contribution to understanding such behavior. This study will make such a contribution because it attempts to break down the nebulous category of "personal factors" into more identifiable factors which actually influence real-world industrial location decisions. Although these personal factors are always downgraded in normative economic models, they cannot be ignored when dealing with real-world decision making. Furthermore, their significance makes sense considering that the decisions are made by very few, very human, part-time location decision-makers who must deal quite subjectively with lack of information, uncertainty and rigid time constraints.<sup>16</sup>

Empirical investigations of plant location decisions have amassed evidence suggesting that personal considerations do enter into the decision-making process.<sup>17</sup> This study seeks to determine how these factors interrelate with other locational factors within the decision-making process. The man who set up his factory in a particular place because of its proximity to a good golf course, is a celebrated figure in industrial location literature; but such an observation by itself is not useful unless it can be linked to a more general pattern of behavior.

Evidence indicates that there are differences in the locational behavior of firms.<sup>18</sup> By investigating how different types of firms have gone about choosing their present locations in Kansas it may be possible to discern patterns of decision-making which can be associated with firms of particular size or organizational structure. Also by examining how the criteria for locational assessment were formulated by the firm, it is possible to make a distinction between a list of factors seen by the firm as a minimum for all locations and those additional factors which may just tip the balance between one community and another.

This study also has practical applications. There are 1,500 new plants located in the U.S. each year and over 15,000 area development organizations are competing to attract those plants.<sup>19</sup> Knowledge about what industrial decision-makers judge to be important community attributes can be valuable to community development organizations. It is particularly important to identify those factors which a community has no control over and separate them from factors which can be manipulated and addressed by community leaders and planners.

## EXPECTED RESULTS

It is expected that personal factors will play a much smaller role in the choice of a location for a branch plant of a multi-plant corporation than for any other type of plant location examined in this study. A multi-plant corporation is usually operated by a corporate management team, as opposed to a small firm, where leadership is likely to be vested in one person. Management personnel in larger firms are less likely to allow personal considerations to affect the ultimate location decision because their individual inputs and authorities are too dispersed. In most cases, none of the decision-makers will be living in the community where the new branch plant is located.

Larger corporations have the personnel and monetary resources to gather more relevant information about alternative locations and therefore should be better equipped to make a less biased appraisal of those locations, based on an economic rationale. The search for plant locations is often a regular and continuous operation for larger corporations and thus they have gained experience at making location decisions. This implies that with increased corporate size, personal factors become less influential in the location decision-making process.<sup>20</sup>

On the other hand, the independent entrepreneur may be interested in the total utility of the location -- i.e., the community as a desirable place to live as well as a place to operate a business. A study of rural Iowa manufacturers found that the probability of the failure of a locally-owned new enterprise was significantly higher than the failure of a branch plant owned by a multi-plant corporation.<sup>21</sup> For many owner-operated companies the location decision is a once in a lifetime decision and these

smaller firms may employ "hit or miss" methods for choosing locations.<sup>22</sup> Owners of these smaller firms may choose to locate in the area of greatest familiarity and not even consider alternative locations. They may feel a sense of loyalty or personal attachment to the area. Or they may just want to minimize their feelings of risk and uncertainty from a business standpoint and choose to remain close to business and financial contacts. I would expect to find a "home area effect" in the responses of smaller firms recently establishing plants in Kansas.

Finally, I would expect to find that industrial decision-makers have knowledge of economic and locational forces and do attempt to make rational decisions. Industrial firms are in business to make an acceptable profit and one would not expect their location decisions to be based on purely subjective factors. Even when non-economic or personal factors enter into the decision, I would expect plant locators to attempt to weigh these factors objectively.

## CHAPTER TWO

### LITERATURE REVIEW

How does a person setting up in business for the first time decide where to locate his operations? How does the large, expanding industrial firm go about choosing a new location for its increased production or changing product lines? These questions are of interest to geographers, and the key to answering them is greater understanding of the location decision-making process.

Until recently, economic geographers paid little attention to individual or firm behavior when looking at the spatial patterns of economic activities. The past decade has witnessed a growing awareness on the part of economic geographers that, if greater insight into empirical findings is to be gained and if classical location theories are to be reshaped into more useful interpretive tools, behavioral concepts must be introduced into their thinking.<sup>1</sup> This chapter will acquaint the reader with some of the contributions that geographers and others have made to the literature dealing with industrial location patterns and the location decision-making process.

#### Rationality vs. Uncertainty

As mentioned in Chapter One, the major criticism of classical location theory is that decision-makers are assumed to have all the behavioral properties of "economic man." The concept of "economic man" is a normative

one; decisions are made under the assumption of complete economic rationality. Each business executive is assumed to have the spatial knowledge and business skill to compare production costs and demand for his product for all possible locations. Therefore, the executive should be able to determine the optimum location for his plant, the location where profits will be maximized.

When looking at actual industrial location patterns, normative economic models and the concept of "economic man" are not very useful. Entrepreneurs who actually locate plants do not have the knowledge to act in a profit maximizing, rational manner. Clearly, the "economic man" is a theoretical construct and is not intended to be an accurate representation of real-world decision-makers. Finding the optimum location for a plant requires a level of information and decision-making ability that is probably beyond the capability of both the human mind and the resources of the industrial organization. Even Lösch admitted that "There is no scientific and unequivocal solution for the location of the individual firm, but only a practical one: the test of trial and error."<sup>2</sup> Also the very notion of an achievable equilibrium flies in the face of the dynamics of human organization of the landscape.

One alternative to constructing normative location theories is to examine the locational decisions of individual firms. Much of the credit for stimulating geographic study of the decision-making behavior of firms must go to the psychologist H. A. Simon (1957).<sup>3</sup> Borrowing heavily from Simon, geographers interested in the actual decision-making behavior of individuals and firms have argued that a firm's final choice of location is not a decision based on complete information, but instead, a situation



involving a high level of uncertainty. Despite dissatisfaction with the concept of rational "economic man," behavioral geographers were unable to offer an alternative concept. A breakthrough came from organization theory in the form of Simon's concept of "bounded rationality."<sup>4</sup> Simon suggested that decision-makers should be regarded as boundedly rational individuals. He rejected any notion that decision-makers could be all-knowing.

Simon's argument is based on two premises. First, information has to be searched for and compiled within constraints of time and financial resources. Second, decision-makers have a limited capacity to process the information they do gather. For these reasons, an optimal decision is unattainable. Instead, Simon suggests that decision-makers are "satisficers." They make a choice between those alternatives they can identify and the evaluation of those alternatives is usually simplified to the level that an alternative is either satisfactory or unsatisfactory. A decision-maker's preferences and aspirations will help determine what is a satisfactory or unsatisfactory location.

Simon has pointed out that few decision-makers are able to set out a whole string of possible alternatives side by side in order to choose between them. In most cases, possible location alternatives are encountered one or two at a time and this sequential form means that a choice may have to be made without knowing whether a better alternative may be found if the search is continued. According to Simon's theory, as soon as a satisfactory location is found it will be chosen and the search is terminated.

Simon's views have been influential in recent work on location decision-making. His satisficer concept has been a useful contribution to understanding

the decision-making process because it views decision-making as a search process, limited by time constraints, and because it allows for satisfactory, as opposed to optimum, location decisions. Even more important is his concept of "bounded rationality", the idea that decision-makers do the best they can on the basis of the information they can gather. This idea is a significant breakthrough because it offers a viable alternative to the concept of "economic man."

Normative location theory has been able to describe how industrial location patterns could appear if businessmen made perfectly rational location decisions. On the other hand, Simon suggests that there is always some uncertainty involved in location decisions. The economist C. M. Tiebout attempts to deal with this rationality vs. uncertainty issue by proposing two polar views of the economic system.<sup>5</sup> He perceives the economic system as a compromise between the tendencies for some firms to adapt to the prevailing conditions and for others to be adopted by the system. At one extreme, economic activities rationally adapt themselves to the conditions in which they are placed. At the other extreme, firms choose locations in ignorance, but those who are lucky are adopted by the system and remain in business. The adaptive condition is a normative, optimizing procedure. The adoptive procedure is essentially a random locational process, with those firms placed in good locations surviving in the long run.

Tiebout points out that neither polar position is realistic, since one assumes perfect knowledge and the other assumes no knowledge. In reality, the location decisions of firms lie somewhere between the polar positions. But Tiebout contends that the polar positions serve as useful points of departure in the analysis of location decisions.

"On the one hand we know that firms cannot be certain if they are at a maximum profit location. On the other hand, surveys indicate that firms are aware of locational forces."<sup>6</sup>

Thus decisions are made under conditions of uncertainty, but they are not made randomly, because decision-makers are aware of locational forces. Once again we are drawn back to Simon's idea that decision-makers do the best they can with the information they possess.

### The Behavioral Matrix

Allan Pred has prepared a statement calling for a geographic location theory based on a behavioral approach to decision-making.<sup>7</sup> Such a body of theory would embellish classical location theory by taking into account non-optimal behavior, imperfect knowledge, and other psychological variables. Pred bases his statement on the premise that each enterprise on the economic landscape reflects a discrete locational decision. Pred observes that the gap between observed industrial location patterns and the neat optimal solutions of classical location theory is the product of imperfect knowledge and non-optimizing behavior on the part of actual decision-makers. The problem, he says, becomes one of systematizing this gap's contents for analytical purposes.

One possibility for organizing the broad spectrum of decision-making behavior is the behavioral matrix. This matrix was put forward by Pred as a conceptual device to aid in the understanding of real life suboptimal location decisions. Pred bases his behavioral matrix on the simultaneous operation of the adaptive and adoptive categories proposed by Tiebout. He takes Tiebout's two-fold classification and expands it to a four-fold classification. Pred suggests that decision-makers have both limited knowledge and limited ability to use that knowledge.

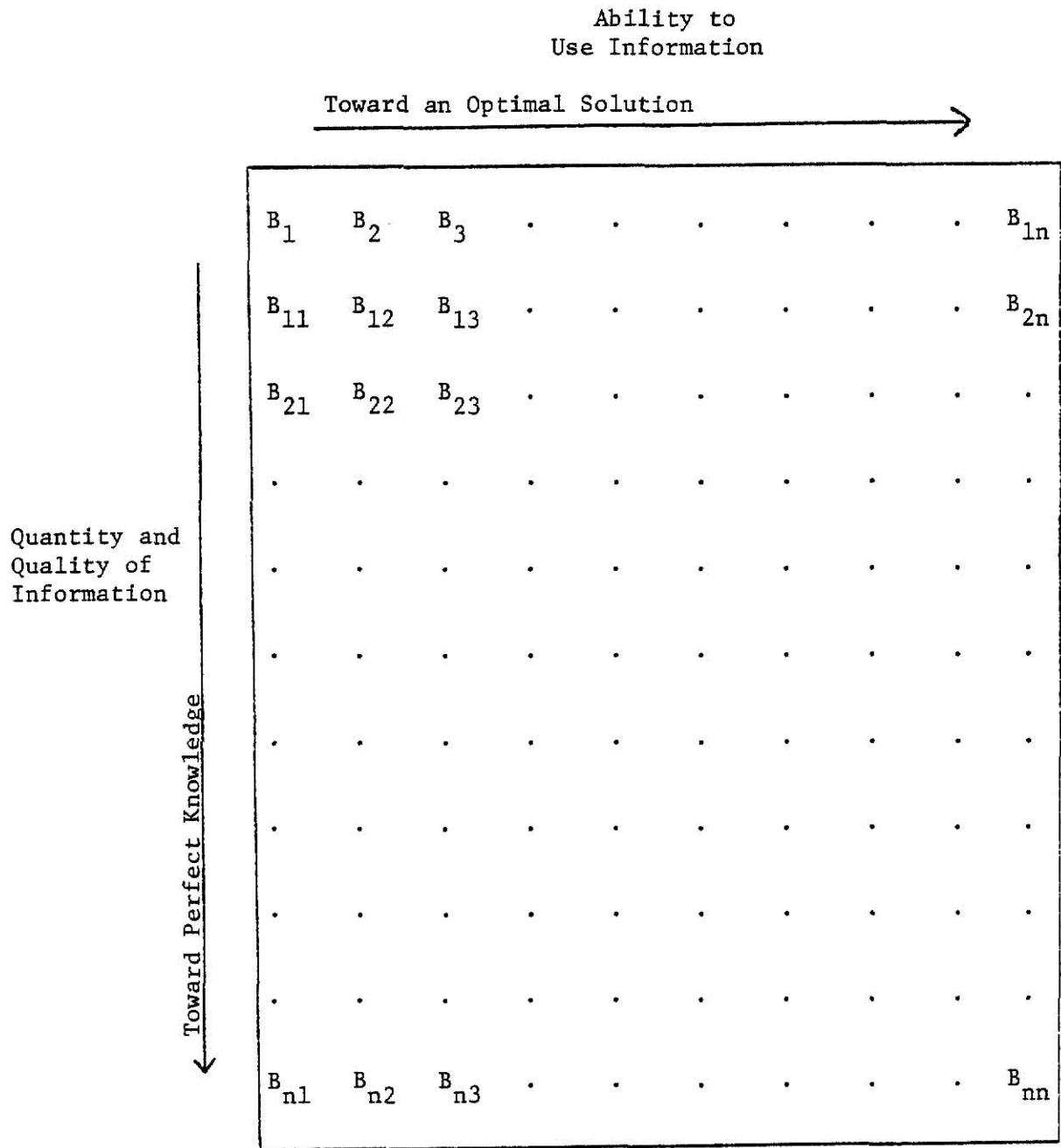
"Every locational decision is viewed as occurring under conditions of varying information and ability, ranging, at least theoretically, from null to perfect knowledge of all alternatives, and as being governed by the varying abilities (as well as objectives) of the decision-maker."<sup>8</sup>

In the behavioral matrix, the quantity and quality of information which ranges from no information to complete information is given on the vertical axis. The ability to use information which ranges from total ineptitude to the ability to make optimal solutions, is shown on the horizontal scale (see Fig. 2.1). Each location decision can be thought of as jointly having a spatial attribute that is conveyable on a map and behavioral qualities that can be hypothetically located in the behavioral matrix.

Every entrepreneur involved in a location decision theoretically holds a position in the behavioral matrix. A position in the bottom right of the matrix indicates a high level of knowledge as well as a high level of ability to use it. In this position, there is a high degree of probability that a decision-maker will make a good locational choice. The location may even be near the economic optimum. As knowledge and ability decrease, toward the top left of the matrix, the probability of a good locational choice is reduced. Pred emphasizes probability in the matrix because high levels of knowledge and ability are not a guarantee of a good choice of location (though they increase the likelihood). At the same time, there is a lower probability that a firm with little knowledge of the alternatives and a poor management could be lucky enough to make a good decision.

Suppose there is a region having a total of 12 plants; area one containing two plants, area two, four plants, and area three, three plants. One can then relate plant location to the behavioral matrix (see Fig. 2.2). In the diagram nine plants lie within the satisfactory spatial limits of

FIGURE 2.1  
THE BEHAVIORAL MATRIX



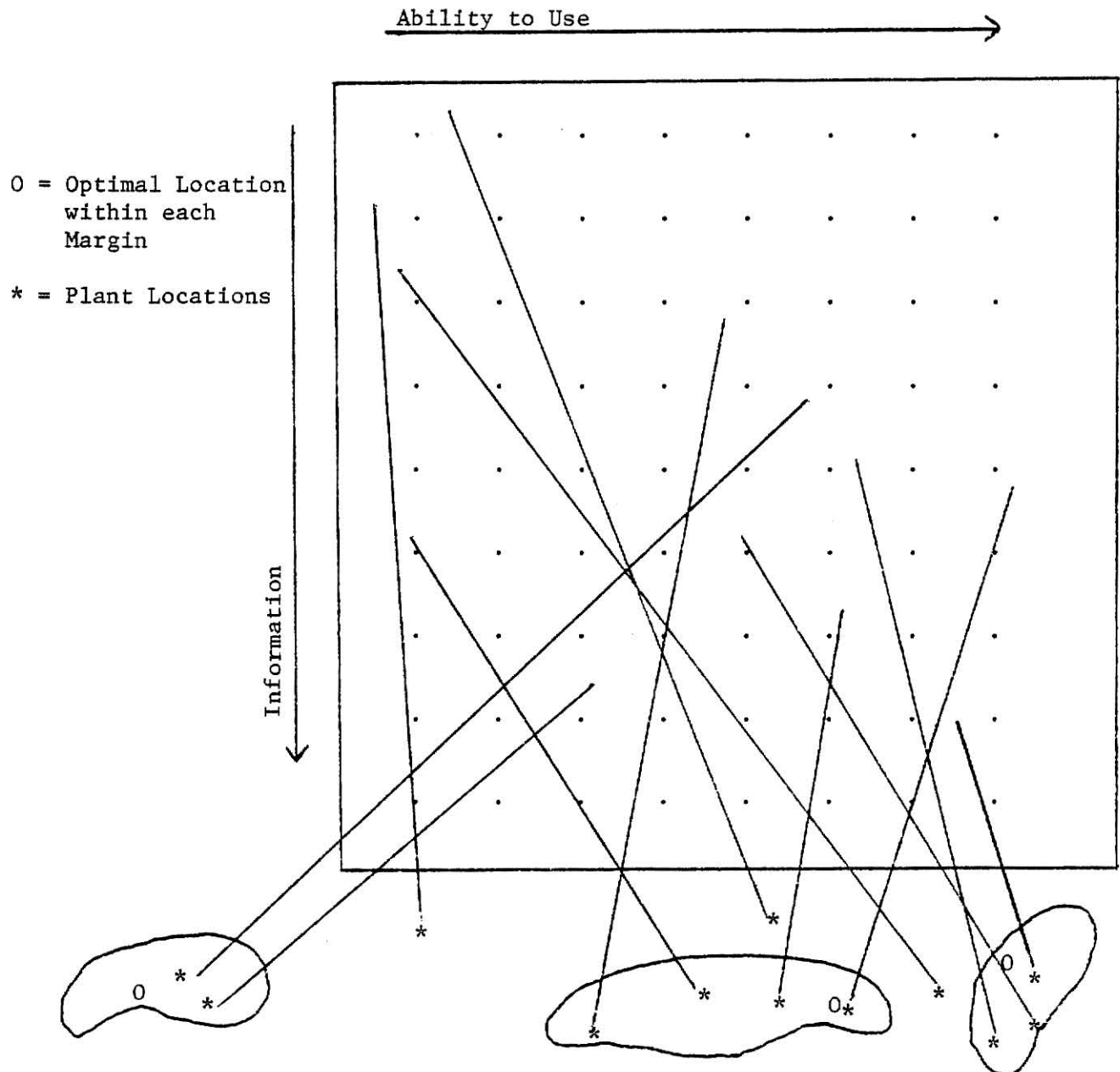
Source: Pred, 1967, p. 25, Figure 1

profitability, while three of the plants are located outside. Using the matrix, it can be seen that many of the plants had a great deal of information and the ability to use that information to find a satisfactory location. There is one firm where the decision-maker had very little information and was unable to use it well, but still secured a profitable location (the adoptive, "lucky" category). However, three plants are located where little information is available and were unable to utilize what little information they had. These firms are outside the profitable area and are operating at a loss. It is possible that the plants may have located in the unprofitable area when conditions were different and when factors of production changed. The firms were caught unprepared or just couldn't adapt to the new situation. In the long run, continued economic losses will force these firms to relocate or go out of business.

#### Spatial Margins to Profitability

One proposed solution to the rationality-uncertainty paradox, mentioned earlier, is the concept of spatial margins to profitability. This concept was first introduced by Rawstron and later expanded upon by Smith.<sup>9</sup> Rawstron was concerned with how production costs restricted the choice of location for a firm. Variations from place to place in the cost of production inputs generate what he termed spatial margins to profitability. Beyond this margin total costs exceed total revenue, the firm experiences a loss and the location is not economically viable (see Fig. 2.2). Within the margin some profit can be made anywhere, though not necessarily maximum profits. The spatial margin bounds the area within which there is freedom of locational choice.

FIGURE 2.2  
THE BEHAVIORAL MATRIX  
AND  
INDUSTRIAL LOCATION CHOICE



This diagram shows how plants may locate within or outside spatial profitability limits using the information available to them.

Source: Pred, 1967, p. 92, Figure 11

Smith views the concept of spatial margins to profitability as a method of integrating behavioral considerations with traditional location theory. He suggests that at a large areal scale, location patterns are determined by objective, external, economic forces, but that locational sites within these general areas are not specified. The spatial limits approach is appealing because it moves away from the profit maximization assumptions of rational "economic man" and moves toward Simon's concept of "bounded rationality". Decision-makers are free to make suboptimal location decisions but that freedom is spatially constrained. Economic circumstances impose restrictions on how far plant locations can depart from the optimum and still survive.

Smith says that a position within the relevant spatial profitability margin is the most general locational condition for plant viability that can be formulated. He states what he feels is a basic principle underlying industrial location in any cost/revenue situation:

"Spatial variations in total cost and total revenue create an optimum location at which profits may be maximized, and also spatial margins beyond which profitable operation is not possible; within the margin the firm is free to locate anywhere, providing profit maximization is not required."<sup>10</sup>

The spatial margins approach has received criticism from those who say that determining the margins is as difficult in practice as determining the optimum location. Others claim that the margins may be too wide to be of any interpretive value.<sup>11</sup> However, the most important contribution of the spatial margins concept does not lie in its practical applications. It is important because it shows that there are spatial limits within which a firm can make a suboptimal location decision and still survive by earning some profit. A decision-maker may not know whether he had located at the



site of least cost or maximum profit, but he will be satisfied if he has selected a site that brings to him what he considers a reasonable profit.

### The Location Decision Process

The main drawback of an approach based on spatial margins to profitability is that it fails to provide any insight into how location decisions within the margin are actually made. This drawback suggests a need to examine the decision-making process and the factors that influence a firm to select a particular location.

Lloyd and Dicken have examined the location decision-making process of small firms and multi-plant organizations.<sup>12</sup> They see the location decision process as matching the set of internal locational requirements of the firm itself to the set of external attributes or characteristics of a particular location. Location decisions are made to ensure the survival and growth of the firm and in response to changes which may make an existing location unsatisfactory. Thus the decision-making process arises under two sets of circumstances: first, when an individual firm decides to set up business for the first time and second, for an established firm when the existing location is too confining for expansion or becomes unsatisfactory.

In the first situation, the initial entry into an industry, the stimulus is the desire of an individual or group to set up in business for the first time. A poor initial decision may doom a new industry to failure, but there are other factors which may also lead to failure such as poor management or business skills and insufficient financial backing. Where a firm is already in business at an existing location, the stimulus

to seek an alternative location may be traced to a need to replace an existing plant (relocation) or to supplement the existing location (branch location).

For the purposes of simplification, Lloyd and Dicken have divided the decision-making process into five basic stages:

1. There is a perceived stimulus to make a location change or establish a new location.
2. The firm specifies its locational requirements.
3. The search process (search for suitable locations).
4. Evaluation of alternatives.
5. Final choice of location.<sup>13</sup>

The need to consider an alternative location (branch plant or relocation) is usually the result of a strong impetus or push. The pressures providing this impetus come from within the firm and from the external environment. Growth, or a plan for growth is often the principal reason for considering a new location. But in the day-to-day affairs of a firm, stresses are constantly occurring and they may build up over time. If these stresses exceed what Lloyd and Dicken call the "stress tolerance threshold"<sup>14</sup>, then the firm may be forced to search for a new location. Any move is dependent on the ability of the firm to find a suitable alternative location and the availability of funds to finance the establishment of a new operation. In some cases, a building or developed site at another location may attract a firm away from its existing site, but in most cases it would be correct to agree with Luttrell when he says that:

"the need to find a new location instead of or in addition to the present one comes first and the search for a suitable place follows, rather than the firm being positively attracted to the new place."<sup>15</sup>

Once a decision has been made to search for a new location, the firm must determine what requirements a new location must fulfill. Only large corporations, with their monetary resources and specialized manpower, are able to employ sophisticated methods of gathering information on cost structures and market potentials. Smaller firms may have only a vague awareness of what their specific locational requirements are. Usually, there are one or two factors that they are aware of, that outweigh all others and simplify the locational search. Generally, a satisfactory location is one that meets the firm's set of locational requirements and satisfies the aspirations of the decision-maker. However, small firms and firms choosing locations for the first time have very little experience with locational searching and may have difficulty establishing realistic aspiration levels. Small firms may be reluctant to change locations because of their attitudes toward risk and uncertainty. For both small firms and new firms the locational choice is likely to be conservative if their primary motivation is to minimize uncertainty rather than maximizing profits.<sup>16</sup>

There are three ways in which uncertainty can be minimized. The first of these is to repeat previous behavior. At its extreme this would mean a decision not to change locations. If a change in location is inevitable, it means moving as short a distance as possible to preserve existing input and output ties. A second method of reducing uncertainty is to locate in the area of greatest familiarity. This is especially applicable to individuals making a locational decision for the first time. In many cases a founder of a company may live in a community and regard it as the obvious choice for his company without even considering other locations. Third, uncertainty may be minimized by imitating other firms that decision-makers

consider successful. If a manufacturer sees a firm which is similar to his own experiencing success at a location, he may seek a similar location. In other words, success may breed imitation.

When beginning the search for a plant site, a decision-maker already possesses a store of spatial knowledge; he has a "mental map" which represents not only what he knows about places but also what he feels about the places he knows.<sup>17</sup> Some of these places he knows about through direct experience, particularly those close to where he lives or works. His knowledge about other places is based on information and impressions gathered from friends, business associates and the mass media. A decision-maker's "mental map" is important in influencing his search for a plant site. It inserts a bias into the search process which acts as a spatial filter. According to Lloyd and Dicken, manufacturers do have preferences for some locations and prejudices against others. In most cases, these opinions are not based on a systematic evaluation of the relative merits of places but instead on a hodge-podge of impressions. According to Lloyd and Dicken "Whether or not such subjective assessments are true in any absolute sense is not the point; it is enough that places are believed to vary in their locational qualities."<sup>18</sup> Because of this bias, certain areas are likely to be excluded from consideration immediately. In many cases, a decision-maker will already have a preconceived idea of the suitability of a particular area and concentrates the search for a specific site there.

Obviously, not all firms base their location decisions on existing knowledge or general information. Larger firms often engage in systematic locational searches and rely heavily on information provided by government departments, state and local development agencies, banks, utility companies

and other institutions. Multi-plant corporations may supplement their locational information by creating a locational analysis department or by hiring specialized consulting firms. This allows large corporations to reduce uncertainty to a greater extent than small firms because they have access to more information. However, uncertainty can never be eliminated because a firm will never know whether a better location might have been found if the search had been continued. No matter how sophisticated the search process is, no matter what range of search devices is employed, a firm's search process is limited by the pressure on the decision-maker to find a satisfactory location as soon as possible. Because of time and money constraints, as soon as a satisfactory location is found the search is likely to terminate. Townroe, in a study of British companies which had recently moved to new locations, found that forty of his sample of fifty-nine companies (68%) took the first satisfactory solution to their location problem.<sup>19</sup> Often the ultimate criterion of selection for larger firms is whether a particular course of action can be implemented easily, rather than whether it is the best solution. The principle of least effort is a powerful influence on man's behavior.<sup>20</sup>

### Empirical Studies

Many empirical studies of plant location decisions have found that in some cases personal factors or considerations are more important than economic elements (such as access to materials and labor or proximity to markets) in the final choice of location. Table 2.1 summarizes the findings of two such empirical studies.

In Muellar and Morgan's 1962 Michigan study, plant executives were interviewed and asked why a particular community was selected as a plant

TABLE 2.1  
REASONS GIVEN BY MANUFACTURERS  
FOR CHOOSING A LOCATION

A. Manufacturers Locating in New England

Principal Reasons	All Firms %	New Firms %	Branch Plants %	Plant Relocations %
Personal Reasons	31.4	69.0	3.8	26.1
Market Advantages	23.7	16.6	20.7	43.5
Production Relationships	16.1	2.4	34.0	---
Material Availability	9.3	4.8	11.3	13.0
Management Relationships	6.8	2.4	11.3	4.3
Labor Considerations	5.1	4.8	3.8	8.7
Other Considerations	7.6	---	15.1	4.3
Total	100.0	100.0	100.0	100.0

B. Manufacturers Locating at a Particular Site in Michigan<sup>a</sup>

Principal Reasons	All Michigan %	No. of Plants Operated by Firm		
		1 %	2-4 %	5 or more %
Personal Reasons; chance	33	55	32	20
Opportunity -- found good site	18	27	16	14
Proximity to customers	15	16	15	14
Proximity to auto industry	13	7	14	12
Labor advantages	7	4	9	7
Proximity to materials	12	7	6	15
Local concessions and inducements	4	2	4	7
Better tax situation	3	4	6	2
Area already established as a center for the industry	2	1	2	4

<sup>a</sup>Question asked was "What were the main reasons that operations were set up here in (name of town)?"

<sup>b</sup>Totals differ from 100% because some respondents mentioned more than one reason while others the reasons were not ascertained.

Sources: A. calculated from data in Tiebout (1957), Table 1  
B. from Mueller and Morgan (1962), Table 2

site.<sup>21</sup> They found that historical accident and the personal preferences of the founder(s) played an important role in the location decisions of some firms; a firm located in a community because its founder lived there, liked it there or had valuable business connections there.

Parts A and B of Table 2.1 both show differences in the responses of firms based on their size. Mueller and Morgan concluded from their interviews that historical accident and personal considerations play a much larger role in the location of plants of smaller firms than in the location of plants which are part of large multi-plant organizations. It is significant that personal reasons were most important for new firms (69% of all responses in the New England study) and for single plant firms (55% in the Michigan study) when executives were asked why they located in a specific community. This would seem to indicate that newly established, independent companies initially locate in an area where the founder is already established

Muellar and Morgan also concluded that larger firms made more careful cost and market calculations than smaller firms. Part A in Table 2.1 shows that personal considerations were rarely mentioned as the principal reason for selecting a site for a branch plant. Market advantages and product relationships were more important considerations. Part B in Table 2.1 indicates that personal reasons become less important in the decisions of firms that operate two or more plants.

Finally, Mueller and Morgan concluded that an area may improve its chances of attracting newly created firms by being a desirable place to live for new entrepreneurs and management. Fifty-three percent of Michigan manufacturers in the study rated the "attitude of the community toward industry" among the five most important locational factors. Fourteen

percent felt that "community attributes" were among the five most important locational factors. When asked to evaluate the relative importance of proximity to markets and materials in contrast with such things as good community relations, favorable industrial climate, good schools, or adequate recreation facilities, twenty-six percent of the manufacturers said that community factors were more important and another twelve percent said they were equally important. One of the shortcomings of Mueller and Morgan's analysis is that they fail to define what they mean by "favorable industrial climate" or "community attributes," however their findings do attach some importance to location factors that communities have some control over.

#### Summary

This chapter is a synthesis of the industrial location literature which helped in the formulation of my research problem and the structuring of my questionnaire. The concept of bounded rationality and Pred's behavioral matrix support a position that optimal locational decisions, from a purely economic standpoint, are very unlikely. Because of limited time, money and information, personal perceptions and preferences will enter into a location decision. Still, there are limits to where a firm can locate and operate at a profit (the spatial margins to profitability). What is needed is a greater understanding of the location decision process and of the factors that influence the choice of a particular location within those profitable limits. Empirical studies show that manufacturers look at the non-economic, as well as the economic, attributes of potential locations. The evaluation of a location's non-economic qualities will tend to be more subjective.



## CHAPTER THREE

### THE STUDY METHOD

The purpose of this chapter is to acquaint the reader with the method that was used to gather information for this study. One method which can be employed to measure the influence of subjective elements on the location decisions of industrial firms is the survey approach. This amounts to constructing a questionnaire or developing an interview procedure wherein company officials are asked why they chose a specific location for their plant. The survey approach has been used by economists, geographers, and development agencies in an attempt to determine what factors attract industry to a particular area or place. While these surveys suffer from the unavoidable inadequacies associated with construction of questionnaires, they are a potentially useful tool for revealing discrepancies between factors considered important by theorists and factors which manufacturers consider critical. Surveys and personal interviews, of properly structured, can provide a way of getting at the importance of non-economic factors and the subjective judgements of the decision-maker. Company officials can be asked to list the qualities that attracted their firm to a particular community. These may be economic qualities or they may be qualities that have no measureable effect on the economic performance of the firm. A survey approach was essential to this study. This chapter presents a discussion of how the survey sample was selected and how the

questionnaire was conducted. A description of how the responses were analyzed is also included.

#### Selection of Plants Surveyed

A questionnaire was sent to 140 manufacturing firms in Kansas who had been involved in one of the following types of location decisions in the past five years:

1. A decision to establish a first plant of an independent, newly formed company.
2. A decision by a multi-plant corporation to establish a new branch plant facility.
3. A decision to relocate plant operations from another state to Kansas.
4. A decision to relocate plant operations from one Kansas community to another.
5. A decision to expand operations at an existing location as an alternative to shifting locations or establishing a branch plant.

Expansion of existing industrial facilities can be considered a location decision because it is a decision to forego location of additional facilities elsewhere.<sup>1</sup>

To insure an effective investigation of the factors of importance in location decisions, Townroe feels the most important consideration is to focus the survey on those companies which have been involved in a decision in the relatively recent past.<sup>2</sup> It is important to question decision-makers before memories get blurred or experience in the new location colors the view of what was important in the original locational choice. For this reason, the survey included only location decisions made from the beginning of 1977 through the first half of 1981.

The identification of recently locating and expanding firms was accomplished with the assistance of the Kansas Department of Economic Development. The survey sample was obtained from two sources: 1) Kansas New and Expanding Manufacturers, for the years 1977 through 1980 and an update for the first half of 1981, and 2) records on file in the Economic Analysis Section of the Kansas Department of Economic Development (KDED). Detailed information about the firms and the nature of their expansion or locational change was available from KDED in files. Once the firms were identified, the Directory of Kansas Manufacturers was used to insure that the addresses of the firms were correct and up-to-date and that the questionnaire was sent to the appropriate individual in a firm.

Only those "start up," branch or relocated plants employing more than twenty people were included in the survey. It was felt that a small manufacturing enterprise (one employing less than 20 persons) would not conduct a location search, but would merely begin operations in the home town of its founder. Also, plants employing less than twenty people would not have as significant an impact on the employment situation in a community. In order for an expansion to be considered significant, and included in the survey, it had to meet the following criteria: 1) represent an increase in the production capabilities of the facility, and 2) result in an increase of at least twenty employees or twenty-five percent of the work force. Expansions which involved multi-million dollar additions to the physical plant or building a new facility on an adjacent site were also included in the survey.

It should be noted that this sample of manufacturing firms was not intended to be a random sample nor was it intended to include all new and

expanding industry in Kansas. There were 140 firms that met the criteria discussed above. The purpose of the survey was to see if these firms evaluated the non-economic qualities of the communities they considered. It was hoped that by concentrating on recent location decisions the person or persons involved in those decisions would still be with the firm.

#### Questionnaire Design and Construction

Before designing my questionnaire, I reviewed the procedures employed in several industrial location surveys.<sup>3</sup> For the most part these surveys have lacked uniformity and consistency.<sup>4</sup> Differences in the size of the area included in the survey, differences in the phrasing of questions and different approaches to ranking location factors, make a meaningful comparison of survey results difficult.

The mail-back questionnaire is probably the most widely used method for gathering information on plant location decisions. It does have its drawbacks, however, and Townroe has cited five dangers associated with its use.<sup>5</sup> First and foremost, there is a risk of a low response rate. This could produce a final number of responses too small to allow any analysis of sub-groups of firms. Second, there is a danger that the questionnaire might not be directed to the correct person at the plant or within the company. The manager of a new plant in a new location may not have had any hand in the choice of that location, and as a result, can only offer a hearsay response. Or the respondent may be a second tier official of the company, only present on the fringe of the decision-making process.

A third danger is present in any questioning of an important decision: "post-hoc rationalization by the respondent."<sup>6</sup> A plant manager or plant owner may not want to admit to an outside agency or academic body that the

choice was governed by internal company politics or by personal preferences. Because memories fade, decision-makers may try to rationalize the location decision in terms of the factors currently most important to the firm's operation.

The fourth danger is that individual factors listed on a questionnaire may mean slightly different things to different respondents. Available labor for example might be interpreted as a pool of unemployed labor, or as a pool of skilled employees which could be tempted away from other companies. Misinterpreting the importance of individual factors is the final danger. The ranking or ordering of factors on the returned questionnaire can be misleading. Some surveys make a major factor/minor factor distinction or attempt to set up a scale for rating factors. Different respondents may perceive the scales differently. Also, different combinations of factors may have been important to different firms when looking at alternative sites. A respondent may check many reasons presented in a check list, or may offer many reasons to an open question, without indicating the relative importance of each factor in the final choice of location.

While recognizing the shortcomings of the mail-back questionnaire technique, it is still the best method for surveying a large number of firms. The mail survey method was chosen on the basis of the number of firms in the sample, the size of the geographical area covered and because of time and funding constraints. The questionnaire used in this study was designed according to survey design procedures outlined by Linsky,<sup>7</sup> and efforts were made to follow Townroe's survey guidelines in order to minimize the dangers discussed previously.<sup>8</sup>

One of the most important components of a mail survey is the cover letter that accompanies the questionnaire. If the cover letter does not capture the respondent's attention or does not make the purpose of the questionnaire clear, it may be ignored or answered casually. The cover letter used in this study was typed on a Kansas Department of Economic Development letterhead and signed by the Secretary of the department (see Appendix I). The cover letter was used to explain the purpose of the survey, to prepare the respondents for what was to follow in the questionnaire and to solicit their cooperation. According to Linsky, the organization that appears as sponsor of a mail questionnaire study and the title of the person signing the letter of accompaniment have a positive effect on the level of returns.<sup>9</sup> It was believed that K.D.E.D. sponsorship of the survey would provide an additional impetus for firms to respond.

The questionnaire consisted of two sections, a background section and a set of open ended questions (see Appendix I). The first page was designed to gather background information about the firm. The first question was very important because it served as a screening device. It asked the company official if he was directly involved in his firm's decision to locate or expand at its present site. If the respondent was not directly involved, then he would not have any knowledge as to how certain factors were evaluated, and consequently, his response would be of little value. The Kansas Directory of Manufacturers was used to identify the principal company official at each plant site, so that each questionnaire could be addressed to a particular individual. If that official had no participation in the decision to locate or expand at that plant site, he was asked to provide the name and address of the person who was most directly involved in the location decision, so that the questionnaire could be properly redirected.

The second question asked whether the respondent's firm was best characterized as: a) an independent, newly formed company, b) a branch plant of a multi-plant corporation, c) a relocation of plant operations from another state, d) a relocation of plant operations within Kansas, or e) an expansion of operations at an existing site. It is important to distinguish between independent companies and branch plants, because previous studies indicate there may be a difference in the way small firms and large corporations evaluate non-economic qualities of communities.<sup>10</sup> Also, the establishment of a new plant, the relocation of an existing plant and the decision to expand operations at an existing site are three different types of location decisions, and the degree to which non-economic or personal factors influence those decisions may vary. The remaining questions requested information about the total employment at the plant site, the major product produced at the plant and the length of time the plant had been in operation. Respondents at branch plant locations were asked to provide the name and address of their parent company, in case the need arose to solicit further information from the company's main headquarters.

A second group of questions on the first page asked respondents to provide information on their firm's community search and selection process. They were asked to indicate how many communities were investigated as possible locations for their plant and how many prospective communities were actually visited by representatives of the firm. A firm that engages in a systematic locational search is more likely to systematically evaluate the merits of each community. A question was also included to determine if the firm received assistance from any government or non-government development organizations, in its search for a suitable community. Finally,

each respondent was asked whether the final choice of location for their plant was made by a single individual or by a committee.

The second page of the questionnaire was designed to determine how Kansas manufacturers identify and weigh the advantages of locating in one community versus others. More specifically, it was designed to determine how non-economic factors influence the selection of a community as the location for a plant site. Entries in the document were based on Hermone's work. He has divided the many considerations that enter into the choice of a new plant site into two categories: subjective or noncost factors and objective or cost factors.<sup>11</sup> The subjective factors involve an evaluation of community facilities and attitudes. These cannot be measured exactly, but can be compared with other communities under consideration. The objective factors are concerned with the costs of production and distribution which can be quantified. Hermone notes, obviously, that the final choice of a site will take into consideration both sets of factors.<sup>12</sup>

In reality, the distinction between objective and subjective influences is not as simple as Hermone makes it sound. It is difficult to draw a clear line between objective and subjective factors, especially when trying to analyze the motives behind the choice of a particular community as a plant site. What appears to be subjective to an outside observer may seem to be hard fact to a decision-maker. For the purposes of this study, "subjective" was taken to mean an approach to assessment or evaluation where impressions and emotions tend to be more important than factual details. Because of time pressures and limited factual information, there are times when a subjective judgement is all that is practicable. In other cases, a decision-maker may just be exercising his personal preference.



The second section of the questionnaire consisted of four open-ended questions designed to elicit information about the non-economic qualities that manufacturers look for in communities. The purpose of having open-ended questions was to allow the respondents to give unconstrained responses. I was interested in what they thought was important. A questionnaire which presents manufacturers with a checklist of key location factors restricts responses and suggests what factors should be important. For example, Stafford notes that location surveys often focus on standard economic variables and decision-makers believe that they must give the impression that their decisions are economically rational, so they ignore the less apparent location factors.<sup>13</sup> Many location surveys which ask respondents to rank a list of factors do include personal considerations as a factor to be ranked. However, in the analysis there is usually no attempt to break that category down and determine just what those personal considerations are. By using open-ended questions, it was felt that respondents would feel free to mention the non-economic factors that influenced their location decisions.

The top of the second page contained a list of eight economic location factors which have traditionally been given primary attention in industrial location studies. Following the list, an explanatory paragraph was included asking the respondents to look beyond those purely economic considerations and to think about the qualities they looked for in prospective communities. The remainder of the second page was given over to the four open-ended questions (see Appendix I).

Muellar and Morgan observed that often a number of alternative locations may be feasible for a new firm on the basis of cost and demand

considerations. The owner's personal preferences and contacts may then be decisive in selecting among feasible locations.<sup>14</sup> Similarly, Townroe observed that a firm may select a small number of areas as suitable from the point of view of its main business requirements, and then come to its final decision on the basis of a different set of factors.<sup>15</sup> The open-ended questions were structured on the basis of these arguments.

The four open-ended questions were ordered in a logical progression designed to be similar to the sequence firms followed in the evaluation of prospective communities and selection of a location for their plant. The first question asked respondents to list non-economic qualities of communities which they took into consideration in their choice of location. Questions two and three were used to gain some insight into how firms went about comparing the advantages and disadvantages of prospective communities. Question two asked respondents what qualities made the community where their plant is located an attractive place for their firm to set up operations. The third question asked how other prospective communities compared to the one that was ultimately chosen. Finally, question four asked how the person or persons responsible for selecting the plant's location ranked or evaluated the factors mentioned in question one. The response to question four should provide an indication of the relative importance of each non-economic factor in the final choice of community. It may even be possible to determine what particular factor tipped the balance in favor of the community that was chosen as the location for the firm's plant.

### Data Collection

The following four steps were taken to increase the return rate of the mail-back questionnaire:

1. A cover letter from the Secretary of the Kansas Department of Economic Development was used to explain the purpose of the study to the respondents and to encourage their cooperation.
2. It was made clear that all returned questionnaires would be treated confidentially. All data supplied would be reported only in the form of summary tables and no mention would be made of any individual firm.
3. A postage paid business reply envelope was mailed to the respondent along with the cover letter and the questionnaire. The return address used was the Kansas Department of Economic Development, Topeka, Kansas.
4. If the company official to whom the questionnaire was addressed had no participation in his firm's decision to locate at that site, he was asked to provide the name and address of the individual most directly involved in the location decision. The questionnaire could then be directed to the individual most able to offer informed responses to the questions.

### Follow-up Procedure

Eight firms providing usable responses to the questionnaire were selected for in-depth follow-up interviews. The purpose of the interviews was to allow the respondents to expand upon and clarify their questionnaire responses. All but two of the interviews were conducted on a one-to-one basis with the company official who had completed the questionnaire; the

exceptions being two interviews during which I was accompanied by a staff member of the Kansas Department of Economic Development.

The interviews were relatively unstructured. An outline of the questions to be covered in the interview was used, but apart from this guidance, respondents were encouraged to comment in a free and open-ended manner. The interview procedure was patterned after the approach used by Stafford in his study of Ohio manufacturers.<sup>16</sup> Stafford found that in his interviews, the more classic economic location factors were usually discussed first by the respondent. This reflects the basic importance of these factors. However, Stafford also suspects that managers like to see themselves as economically rational, and believe it is expected of them. He found that once respondents were well into the interview, were relaxed, and had recalled many memories, then the subjective, judgemental and the very personal nature of industrial location decision-making became fully apparent.<sup>17</sup> No tape recorder was used in the interviews because it was felt that its presence might inhibit the responses of the official being interviewed. Notes were taken during the interviews and important comments were written down. A brief summary of each interview was written immediately after its conclusion, while the comments of the respondent were still fresh in my mind.

In the personal interview respondents were asked to describe very briefly the company situation at the time of the location decision, to indicate how he or she personally was involved in the decision process and then to describe the actual locational decision-making process. Emphasis was placed on determining what factors influenced their final choice of location and the information upon which their location decision was based. They were also asked to describe any assistance they had received from

outside organizations or agencies. Respondents were asked to be specific and to explain and elaborate on the responses they gave to the open-ended questions on the mail questionnaire. The interview situation allowed immediate follow-up questions to clarify a response and enabled the interviewer to probe to the personal opinions and preferences of the respondent. This type of interaction and clarification is not possible using a mail questionnaire.

The eight firms selected for follow-up interviews represented a cross-section of the firms surveyed, in terms of plant size, community size, ownership characteristics, and type of location decision. Because questionnaire responses were received from company headquarters in places such as St. Louis, Chicago, and Lansing, Michigan, it was not possible to consider all firms for follow-up interviews. The responding company officials were located at a plant site in Kansas.

#### Method of Analysis

Townroe notes that one central lesson to be gleaned from empirical studies of industrial location decisions is that great heterogeneity of decision-making must be expected within any substantially sized cohort of manufacturing firms.<sup>18</sup> Therefore, it is unlikely that the study of industrial location behavior patterns will lead to a single model, structured in such a way as to be suitable for calibration and quantified forecasting.<sup>19</sup> The purpose of this study is not to develop a model to predict the location behavior of manufacturers locating plants in Kansas. However, even though the importance of non-economic factors in the choice between alternative locations may vary according to the characteristics of the firm, it may be

possible to identify general patterns of location behavior which can be associated with firms of particular size or ownership characteristics.

The questionnaire responses were analyzed in two ways. First, the responses to question one of the open-ended portion of the questionnaire were examined in order to record the frequency with which certain factors were mentioned by respondents. Non-economic factors mentioned frequently by responding manufacturers can be considered important locational factors and can provide a focus for further research. Second, I wanted to assess how the responses varied according to:

- 1) Size of plant (plant employment)
- 2) Size of community
- 3) Location of plant relative to metropolitan areas
- 4) Industry type
- 5) Ownership characteristics (branch plant vs. independent company)
- 6) Type of location decision
  - a. New plant
  - b. Relocation
  - c. Expansion

It is likely that there are certain relationships between the characteristics of a company and the attributes of the location it chooses for a plant. These relationships allow the suggestion, on an informed but subjective basis, of differing probabilities that particular company attributes will result in particular locational choices. Several contingency tables were constructed to illustrate the relationships between company and plant characteristics and the non-economic qualities of prospective locations that were mentioned by respondents. These contingency tables are presented

in Chapter Four along with the results and analysis of the questionnaire and the eight follow-up interviews.

## CHAPTER FOUR

### RESULTS AND ANALYSIS

The results of this study are potentially significant because manufacturing has been a growth sector in Kansas.<sup>1</sup> During the twelve year period 1967-1978, 1,465 new manufacturers entered the Kansas economy and 1,198 existing manufacturers chose to expand their operations in the state. The new firms employed 34,256 people and the expanding firms added 35,383 employees.<sup>2</sup> Thus nearly 70,000 new manufacturing jobs were created in Kansas over the twelve year period. On the average, new manufacturing enterprises created 22 jobs per firm and existing Kansas manufacturers that chose to expand operations averaged 30 new jobs per firm.

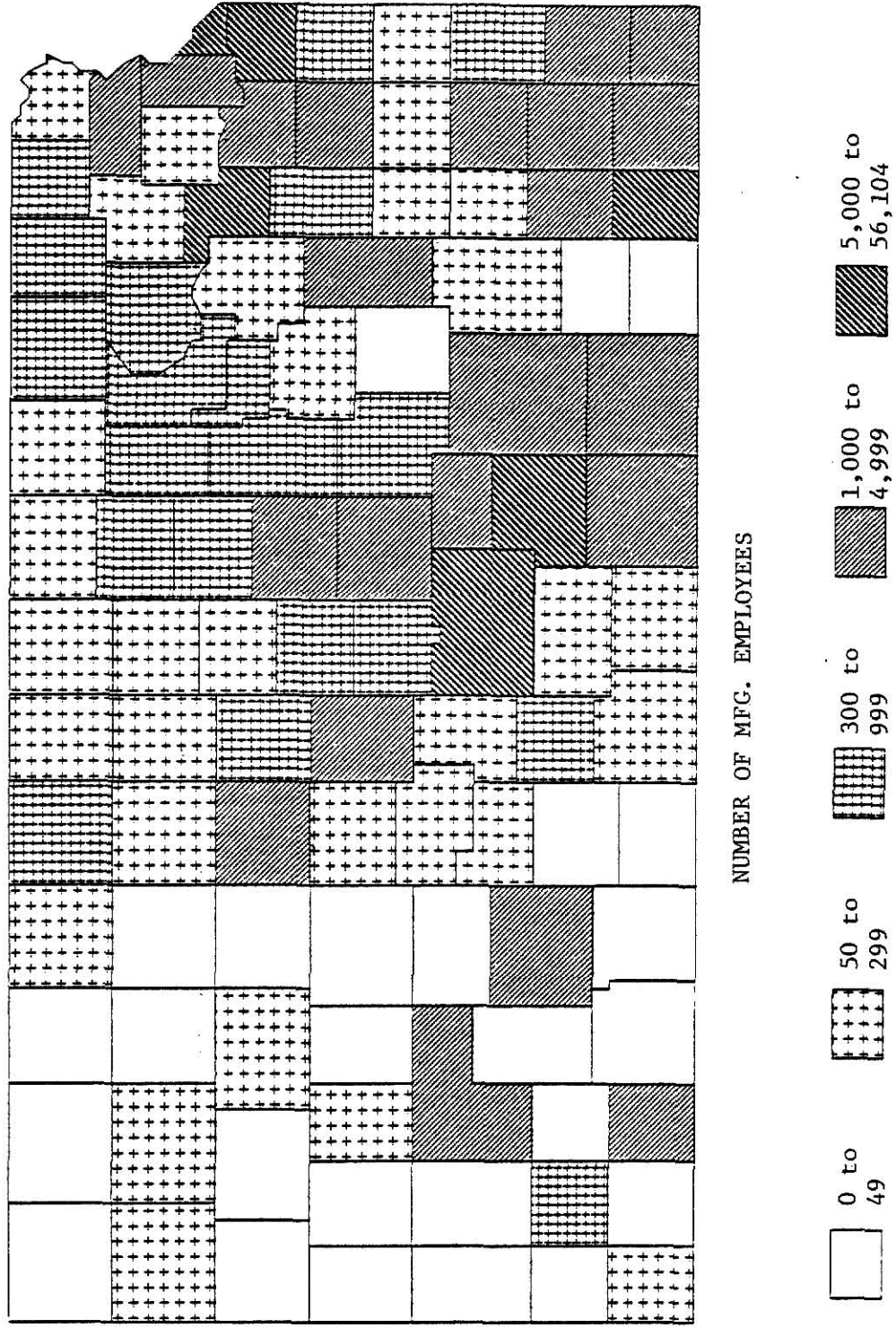
The growth of manufacturing employment has not been distributed uniformly across Kansas (Figure 4.1 and 4.2). Figure 4.1 shows that manufacturing employment in Kansas counties is closely associated with the population of the county, the most populated counties having the highest levels of manufacturing employment. The map shows that counties which do not have a major population center do not have a large amount of manufacturing activity. This tends to support the argument that a community must be able to provide a certain level of amenities before manufacturers will consider it as a possible site for their production facility.

A comparison of Figures 4.1 and 4.2 shows that not all counties with large numbers of manufacturing employees experienced growth in the period, 1967-1978. For example, Neosho County experienced substantial growth in



# Manufacturing Employment In Kansas, 1978

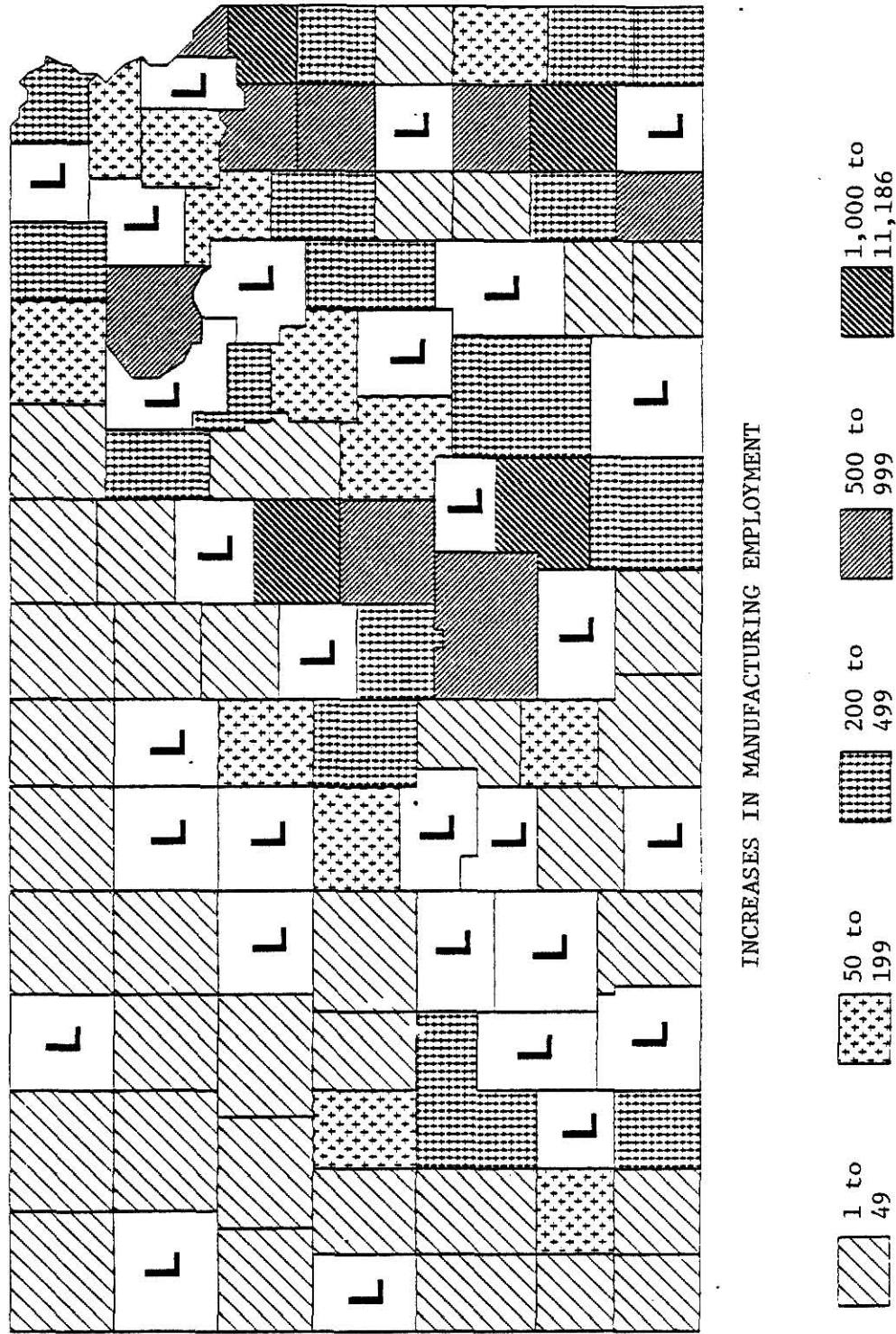
Figure 4.1



Source: Bureau of Economic Analysis  
U.S. Department of Commerce

# Changes In Mfg Employment for Kansas Counties, 1973-1978

Figure 4.2



Source: Bureau of Economic Analysis  
U.S. Department of Commerce

manufacturing employment, while Montgomery County experienced a loss in employment. The counties are adjacent to each other (see Figure 4.3), both have major population centers, and they possess similar economic attributes. Economic advantages do not explain Neosho County's superior growth rate, therefore it is important to examine the influence of such factors as amenities and community organization and leadership on the locational decisions of manufacturers.

For many small cities and towns, manufacturing may offer the only promising possibility for new employment needed to promote at least moderate growth. Heady summarizes it well:

"Industrialization is one means by which rural communities can realize added economic activity to provide greater employment and family incomes. In many cases it provides growth to rural areas which more than offsets reductions in farm employment because of the ongoing mechanization and higher capitalization of agriculture."<sup>3</sup>

Surveys of town leaders and citizens in small towns show that the acquisition of new industry enjoys a high priority.<sup>4</sup> There is evidence that most communities are recruiting new industry as actively as ever.<sup>5</sup> The industrial recruitment efforts of Kansas communities could benefit greatly from increased knowledge about the qualities manufacturers look for in communities.

#### Questionnaire Response

The questionnaire used in this study was sent to manufacturing firms that located new facilities or expanded their existing facilities in Kansas, over the past five years (1977-1981). The questionnaire was mailed to company officials of 140 firms in August, 1981. Forty-five firms returned useable responses by October, 1981. After the first mailing of surveys, it was discovered that seven of the plants were no longer in operation.

Therefore, the 45 returned questionnaires represented a response rate of 34 percent for the 133 plants in operation at the time of the survey. The 34 percent response rate was comparable to the response rate of similar plant location surveys.<sup>6</sup> Five firms returned questionnaires which were incomplete or unuseable. These responses were not included in the analysis.

#### Analysis of Questionnaire Responses

Of the forty-five responses returned, thirteen were from newly established plants, seventeen were from firms that had recently relocated their plant operations and fifteen were from firms that had chosen to expand their existing facilities. Five of the expanding firms said their decision was strictly an internal investment decision and did not involve the consideration of alternative locations. Based on the questionnaire responses, it would appear that recent growth in manufacturing activity in Kansas involves both large corporations and small independent firms, and is taking place in communities of all sizes.

Tables 4.1 and 4.2 summarize the questionnaire responses and are organized to follow the format of the questionnaire (Appendix I). Table 4.1 summarizes the characteristics of the firms responding to the questionnaire. Table 4.2 shows the number of communities that firms considered before deciding on a location and also provides a summary of the organizations and agencies that manufacturers consulted in their search for suitable locations. Part A of Table 4.2 seems to indicate that KDED does not have a high level of visibility among newly locating firms. The majority of responding manufacturers went directly to local Chambers of Commerce to obtain information in their search for locations that met their firm's needs.

TABLE 4.1

## SUMMARY OF QUESTIONNAIRE RESPONSES

## A. The Response Rate

140 firms were mailed questionnaires

45 firms supplied useable responses, a response rate of 32%<sup>a</sup>

## B. Classification of Firms

Two categories were used to classify firms according to their ownership characteristics:

- (1) Independently owned companies -- 19 plants
- (2) Branch plants of multi-plant corporations -- 26 plants

## C. Type of Plant Location Decision

Five categories were used to classify firms according to the type of location decision they were involved in:

- (1) Independent companies starting up operations for the first time . . . . . 4 plants
- (2) New branch plant operations . . . . . 9 plants
- (3) Relocations of plant operations from another state
  - Independent companies . . . . . 6 plants
  - Branch plants . . . . . 7 plants
- (4) Relocations of plant operations from another location in Kansas
  - Independent companies . . . . . 2 plants
  - Branch plants . . . . . 2 plants
- (5) Decisions to expand operations at an existing location
  - Independent companies . . . . . 7 plants
  - Branch plants . . . . . 8 plants

45 total

## D. Size Distribution of Parent Companies Operating Branch Plants in Kansas

- (1) 100-249 employees . . . . . 2 parent companies
- (2) 250-499 employees . . . . . 2 parent companies
- (3) 500-999 employees . . . . . 4 parent companies
- (4) Over 1000 employees . . . . . 18 parent companies

TABLE 4.1  
(Continued)

E. Employment at the Plant Sites of Responding Firms

Six categories of plant employment size were established,<sup>b</sup> following categories used in the Kansas Directory of Manufacturers:

(1)	20-49 employees . . . . .	9 plants
(2)	50-99 employees . . . . .	12 plants
(3)	100-249 employees . . . . .	13 plants
(4)	250-499 employees . . . . .	8 plants
(5)	500-999 employees . . . . .	1 plant
(6)	Over 1000 employees . . . . .	2 plants

F. Responses by Community Size

<u>Population</u>	<u>Number of Responding Firms</u>
1 - 2,500	11
2,501 - 5,000	12
5,001 - 10,000	1
10,001 - 25,000	11
25,001 - 50,000	6
50,001 - 100,000	3
Greater than 100,000	1

<sup>a</sup>Only one respondent said he was not directly involved in the decision to locate at the firm's present site.

<sup>b</sup>No firms with less than 20 employees were included in the survey.

TABLE 4.2  
THE LOCATION DECISION PROCESS

A. Organizations and Agencies Mentioned as Providing Assistance in the Search for a Suitable Location

Number of times mentioned:<sup>a</sup>

Kansas Department of Economic Development . . . . .	5
Local Chambers of Commerce or Development Organizations . . . . .	26
Private Consultants . . . . .	1
Utility Companies . . . . .	10
Railroads . . . . .	5
Realtors . . . . .	4

B. Number of Communities Investigated by Firms as Possible Locations for their Plants<sup>b</sup>

23 firms surveyed considered from 2-5 communities  
7 firms surveyed considered from 6-10 communities  
5 firms surveyed considered more than 10 communities

C. Number of Communities Visited by Representatives of the Firm

25 firms visited 2-5 communities  
6 firms visited 6-10 communities  
5 firms visited more than 10 communities

D. The Final Locational Choice

Each respondent was asked whether the final choice of location for their plant was made by a single individual or by a committee.

(1) Number of final location decisions made by individuals . . .	20
Involving independent companies	12
Involving branch plant locations	8
(2) Number of final location decisions where agreement on a site was reached by a committee . . . . .	25
Involving independent companies	7
Involving branch plant locations	18

<sup>a</sup>Some respondents mentioned more than one source of assistance, 12 respondents said they received no outside assistance.

<sup>b</sup>4 firms considered only one location from the start  
5 firms said their only interest was in expanding at their present site



The responses to the open-ended portion of the questionnaire varied greatly in quality. The responses ranged from single words, to phrases, to well-constructed paragraphs. Some respondents mentioned a number of non-economic factors, but did not provide any indication as to the relative importance of those factors. Several larger firms said they did not take non-economic factors into consideration at all. Despite the fact that the questionnaire focused on factors influencing firms to locate in a particular community, most of the firms that relocated in Kansas from another state said the right-to-work law was the most important consideration in their decision. While this is useful information, it does not shed any light on the process the firm used to evaluate communities within Kansas.

One purpose of the open-ended questions was to record the frequency with which certain non-economic qualities were mentioned by respondents. Although the cover letter asked respondents to list specific attributes that attracted them to their present location, most of the replies were rather general. Broad terms such as "quality of life" and "community livability" were mentioned, but the respondents did not explain what they meant by these terms. The uneven quality of the responses made tabulation difficult.

The many attributes of the locations being considered by the management of a company interact with the many characteristics of the firm and the proposed plant, and with the type of location decision that is under consideration. The information in Table 4.3 illustrates this interaction. Part A is an attempt to illustrate the relationship between company and plant characteristics and community attributes which were cited by respondents as being influential in their decision to choose their present



TABLE 4.3

Frequency with which certain factors were mentioned by respondents

A. Company and Plant Characteristics	Personal Considerations			Community Attributes					
	Family Ties	Proximity to Residence of Owner	Attitude of Community Leaders	Quality of schools, housing, amenities	Educational Climate (Ability to attract professionals)	Availability of Existing Facilities	Rural Work Ethic	Right-to-work Law	
1. Company									
Single plant (Independent company)	2	1	1	2	3	2	2	1	
Branch plant	3	3	1	2	2	2	2	2	
2. Size of Plant									
50 employees	2	1	1	2	3	2	2	2	
50 - 300 employees	3	2	1	2	1	2	2	2	
300 employees	3	3	2	2	2	3	3	2	
3. Population of community where plant is located									
1 - 2,500	2	1	2	2	3	2	2	3	
2,501 - 5,000	2	1	1	2	3	1	2	2	
5,001 - 10,000	3	3	1	2	3	1	3	3	
10,001 - 25,000	3	2	1	2	3	2	2	2	
25,001 - 50,000	3	3	1	2	1	2	2	3	
50,001 - 500,000	3	2	2	2	2	3	3	3	

TABLE 4.3  
(Continued)

Personal Considerations			Community Attributes					
A. Company and Plant Characteristics	Family Ties	Proximity to Residence of Owner	Attitude of Community Leaders	Quality of schools, housing, amenities	Educational Climate (Ability to attract professionals)	Availability of Existing Facilities	Rural Work Ethic	Right-to-work Law
4. Location of Plant								
Urban area	3	2	2	2	2	2	3	3
Within shadow of a metropolitan area	3	3	1	2	3	2	3	2
Non-metropolitan area	2	1	1	2	2	2	2	2
5. Type of Industry								
Raw materials processing	3	3	2	3	3	3	3	3
Fabrication and assembly	2	2	1	2	2	2	2	1

TABLE 4.3  
(Continued)

A. Type of Location Decision	Personal Considerations			Community Attributes				
	Family Ties	Proximity to Residence of Owner	Attitude of Community Leaders	Quality of schools, housing, amenities	Educational			
					Climate (Ability to attract professionals)	Availability of Existing Facilities	Rural Work Ethic	Right-to-work Law
1. New Plant								
Independent Branch	2 3	1 3	1 1	2 2	3 1	2 2	3 2	1 3
2. Relocation								
Within Kansas	3	2	1	2	2	2	3	3 <sup>a</sup>
From another state	3	3	1	2	3	3	2	1 <sup>a</sup>
3. Expansion								
Independent Branch	2 3	2 3	1 1	2 2	3 2	2 2	3 2	3 3

1 -- Frequently mentioned as being a very important factor.

2 -- Mentioned as being taken into consideration in the final location decision.

3 -- Rarely mentioned.

<sup>a</sup>Almost all the companies which relocated their plant operations to Kansas from another state mentioned the Kansas Right-to-Work Law as an important factor in their decision to locate in Kansas. Several newly locating companies also mentioned the Kansas Right-to-Work Law.

location. Part B illustrates the relationship between the attributes mentioned by respondents and the type of location decision that was involved.

In the matrix, the personal considerations and community attributes that were mentioned most frequently by respondents are on the horizontal axis. The characteristics of the firms responding to the survey are presented on the vertical axis. A simple 1,2,3 scoring system was devised based on the questionnaire responses. The score is based on the number of times a factor mentioned in the responses was associated with firms having particular characteristics. For example, firms with plants employing more than 300 workers rarely mentioned proximity to the residence of the owner. On the other hand, proximity to the residence of the owner was frequently mentioned by small independently owned firms as a major reason for their choice of location. For this reason, a score of 1 was assigned to independent companies and plants employing fewer than 50 workers. (See Table 4.3).

As shown in Table 4.3, the attitude of community leaders and chamber of commerce representatives was very important to manufacturers, regardless of the size or ownership characteristics of the firm. There was a general consensus that firms wanted to locate where they were welcome; in a community that would support their needs instead of making them fight to get them. The attitude of community officials was the only non-economic consideration mentioned with any regularity by firms involved in raw materials processing. For the most part, access to raw materials and markets were the primary considerations in their plant location decisions.

Community and family ties played a role in the location decisions of independently owned firms. One company moved its operations from an inner-city location to a suburban site because the owner wanted the plant closer

to his home. The owner also cited the lack of crime prevention measures in the inner-city location as a factor prompting him to move his plant. A small town manufacturer, who established his plant in his home town, explained the thinking behind his decision:

"Initially we had to start here because this is where we lived and it was cheaper to start here than to have the expense of moving. We had not had the opportunity to evaluate other areas at that time, however after 4½ years and bringing our business to where it presently stands, now we are in a position to evaluation new alternatives."

It appears that for some entrepreneurs, entering business for the first time, there is only one location that is considered, the home town.

The main drawback of the questionnaire used in this study was that the quality of the responses was so uneven and inconsistent. This made it difficult to interpret the results and draw any meaningful conclusions. There was simply no way to control the amount of time and thought the respondents put into answering the open-ended questions. In order to alleviate some of the shortcomings of the questionnaire, eight respondents were selected for personal interviews. It was believed that an interview situation would yield more information about the actual process the firm went through in selecting its present location.

#### Profiles of Firms Selected for Follow-up Interviews

The firms selected for follow-up interviews represented a cross-section of the firms surveyed in terms of location, ownership characteristics and type of product produced. An attempt was made to conduct interviews in communities of varying sizes in order to determine if the perceptions of manufacturers in small communities differed from those of manufacturers in large cities. I also felt it was important to select firms from both the

shadow of metropolitan areas and from outlying areas of the state. The locations of the firms selected for interviews are shown in Figure 4.3.

1. Company A is a firm which recently relocated its plant operations from another community in Kansas. It is an independently owned firm which produced electronic production equipment and employs about sixty people.

Company A has been at its present site for about five years.

The president of Company A conducted the locational search personally and made the final location decision himself. Ten communities were originally considered as possible locations, but six communities were actually visited by the firm's president. All six of them were located in the shadow of a metropolitan area. The president states that his main criteria was to be within the local trade zone of the core city, yet to be outside the city proper.

Company A received outside assistance from local realtors who assisted the company in finding an existing building with the services needed. The president of the company indicated that the attitude and professionalism of community leaders and the Chamber of Commerce, in the community he chose to locate in, were the decisive factors. He said the community presented evidence of being a forward looking community with an attitude of "how can we help you achieve your goals" rather than the old bureaucratic approach of "we will have to see if you will allowed to do that". He also indicated that he was very satisfied with his location decision.

2. Company B is a branch plant of a multi-plant corporation. The plant began operations in 1979 in a community with a population between 25,000 and 50,000. Company B produces hydraulic hose and employs eighty-four people at its plant.

[illegible]

- ☒ Places of 100,000 or more inhabitants
- ☐ Places of 50,000 to 100,000 inhabitants
- ☐ Places of 25,000 to 50,000 inhabitants outside SMSA's

**Standard Metropolitan  
Statistical Areas (SMSA's)**

Population data as of July 1975; SMSA definitions as of June 1977

## ● Plant Locations

Company B's parent company engaged in an extensive locational search before deciding on a location for a new branch plant. Approximately eighty communities were considered as possible plant locations and sixty of these were visited by representatives of the corporation. In its search for a suitable community, the corporation received information and assistance from utility companies, the Kansas Department of Economic Development and the local Chamber of Commerce. The final locational choice was made by a corporate committee.

The plant manager interviewed was directly involved in the location decision. He indicated that non-economic qualities were considered in the locational search. Quality of life, which he described as the ability of a community to attract professionals, its access to larger communities and the professionalism of community leaders in their approach to new industry were mentioned as important qualities. The plant manager also indicated that these non-economic qualities became the more important factors when it was time to make the final decision.

3. Company C is a branch plant of a multi-plant corporation. The parent company electing to expand production at one of its existing branch plants, decided to expand at this plant. Three locations were considered before the locational decision was made. The final decision was made by a corporate committee.

Company C's present plant has been in operation for thirty-one years. The plant is located in a metropolitan area, but at the fringe of the city limits. Company C produces chemicals and employs about 215 people at the plant site. About fifty employees were added as a result of the expansion. The expansion involved building a new facility adjacent to the existing plant in order to accommodate a new product line.



The total cost of the new facility was \$25 million, so it represented a substantial investment decision. According to the plant manager, the location decision was strictly an internal decision made by the corporation and no outside assistance was received. The plant manager said that non-economic considerations were important in the decision to expand the facility in this community. He cited quality of life and the ability to draw top managers to the area as the most important considerations. He said the other communities considered did not measure up in terms of quality of life.

4. Company D is a branch plant of a multi-plant corporation. The plant is located in a community with a population between 10,000 and 25,000. The community is not adjacent to a metropolitan concentration. The present plant has been in operation since 1972, but the facility was recently expanded. Company D produces aluminum truck bodies and trailers and employs about 240 people. Approximately fifty employees were added as a result of the recent expansion.

Company D's parent company considered eleven communities as potential locations for their branch plant and representatives of the company visited all eleven communities. In its search for a suitable community the parent company was aided by utility companies, the Kansas Department of Economic Development and local chamber of commerce. The final decision on where to locate the branch plant was made by a committee.

The follow-up interview was conducted with the plant's general manager, who is also a vice-president of the corporation. He made it clear that a strong right-to-work law was an important consideration in choosing a Kansas location. The general manager said his company looked for a community that

had an essentially rural work ethic, a stable community government, an active chamber of commerce and a diverse economic base. He said that company officials ranked the rural work ethic as the most important locational consideration. Most of the other communities considered were felt to be too small for the company's needs.

5. Company E is a firm which recently relocated its plant operations from another state. It is an independently owned firm which produces industrial magnetic equipment and employs seventy people. Company E is located in a community with a population between 10,000 and 25,000 which is in the shadow of a metropolitan area. The firm has been operating at its present site for two years.

The president of Company E was aided in his search for an alternative location by other company officials. The final choice of community was a committee decision, but was strongly influenced by the president's feelings. Six communities were considered as possible locations. Information about potential sites in each community was gathered from local chambers of commerce and real estate agencies.

The company president said he looked for a community with growth potential and an adequate array of amenities such as housing, schools, and entertainment. He said he looked for a community that was well endowed in all these amenities. Most communities of the same size were found to be lacking in these requirements. The most important consideration cited by the company president was the friendliness and atmosphere of the community. He wanted to locate in a community where he would feel comfortable and socially accepted.

6. Company F is a branch plant of a multi-plant corporation. The plant is located in a metropolitan area and has been in operation for almost four years. This branch plant is a subsidiary of a major corporation involved in food processing. A total of 250 people are employed at the plant.

Company F's parent company gathered information from a number of sources before deciding on a location. In their locational search they received assistance from the Kansas Department of Economic Development, local chamber of commerce, real estate firms, utility companies and railroads. Information was gathered on ten communities and six of those communities were visited by representatives of the corporation. The final locational choice was made by a corporate committee.

For the most part it appeared that non-economic considerations were secondary to economic considerations in the community selection process. The plant manager indicated that amenities such as housing, schools, and recreation facilities were taken into consideration, but that the size and availability of the site and the transportation access to that site were the primary considerations. The plant manager also observed that none of the other communities considered had the balance between economic advantages and availability of amenities that their present location has. However, he did not indicate what non-economic qualities might have tipped the balance in favor of the community selected.

7. Company G is an independently owned company that recently expanded its operations by constructing a new facility adjacent to its old one. The company is located in a nonmetropolitan area in a community with a population of 3,000. The new plant has been in operation for six months

but the company has been in operation in the community for a number of years. The community issued \$225,000 in Industrial Revenue Bonds to aid in the construction of the new facility. Company G produces orthopedic devices and has a work force of forty-six.

The president of Company G did not even consider building his new facility in another community. He expressed a personal preference for small town living and a strong feeling of community loyalty. He pointed out the non-economic qualities of the community such as its appearance and its medical and recreational facilities. The community was a good place to live and do business and he felt a desire to reinvest in the community.

8. Company H is a small independently owned firm that makes component parts for a larger corporation. It is located in a predominantly rural area in a community of 4,000. Company H has a work force of fifty and produces wiring harnesses. The company started up operations less than a year ago.

Despite the fact that it is a small company, the community search and selection process was conducted by a committee. Five communities were considered as possible locations but only two were actually visited by committee members. The only contacts committee members had were with representatives of the Chamber of Commerce in the two communities.

The president of the company said that the present location was chosen because of the presentation by the Chamber of Commerce and the attitude of the community toward new industry. The availability of existing facilities suitable for plant operations was also cited as an important consideration.

### Summary of Interview Responses

One underlying theme which emerged in all the interviews was that the attitude of community leaders definitely influenced the selection of a community. One respondent said that the attitude of the local authorities was the "paramount" factor in the firm's decision to locate in a community. Another respondent expressed the view that "the attitude of city officials and the Chamber of Commerce made us feel wanted, not like just another payroll." The company officials interviewed, generally agreed that they formed a more favorable impression of communities whose leaders were informed and organized, and were aware of the resources their community had to offer industry. They also said they were more impressed by well-prepared personal presentations made by community leaders than by informational brochures. Most respondents said that face-to-face presentations by community representatives were a major factor in their final decisions.

Even in the follow-up interviews, it was difficult for company officials to pinpoint the most important, or decisive factor in their firm's plant location decision. It was evident that all the interviewed firms took non-economic qualities into consideration when comparing potential locations, but in only two cases was it clear that non-economic qualities were the deciding locational factor. The other respondents said their firm's final decision was based on a combination of factors. The respondents were very reluctant to discuss the financial incentives and tax concessions that were offered by communities. This may be because the firms were attempting to play communities off against each other in order to see which one would offer the most favorable financial package. This line of questioning was not pursued because it did not relate to my research question. The influence

of local financial incentives on industrial location decisions is a subject which warrants a separate study.

## CHAPTER FIVE

### CONCLUSION

The purpose of this study has been to examine the industrial location decision process at the community level and to determine the importance of non-economic factors in choosing between alternative locations. Klaassen, representing many who have addressed this theme, points out that the attractiveness of an area is important to a manufacturer seeking a site for his plant.<sup>1</sup> One of the main objectives of this study has been to identify the qualities that make a community an attractive place for industry to locate. The way in which manufacturers perceive a community can have an effect on its potential for economic growth and development. According to Klaassen, a manufacturer will not only evaluate a community in terms of purely economic factors, but also from the point of view of its endowment of such general amenities as good housing, education, shopping and entertainment facilities.<sup>2</sup> A community competes with other communities as much on these terms as in purely economic characteristics. It was believed that the best way to test the validity of Klaassen's observation was to survey recently locating manufacturers and ask them how they went about evaluating prospective communities.

#### Adequacy of Questionnaire Method

Based on the results of this study it would seem that the mail-back questionnaire is an inadequate method for gathering information about the

industrial location decision process. Very few of the returned questionnaires provided any insight into how non-economic qualities of communities were evaluated by responding firms or how those qualities compared in importance with other locational factors. Part of this failure to collect any really meaningful information about the location decision process can be attributed to the design of the questionnaire, but the questionnaire method itself is not suitable for gathering in-depth information about the way manufacturers decide on locations for their plants.

Although great care was taken in preparing the cover letter and questionnaire, so that the respondents would know the purpose of the survey, it was clear that few respondents took the time to read all the explanatory text. Judging from some of the responses, it appeared that either the purpose of the survey was misinterpreted or else the respondent did not want to devote the time to give careful consideration to the four open-ended questions. Only about one-third of the responding firms provided carefully thought out responses to the open-ended questions. One conclusion that can be drawn from these results is that it is not safe to assume that businessmen will read the cover letter and questionnaire with the same level of care and concentration that went into their preparation. I must also agree with Townroe's conclusion that, "however good the design of the questionnaire, however appealing the introductory letter, however authoritative the sponsorship, it still remains extremely difficult to encourage the management of companies to spend time and effort filling in replies to a list of questions."<sup>3</sup>

Given the pitfalls and limitations of the questionnaire method, the personal interview seems to be a more appropriate method for investigating industrial location decisions. The chief advantage of the personal interview



is that it allows for questioning in a controlled situation. Management personnel cannot be expected to take a large amount of time away from their regular duties in order to answer a lengthy questionnaire. In an interview situation, the respondent has already set aside time to discuss the location decision and is more likely to devote full attention to the questions. It was my experience that once the interview situation became relaxed, the respondent was able to recall more details and was more willing to discuss the subjective elements that entered into the decision. For the most part the respondents were guarded in their responses and made an effort to give the impression that their firm's plant location choice was strictly a business decision. Because the interview situation allowed for the direct questioning of company officials and the opportunity to immediately follow-up on their responses, the eight interviews were far more informative than the questionnaire responses.

When examining the location decision process and the influence of non-economic and subjective factors on location decisions, the personal interview has two clear advantages over the questionnaire. First, more information is exchanged in a situation where there is direct interaction between two individuals. Second, in an interview situation, the interviewer can provide the respondent with certain cues and guide the direction of the interview, but still allow the respondent to reconstruct the decision-making process as he remembers it. It must be noted that in the case of multi-plant corporations, both questionnaire and interview responses represent only one person's perception and do not fully or accurately reflect the shared corporate opinion about the location decision. Also, regardless of whether questionnaires or interviews are used, there is still going to be some degree of investigator bias creeping into the interpretation of the responses.

The questionnaire method did not provide adequate answers to the questions I was most concerned with in this study. I was unable to clearly determine if non-economic factors were decisive in a firm choosing one community over satisfactory alternatives. Respondents mentioned non-economic qualities that were considered in their location decision and it was apparent that the responding firms had attempted to rationally evaluate the advantages and disadvantages of prospective locations. But the questionnaire responses did not provide any indication as to how decision-makers weighed these non-economic considerations against each other or what factor was decisive in the final choice of location. It is not enough to know that qualities such as business climate or attitude of the community toward industry are important to manufacturers. It is far more beneficial to know what criteria manufacturers use to assess these qualities. Unfortunately, the questionnaire did not yield results which provided any insight into how non-economic qualities were evaluated by firms or how communities were weighed against each other.

Despite the shortcomings of the questionnaire method used, there are several general conclusions that can be drawn from this study. First, personal considerations did appear to be more important in the location decisions of small, independently owned firms than in the decisions of multi-plant corporations. There is no question that the fact that an entrepreneur lives in a given community explains to a considerable extent the reason for his plant's location in that community. There was a definite "home area effect" in the responses of smaller firms recently establishing plants in Kansas. Family ties and business contacts as well as residence of the owner were mentioned as important considerations by these firms.

A second conclusion that can be drawn is that the locational search process is more extensive for multi-plant corporations. This is apparent from the number of communities investigated as potential locations by large corporations when compared to the limited number considered by small independent firms. Once again the "home area effect" comes into play. In most cases, the small single-plant firms considered only one location from the very beginning and didn't conduct a search. It was clear that the communities that had a cooperative attitude and were organized and able to provide companies with the information they needed were looked on more favorably by manufacturers.

Perhaps the most significant conclusion that can be drawn from this study is that the mail-back questionnaire is not an adequate method for measuring the influence of non-economic and personal factors on industrial location decisions. The questionnaire responses simply did not allow for any judgement about the relative importance of non-economic factors in the community evaluation process. Questionnaires do not allow for much insight into the decision-making process or the sequence by which certain factors are evaluated by decision-makers. The questionnaire used in this study did serve as a useful screening device for selecting firms for follow-up interviews. This may be the most useful function of mail-back questionnaires. They can be sent out to gather basic background information from manufacturing firms and then interview candidates can be selected from among the responding firms. The personal interview appears to be a more productive and reliable method for examining the industrial location decision process than the questionnaire method.

The shortcomings of the questionnaire method would seem to lead to questions about the reliability of results obtained from other industrial location questionnaires and about the conclusions that were drawn in earlier studies. I contend that questionnaires using a checklist or ranking of factors have not accurately measured the influence of personal or non-economic considerations on locational decisions. Therefore, I consider the conclusions drawn from these studies to be suspect. Further efforts need to be made to design an instrument that will more accurately measure the influence of personal considerations on industrial location decisions.

#### Contributions to Location Theory

This study has contributed to existing location theory because its results provide additional evidence that behavioral and subjective elements must be included in any comprehensive industrial location theory. Any attempt to explain industrial location decisions and patterns must take the subjective feelings of the decision-maker into account. Evidence gathered from the personal interviews and the responses to the questionnaire indicated that decision-makers did attempt to make rational decisions, based on what they perceived to be the advantages of locating in a particular community. This study suggests that there is a significant difference between the objective, measurable ratings of a community's attributes and the way in which its attributes are perceived by manufacturers.

#### Comparison with Previous Studies

Stafford claims that the many surveys which have listed and ranked major location factors are deficient because they do not explore the location decision process.<sup>4</sup> One distinction that is not always made clear in

the design of these surveys and the presentation of their results, is that between the location factors which have influenced the management of a company in their choice of a state or general region and those factors influencing the final choice of community.<sup>5</sup> This study has attempted to avoid these deficiencies by focusing on one stage of the location decision process; the stage at which the attributes of communities are evaluated. It has concentrated on determining how manufacturers distinguish one community from other communities considered as potential plant site locations. After reviewing the designs and the results of previous industrial location surveys, I felt that insufficient attention had been given to the role of non-economic factors in the selection of a community as the location for a plant site.

Previous empirical studies, providing manufacturers with a list of location factors and asking them to rank their importance, have not made a distinction between non-economic and personal considerations.<sup>6</sup> In fact, they have frequently been lumped together into one category.<sup>7</sup> Throughout this study I have used the terms personal factor and non-economic factor interchangeably. However, based on the results of this study, I feel that a clear distinction can and should be made between the two sets of factors.

The results of this study indicate that personal factors are likely to come into play only when a plant is located in or near the owner's hometown. The actual practice of starting up an independently owned business with its heavy reliance on local contacts, knowledge and financing may not involve a locational choice at all. The attachment the owner feels towards his home town and his desire to remain in familiar surroundings are examples of personal factors. On the other hand, these personal considerations

aren't likely to influence the plant location decisions of large manufacturing firms and this is where the distinction between personal factors and non-economic factors becomes important. For even though company officials of large corporations aren't likely to live in the community where a branch plant is to be located, the results of this study show that they do look at certain non-economic qualities of communities.

Non-economic factors are qualitative considerations. They are factors which are not easy to quantify and company officials must rely on their own judgements and perceptions to evaluate them. Community attitude is an example of a non-economic factor. A community's attitude toward new industry may have no effect on a firm's operating costs but it was frequently mentioned by company officials as a factor in their final decision.

At the state level, the right-to-work law was mentioned as a major reason for locating in Kansas. There is very little quantitative evidence to support the contention that right-to-work law states have lower wage rates.<sup>8</sup> Wage rates are more likely to vary regionally and by type of industry. Yet, as long as decision-makers perceive that there is a real advantage in locating in right-to-work states, the right-to-work law will be a factor in the location decisions of manufacturing firms.

#### Implications for Future Studies

Based on the results of this study, it appears that Kansas manufacturers do look at non-economic qualities of communities. It would be interesting to follow up this study with interviews of Kansas community leaders and chamber of commerce representatives. It would then be possible to compare the factors that development people feel are important in attracting new industry, with those factors identified by manufacturers themselves.

Chamber of commerce representatives might also be able to identify factors they felt were instrumental in manufacturer's decisions not to locate in their community.

Regions and communities are perceived in a variety of ways and their images in the minds of men influence the decisions that are made to move from place to place. Manufacturers have preferences for and prejudices against certain places. These perceptions may be based on very little direct knowledge. This is the area where subjective evaluation is most likely to enter into the location decision process. It might prove useful to investigate the "mental maps" of manufacturers. An increased understanding is needed of how spatial preferences and prejudices are formed and how they influence industrial location decisions. A manufacturer may have developed a negative image of certain areas and this may result in these areas being ruled out of consideration before they are even investigated as possible locations. A community that is tagged with a negative image may be at a competitive disadvantage in its attempts to attract new industry.

It is important to note that favorable community attributes (including amenities) do not guarantee that a community will be perceived as an attractive place to locate by manufacturers. Evidence gathered in this study indicates that an aggressive and organized industrial recruitment effort is important in attracting new industry. The community whose leadership possesses a cooperative attitude and whose promotional efforts are well organized can ameliorate shortcomings caused by a less favorable endowment of attributes than other communities.

There is a definite need to further explore the way in which manufacturers evaluate the non-economic qualities of communities. The questionnaire

used in this study did not yield any conclusive results about the importance of non-economic vs. purely economic factors in the community evaluation process, but it did show that non-economic factors were taken into consideration by manufacturers. Because the questionnaire responses in this study varied so much in quality, I would suggest that future research in this area utilize the personal interview as a means of gathering information.

Peter Gould points out that this approach of looking at non-economic factors is becoming increasingly relevant today.<sup>9</sup> Industrial firms are choosing new locations on criteria very different from those that were considered critical fifty years ago. Many industries today are termed "footloose", implying that they are no longer tied to the traditional factors of raw materials and the market. Industries which produce goods with high value in relation to their weight have very few locational constraints. A community's non-economic qualities and its endowment of amenities become more important for "footloose" industries.

As industry becomes economically footloose over a wider area, amenities with few economic implications may gradually become much more important relative to other location factors. Tax concessions and other financial incentives become less effective, as a means of attracting new industry, as they are offered by more and more communities. Therefore, future studies are needed in order to provide further insight into the criteria used by manufacturers to assess the non-economic qualities of communities. Such information would be beneficial to communities that are attempting to sell themselves to prospective industry.



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## NOTES

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## APPENDIX

August 7, 1981

Dear Kansas Manufacturer,

We are appealing for your assistance in our efforts to help communities help themselves. We know you share our interest in improving the economic vitality of your community and communities throughout the state, as their economic growth and vitality has an influence on the well-being of your firm. The enclosed questionnaire is designed to determine how Kansas manufacturers identify and weigh the advantages of locating in one community versus others. As a manufacturer recently locating or expanding a plant in Kansas, you have been selected as part of our research sample.

The primary objective of this survey is to go beyond factors bearing directly on costs and market access and to examine how "non-economic" factors influence the selection of a community as the location for a plant site. By non-economic factors, we mean those which have no direct effect on costs and revenues. Previous plant location surveys have revealed that certain aspects of community organization and leadership are important in attracting a manufacturer. Things like pleasant living conditions, community facilities and services, and the business climate or attitude of the community toward industry have also been mentioned as important in the choice of community. These are rather general categories and we are interested in determining what specific aspects of, for example, community leadership were important to you and what specific qualities you weighed while searching for a community in which to locate your plant.

We are only interested in how different types of manufacturing firms assess the advantages and disadvantages of locating in certain communities. All the data supplied by your firm will be treated as confidential. It will be reported only in the form of summary data. Information from an individual questionnaire will not be made available.

Your assistance is essential, if the study is to generate meaningful findings. We would be appreciative if you would fill out the enclosed questionnaire. Please note that a self-addressed return envelope has been enclosed for your convenience.

If you have no participation in the decision to locate or expand at your present site, or no knowledge of the factors that influenced that decision, could you please provide us with the name and address of the individual who was most directly involved in the location decision.

Thank you very much for your time and cooperation. Please contact Norman Allen of our staff at (913)296-3490 if you have any questions.

Sincerely,

James H. DeCoursey, Jr.  
Secretary

Were you directly involved in your firm's decision to:

- \_\_\_\_\_ locate at its present site  
\_\_\_\_\_ expand facilities at your existing site

Background Information About Your Business Firm:

1. Which of the following best characterizes your firm's plant:

- a) \_\_\_\_\_ An independent, newly formed company  
b) \_\_\_\_\_ A branch plant of a multi-plant corporation  
c) \_\_\_\_\_ A relocation of plant operations from another state  
d) \_\_\_\_\_ A relocation of plant operations from another location  
in Kansas  
e) \_\_\_\_\_ A firm which has recently chosen to expand operations  
at an existing location as an alternative to shifting  
locations or establishing a branch plant.

About how many employees were added as a result of the  
expansion \_\_\_\_\_

2. If you are a subsidiary of a multi-plant corporation (1b above),  
what is the name and address of your parent company:

\_\_\_\_\_  
What is the size of your parent company in terms of number of  
employees:

- |          |         |          |            |
|----------|---------|----------|------------|
| a) _____ | 20-49   | d) _____ | 250-499    |
| b) _____ | 50-99   | e) _____ | 500-999    |
| c) _____ | 100-249 | f) _____ | Over 1,000 |

3. How long has your present plant been in operation \_\_\_\_\_

4. What is the total employment at your plant site \_\_\_\_\_

5. What is the major product produced at your plant \_\_\_\_\_

The Process of Selecting a Community for Your Plant Site:

1. In your search for a suitable community, was any assistance received  
from the following:

- |                                   |                         |
|-----------------------------------|-------------------------|
| _____ KDED                        | _____ Utility Companies |
| _____ Local Chambers of Commerce  | _____ Railroads         |
| _____ or Development Organization | _____ Other Agencies    |
| _____ Private Consulting Firms    |                         |

2. How many communities were considered as potential locations for  
your plant \_\_\_\_\_

3. How many communities were visited by representatives of your firm \_\_\_\_\_
4. Was the final locational choice for your firm a:
  - a) \_\_\_\_\_ single person decision
  - b) \_\_\_\_\_ committee decision

Industrial location studies have found that the following economic location factors have traditionally been given primary attention when a firm chooses a new location:

- |   |                                  |
|---|----------------------------------|
| 1) Access to Markets                                | 4) Access to Raw Materials       |
| 2) Adequate Supply of Labor                         | 5) Prevailing Wage Rate of Labor |
| 3) Adequate Transportation Facilities               | 6) State and Local Tax Rates     |
| 7) Governmental Financial Incentives                |                                  |
| 8) Dependable Sources of Energy at Reasonable Rates |                                  |

It is generally acknowledged that manufacturers search for locations that meet their business requirements. Ultimately, a large set of possible locations is narrowed down by cost and market considerations to a smaller group of feasible locations. At this point, decision makers then consider qualities of communities that are not strictly economic and are difficult to quantify. Here we have reason to think personal preferences, judgements, and motives have an important influence on the final locational choice, for example, the way you judge the business climate of a particular community. Given this situation, we are interested in the qualities you looked for in prospective communities and how you went about comparing the advantages and disadvantages of each community.

1. What kinds of non-economic qualities did you consider in your decision to choose your present location that are not listed on the above list of basic locational requirements?

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2. Of those considerations, which were more favorable for the community where you located? In other words, which of these qualities made the community where you located an attractive place for your firm to set up operations?

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3. With respect to the same qualities, how did other communities you considered as possible locations compare to the one you chose?

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4. How did the people responsible for selecting your firm's location personally rank or evaluate the importance of each of the factors you mentioned in question 1 above?

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\*Please feel free to use the back of this page or attach additional sheets if you need additional space for your responses.

THE INFLUENCE OF PERSONAL FACTORS ON  
RECENT INDUSTRIAL LOCATION DECISIONS IN KANSAS

by

Dean R. Andrew

B. S., Kansas State University, 1979

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AN ABSTRACT OF A MASTER'S THESIS

Submitted in partial fulfillment of the  
requirements for the degree

MASTER OF ARTS

Department of Geography

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1982



Non-economic factors influencing the location decisions of manufacturers is the central theme of this thesis. Non-economic factors are those factors that don't have any measureable effect on the operating costs and revenues of a firm. The location pattern of industry is the product of a large number of individual decisions, made as decision-makers react in different ways to different circumstances, in pursuit of their own business or personal objectives. Therefore, the location decision-making process is clarified if preferences in addition to the desire to maximize profits are recognized.

Although the influence of non-economic factors has been noted in previous empirical investigations, few attempts have been made to determine which factors have the greatest influence on decision-makers. There has also been some question as to what stage of the decision-making process these personal and non-economic considerations become important. This study is based on the premise that a distinction can be made between what decision-makers see as basic prerequisites for the successful operation of their firm and community specific attributes which may influence them to locate in a particular community. In order to see if manufacturers make this distinction, a questionnaire was designed to determine how decision-makers evaluate the non-economic qualities of communities.

With the assistance of the Kansas Department of Economic Development, a mail-back questionnaire was constructed and sent to officials of 140 manufacturing firms which had located in or expanded their existing facilities in the state of Kansas, in the period 1977-1981. The purpose of the questionnaire was to gather some basic background information about each firm and to elicit from Kansas manufacturers the qualities that attracted them

to the community in which they are located. It is important to determine the qualities that manufacturers find attractive because such information enables communities, attempting to attract new industry, to more accurately assess their advantages and their liabilities.

The questionnaire was divided into two parts. The first part was designed to gather information about the firm's operations and the process of selecting a community as a site for its plant. The second part of the questionnaire consisted of four open-ended questions designed to elicit unconstrained responses about the way in which communities were evaluated by the firm. The questions were open-ended in order to avoid the simplistic listing or ranking of key location factors, which is the form most plant location surveys have taken. The use of open-ended questions enables the respondents to generate their own responses and to elaborate on the relative importance of each they mentioned. Eight firms which provided useable questionnaire responses were selected for follow-up interviews. It was felt that clarification of questionnaire responses and in-depth probing of personal preference were best undertaken in a personal interview situation.

Forty-five firms returned useable questionnaire responses, a response rate of 34%. Of these responding firms, thirteen were newly established plants, seventeen were plant relocations and fifteen were firms which had chosen to expand their existing facilities. The quality of the responses to the open-ended questions varied greatly. An analysis of those responses did not yield any conclusive results about the importance of non-economic factors vs. purely economic factors, in the community evaluation process. In addition, the responses were generally too brief to provide much insight into the evaluation process itself.

There were three findings in this study which have potential significance. First, it was apparent that non-economic factors were taken into consideration in the location decisions of Kansas manufacturers. However, in most cases, it was not clear whether non-economic factors were the deciding factor in the final choice of location. Second, non-economic factors appeared to be more important in the location decisions of small, independently owned firms than in the decisions of multi-plant corporations. The residence of the owner was the deciding factor in the location decisions of several small firms. Finally, the attitude and professionalism of community leaders and Chamber of Commerce representatives was frequently mentioned by respondents as having a strong influence on their final choice of location.

The most significant conclusion drawn from this study was that the mail-back questionnaire is an inadequate research tool for investigating plant location decisions. The follow-up interviews were much more productive than the questionnaire in terms of providing insight into how firms went about making their plant location decisions. Because the researcher has no control over the amount of time and thought put into questionnaire responses, there is reason to question the reliability of the conclusions drawn from previous plant location questionnaires.