RURAL INDUSTRIALIZATION
A MONOGRAPH
FOREWORD

Rural Industrialization: A Monograph is the sixth publication resulting from the outstanding work done by the Southern Rural Development Center's Functional Network on Rural Industrialization. Under the able leadership of Center Associate Dr. Eldon D. Smith of the University of Kentucky, the network has prepared the following publications:

- How New Industry Will Affect Your Community
- Social Impacts of Nonmetro Industrial Growth
- Industrialization of Rural Areas: An Annotated Bibliography
- Synthesis: Industrialization of Rural Areas
- Synthesis: How New Manufacturing Industry Affects Rural Areas

This publication contains eight papers presented at the Workshop on Rural Industrialization held February 7-8, 1979, in New Orleans, Louisiana. The papers fall into three broad categories: rural industrialization research needs, industrial site development, and effects of industrialization on rural areas.

Copies of all publications prepared by the Functional Network on Rural Industrialization are available from the Southern Rural Development Center.

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Director
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RURAL INDUSTRIALIZATION:
A MONOGRAPH*

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Preface

It is tempting to conclude that industrialization of rural areas is a redundant subject. High energy prices, recessionary tendencies in the national economy and political trends toward fiscal austerity appear at least superficially to be retarding influences. Yet the evidence is strong that some rural areas have continued to experience fairly rapid industrial growth during the post-Arab oil embargo period when economic growth rates have been slow. But beyond this, if hard fiscal choices must be made and if rates of growth have slowed it is even more important than before for Federal, state, and local agencies to make careful, informed decisions based on all available factual materials.

That we do not know with any certainty how these changes in the economic climate will affect the trends in industrial location is obvious. Clearly, long-distance automobile commuting will be less feasible as the relative cost of petroleum escalates. The cost of transportation of materials and finished goods will also have some impact on the spatial location of industry. But it is not obvious on its face that the central cities will benefit vis-a-vis smaller cities and rural communities. These smaller communities can presumably supply all the labor required for moderate size operations from small commuting radii, whereas in a megopolis, major dislocations owing to transportation costs are viewed by some analysts as being almost inevitable.

Past research and programming experience is inadequate to answer some of the questions which now confront us. But this experience is the foundation upon which we must build if intelligent policy choices
are to be made in the future. We have no alternative except pure guess work!

The Rural Industrialization Network has participated in the preparation and review of a 755-item partially annotated bibliography. This bibliography and four papers which summarized the state of knowledge as reflected in published literature comprised the primary background materials for a workshop held in New Orleans February 7-8, 1979.

Fortunately, the people who participated in this workshop as well as many others continue to refine and adapt their researches and action programs to the new situations which confront us. Since our initial review was completed about two years ago, new techniques of research have been brought to bear on, especially, the problems of projecting the effects of industry on rural communities. Some of these are summarized in a forthcoming publication of the North Central Rural Development Center. In the papers comprising the present volume, new insights on related issues are presented.

The design of the program for this meeting attempted to bring together the perspectives of public program administrators, both Federal and local, along with those of extension and research personnel of the state institutions of higher education. Both sociologists and economists were represented on the program. We hope and trust that these papers will supplement the research findings and ideas reported in the publications of the Network.

Air travel stoppages owing to bad weather conditions and a failure in communication for which I, as organizer of the workshop am probably responsible, limited attendance. Two of the invited speakers were unable to attend. Others, pursuant to plan spoke from draft papers or
notes. Therefore, this volume represents the first occasion on which all materials prepared for the workshop have been available.

I wish to extend thanks to the authors and others who participated in these discussions for their understanding support in an adverse situation. I am especially grateful for the efforts which have been made in final preparation of these papers. I feel sure that they will constitute a welcome addition of useful ideas for scholars and practitioners, alike.

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RURAL INDUSTRIALIZATION RESEARCH NEEDS
AND PRIORITIES: AN ECONOMIC ASSESSMENT

by

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Industrialization has occupied a prominent place in the evolution of rural development policy. Unfortunately, too much of economic development theory has relegated the industrialization process to a residual role, not unlike the invisible hand. It is commonly assumed that industrialization is an inevitable consequence of economic maturation, but relatively little attention is devoted to the complexities of industrialization, particularly the limits of public policy in accelerating industrialization.

It is therefore fortunate that the Southern Rural Development Center has sponsored the Functional Network on Industrialization of Rural Areas. The Network has done an admirable job in producing a bibliography and syntheses of research on rural industrialization. Results of the Network's efforts are cause for reassessing the role of industrialization in rural development policy and setting new priorities on industrialization research.

The Promise of Rural Industrialization

A decade ago, the President's Commission on Rural Poverty served as a crucible for redirecting national economic policy toward greater attention to rural economic development. The Commission viewed heavy
out-migration from rural areas as a symptom of a sick rural economy and an increasing social cost to urban areas receiving the immigrants.

The Commission viewed the reduction of rural-to-urban migration as essential to a healthy economy. It proposed reducing rural out-migration by simultaneously improving rural public services and encouraging rural industrialization. It was argued that improved rural public services not only would improve the quality of life and reduce out-migration, but also would attract new industries and employment opportunities.

Curiously, the avalanche of rural development literature following the Rural Poverty Commission did little to clarify the specific policy parameters associated with industrialization, nor did it give any attention to industrialization research priorities. In 1972, Hildreth and Schaller assumed an important role for industrialization in their vision of community development during this decade, but the mechanics of the industrialization process are avoided entirely.

The last half of this decade has been a sobering time for rural development. The euphoria following the Rural Poverty Commission has been replaced by a growing apathy toward rural development. Not only has Federal funding for rural development research been modest and uncertain, but rural out-migration has been found to be a less serious economic ill than was originally argued by the Commission. The advent of the energy "crisis" and growing concern over metropolitan financial problems have also contributed to a decline in concern about rural development.
So, the decade began full of promise for a revitalization of rural areas, primarily through industrialization, but it draws to a close with diminished public support for rural development, but a renewed interest in industrialization because of national economic ills. As we approach the 1980s, it is appropriate to pause and set goals for rural industrialization research that will contribute to a more comprehensive approach to economic policy.

A Research Agenda for the Future

It is by no means clear what priority should be given to rural industrialization research needs, but it is evident that future research must concentrate on a broader approach to economic development with emphasis on interaction between urban and rural regions. Many research needs may be viewed as overlapping, since they touch on the central issues included in most previous formulations of rural development programs.

Interregional Competition Studies

Although agricultural economists have made major contributions to the understanding of interregional competition, these studies are restricted almost entirely to the agricultural sector. There is a need for studying the interregional competition effects of industrial activity, including the treatment of public sector accounts of state and local governments and the interaction of agricultural and non-agricultural sectors.
One of the major uses of such studies would be to measure the impact of regional shifts in industrialization on public sector accounts. The recent increase in industrial activity in the South, as well as the relocation of many factories from the North to the South, raises questions about the efficacy of programs to either stimulate industrialization of the rural South or reduce the transfer of industry out of the urban North.

Any program that encourages geographic shifts in industrialization must be evaluated with respect to both public and private sectors. Although the transfer of industry from the North may benefit the South, the resulting costs to the North, particularly to municipal accounts, may exceed the South's benefits.

In addition to geographic and public-private sector effects of industrialization, the evolution of the national and regional economies still generates conflicts between agricultural and non-agricultural sectors. While some rural areas may benefit from increased industrialization through increased utilization of surplus labor, other rural areas may experience a decline in agriculture as new industries attract labor away from agriculture.

Population Shifts

Although it is obvious that major geographic shifts in population have occurred since the mid-1960s, there is little concrete information of how population has interacted with industrialization. If industries are moving south, it would be helpful to know to what extent they are searching for labor, or whether population is moving in search of jobs.
Regardless of the reasons for population shifts, the characteristics of the population will have important implications for further industrial development. One possible effect of industrial decline in the North may be an increase in the age of remaining population, while the younger population moving to the South may introduce a new set of social and economic problems such as increased crime rates, increased housing demand, and massive shifts in the demand for public services, particularly local school services.

Supply and Demand of Public Services

The allocation of public services continues to present economists with substantial theoretical and empirical problems. Many of the shifts in public services are due to changing patterns of industrial activity.

Local governments find it difficult to avoid viewing new industrial activity as a net gain to public accounts in spite of numerous studies to the contrary (Summers, et al.). While much of the early theorizing on rural development programs tended to treat public service allocation as a separate problem area, it is also a central feature of any industrialization effort.

The demand for public services is influenced by public revenue production methods, population characteristics, and economic conditions. Any rapid change in industrial activity will ultimately influence the size of the labor force, the size of the population, and the subsequent level of public services demanded.

The supply of public services can be measured more easily than demand, but little research has been done on how industrial growth or
decline influences public service costs. In situations where average public service costs are rapidly increasing, government agencies are unable to internalize costs based on average cost pricing rules.

Although industrial expansion receives most of the researcher's attention, there is an equally serious, and analytically more difficult, problem of dealing with industrial contraction. Many rural areas declined after World War II, but we have scant information on how these communities coped with contracting demand and supply of public services. The recent financial crises in New York City and Cleveland have been complicated by a contraction of local economic activity, but there is currently little information available to assist those cities in allocating their public resources more efficiently.

Most local industrial impact models are limited in their ability to predict changes in public service costs due to industrial expansion because of the conceptual difficulties associated with average cost pricing of public services, and the inadequacy of public service data. Although the mechanism for marginal cost pricing of public services may not be available, any measures of those marginal costs will help government decision makers avoid some of the overly optimistic estimates of net public benefits of industrialization.

**Industrial Impact Models**

A small number of states have developed rural industrial impact models, but most of those models could be improved through respecification of analyses and expanded simulation capabilities. Other state and economic development agencies need to acquire these capabilities by adapting other models to their own needs, or by developing original models.
The industrial impact model can be used to simulate the effects of industrial increase or decline and the effects of alternative industrial development strategies. The primary requirement of any initial model is simplicity of operation. Interaction between academic researchers and clientele users will be more fruitful for both groups if the model evolves from simple to complex capabilities.

At the analytical level, industrial impact models must avoid inclusion of commuters' benefits in the local economy. The estimation of public service costs and benefits will be improved by increased attention to economies of public scale problems and scaling problems related to the size of industrial change to be simulated. As mentioned previously, there is also a need to analyze industrial contraction as well as expansion, but most current models are only capable of handling these problems as completely reversible impacts.

Rural Labor Markets

While rural industrialization programs are often justified on the basis of employing surplus labor created in the agricultural sector, there is a growing need for more complete studies of the competition between agricultural and non-agricultural sectors for labor. Although local labor market statistics are often inadequate measures of the actual situation, they should be used in more imaginative ways to forecast and identify emerging labor shortages.

The growing concern over population shifts also has direct implications for the composition and structure of rural labor markets. As industries continue to relocate and expand in rural areas, the rate of unionization becomes important to all employers. Although agricultural
labor is generally not unionized, the impetus of industrialization can stimulate worker demands for union representation throughout a labor shed. There is also a need to study the extent to which industries relocate in rural areas to avoid union shops. Finally, the rural labor force is following the urban trend toward higher female labor force participation rates. This trend needs careful investigation to determine how important rural women are to a community's ability to attract new industry and enjoy a narrowing of rural-urban wage differentials.

**Industrial Development Institutions**

Many rural communities consider their local industrial development organization as a necessary extension of community pride. In many cases, the local industrial development park has remained vacant, or was abandoned in despair.

While communities struggle to attract industry through ties to civic, governmental, and business industrial development programs, they often become deadlocked over conflicts involving local economic interests, industrial development agencies' bureaucratic limitations, and a shortage of information and decision-making tools.

More attention should be devoted to analyzing the processes whereby local and regional industrial development agencies modify existing institutions and create new institutions to recruit new industry. In all too many cases, a community creates an institution for promoting new industry in spite of obvious comparative disadvantage in industrialization.

**Equity of Industrial Development Benefits**

While major emphasis is necessarily devoted to increasing the efficiency of resource allocation through rural industrialization, the degree
of equity in the distribution of industrialization benefits cannot be ignored. A remarkably small number of studies have addressed the equity issue in rural industrialization, although it is at the core of any economic development program. In many cases, inadequate data restrict the researcher's ability to measure the distribution of benefits from rural industrialization. But where incomes and other measures of individual and household well-being are available, efforts need to be concentrated on improving the tools for measuring equity.

It is commonly assumed that industrial development ultimately reaches all levels of an economy through the "trickle-down" process. However, there is little concrete evidence to support the assumption in either domestic or international studies. An increased emphasis on measuring the distribution of industrial development benefits can ultimately provide policy makers with a more meaningful measure of public support for industrial development programs than aggregate net social benefits.

An International Synthesis of Rural Industrialization

It should not be forgotten that efforts to industrialize rural regions of the United States are being duplicated in most other counties. Since industrial development is an important ingredient in a nation's evolution toward economic maturity, a comparison between industrialization efforts in less developed countries with similar efforts in rural regions of the United States may offer fresh new insights into how the industrial development process can be improved in both settings.

In less developed countries, the emphasis on urban industrialization may be justified on the basis of infrastructure requirements, but these advantages may be offset by the social costs of increased urbani-
zation. The current shift of U.S. population toward more rural areas is also generating social costs in declining urban areas, but it may be offset by increased labor productivity in rural areas. The United States has experienced many aspects of economic development that are only occurring now, or have never occurred, in less developed countries. The recent emphasis on integrated rural development programs in less developed countries can surely profit from the United States' experience.

Conclusion

Most of the research needs cited in this paper can be classified as policy-oriented. I would not attempt to assign priorities to them, because most are defined in a broader context than simply rural industrialization.

The 1970s began with considerable support for rural industrialization programs, but very little attention to industrialization research needs. If the 1980s end with major progress in the areas discussed, I will be deeply gratified. But before new industrialization research efforts begin, researchers will be well advised to review the SRDC Rural Industrialization Functional Network's remarkable accomplishments.
REFERENCES


RESEARCH NEEDS AND PRIORITIES IN RURAL INDUSTRIALIZATION

by

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Analyses of the factors that facilitate rural industrial growth and the implications of such growth for rural areas have received widespread attention (Summers et al., 1976; Whiting, 1974). Works such as those produced by the effort under discussion today (Smith, 1978a, 1978b; Smith and Summers, 1978) represent important continuations and additions to the base of knowledge we possess on rural industrialization. At the same time, however, they point out how little we actually know about many of the implications of rural industrialization.

We have been asked to assess some of the basic social and economic research needs and priorities that appear in this area. Specifically, I would like to emphasize those in the social area and those related to the impacts of industrialization on rural areas and rural communities. First, general research needs and priorities will be discussed followed by a discussion of some specific questions requiring further attention and analysis.

General Research Needs and Priorities

Let me begin with a somewhat bold statement which I feel is particularly applicable to many sociological analyses of rural industrialization. Although I think sociologists have made a valuable contribution to rural industrialization research by pointing out the potential pitfalls of industrial growth and believe that rural areas must be informed of
both the dangers as well as the opportunities involved in rural industrialization, too many social scientists have become so involved in the question of whether rural industrialization is "good," using their own values and criteria of evaluation, that many of the major dimensions of rural industrialization are simply ignored. It is time that we gave greater attention to these dimensions and spent less time imposing our values on rural areas.

One of my concerns on this issue, then, is simply that it distracts from other very real research needs. Another is that it puts us in the position of judging what is the correct path for rural areas. This often leads us to decisions that clearly do not reflect the views of people in rural areas. In many rural areas in the Western United States, for example, it had been maintained by some sociologists that although energy developments are likely to be desired before they occur, they are not so after residents begin to experience their negative effects. Recent surveys, however, indicate that a majority of residents in many communities not only favored development before the projects began, but also after the developments had been in place for some time (Mountain West Research, 1975). To the extent this is the case, I find it difficult to accept that social scientists rather than the residents of impacted communities should be the final judge of the desirability of industrial growth.

It is also essential that social scientists become more oriented to the needs of local and other decision-makers by more effectively orienting their research efforts to the production of results that can
be acted upon by decision-makers. Again, this is not to say that creating awareness of certain dimensions in and of itself is not important, but greater attention must be given to policy relevant issues. This requires careful specification of our initial research questions and greater sensitivity to local decision-makers' needs. Too often our research efforts, which are supposedly oriented to providing information for decision-makers, contain page after page of descriptive data which indicate that the development process will require larger numbers of new services, increase incomes, lower community solidarity and increase levels of social disorganization, but provide little information that is specific enough or that can be acted upon by decision-makers. For a decision-maker to be told that local residents desire industrial developments or support environmental conservation is likely to be of less value than to be told the proportion of persons supporting alternative forms of service delivery systems. The latter, of course, requires much more pre-survey background work and researcher involvement.

Yet, an additional need is that for greater in-community analysis. Too many of our studies of industrialization—and I think in this case demographers such as myself and economists are more guilty than most other social scientists—utilize data that is not correctly focused on the area for which the information is being used. In much of the work now required in the assessment of the impacts of new industries, the data often used are simply taken from outdated secondary sources or from that for regional areas or the nation that may not be applicable
to the local area. If we intend our research to be of utility in decision-making, it must be both policy-oriented and reflective of the realities at the local level. These realities are more likely to become apparent by in-area investigations.

Finally, in terms of general research needs, it is often noted, yet necessary to again note, the need for further conceptual development in this area of analysis. In the sociological work in the area, for example, each scholar initiated to the study of rural industrialization seems to experience a reawakening to the works of Durkheim, Toennies and other classic scholars. Unfortunately, the conceptual development of the area does not seem to progress much beyond the initial ideas of these scholars and those entailed in the literature on modernization, industrialization, urbanization and economic development. Each region of industrial growth, whether Appalachia or the Western energy development areas seems to produce several reinterpretations of these classic works in terms of the specific region of study. As valuable as these works are, I find it unacceptable to believe that these scholars provide all the conceptual guidance we need or that we cannot make meaningful additions to these efforts.

Yet another need, the merits of which need hardly be repeated, is that for more longitudinal and comparative analyses. Despite the fact that the benefits of such analysis are extolled in nearly every work on rural industrialization, we have few such studies, partly because funding for them is not available, but also because all of us are too transient and too eager to focus on newer fads. When such studies are initiated, longitudinal often means three to five years. Such periods
are clearly insufficient for good assessments of the actual effects of industrialization.

It is important, however, to point out that such longitudinal and comparative analyses are of more than academic significance. Only such analyses indicate those conditions and circumstances in which industrial processes are likely to be both negative and positive and the elements likely to be important in various kinds of industrial developments. They thus provide the only sound guidance for evaluating the overall desirability of industrial development.

**Specific Research Needs and Priorities**

Turning to specific needs and priorities, it is evident that several topics require careful attention. These include those with the widest range of conceptual and pragmatic significance.

It is evident, for example, that despite the presumed importance of such factors as the length of the construction or build-up period in the determination of industrial impacts, the effects of size of the industrial work force, and the extent to which the project is locally versus nationally based, etc., very little is known about the actual quantitative differences these factors make in the effects projects have on rural areas. We need better comparative and longitudinal analysis of the effects of the characteristics of developments.

One of the difficulties is simply that many social scientists have no way to relate to technology theoretically except in very general social psychological terms, or pragmatically, except as these developments effect the size of the labor force and thus the levels of new
population accompanying such a development. We are forced to assume that levels of impacts or changes associated with such industrial developments are simply likely to be greater the larger the size of the new inmigrating population relative to the pre-development population base. Although this is probably a safe overall generalization, it does not provide many of the answers necessary for developmental planning. At what levels do impacts become nonlinear, or become cyclical sources of yet additional changes? What are the real effects of different types of industries, energy versus manufacturing development for example, on rural areas? We simply lack proper theoretical linkages between the dimensions of technology and social phenomena.

It is also clear that although we often spend a great deal of time discerning the baseline characteristics of the rural area prior to industrialization, very little is known about what effect that context actually has on the nature of the impacts of the development. Beyond describing the context, and of course, partially again because we do not have a sufficient number of comparative analyses, we have not systematically related context characteristics to the effects of industrialization. The context is often used to explain surprising exceptions from our expectations, but it is seldom systematically employed for analysis. Such elements as demographic structure or initial tax base structures are not entered into our analyses.

Despite the major interest of industry and others in the questions of the availability of rural labor, there are many unanswered questions related to rural labor demands and supplies. More effective measures of under-employment and of unemployment for rural areas are required.
In many cases in the West, for example, local employment is much higher than was predicted by analyses of unemployment rates. In addition, the effects of industry on rural female labor force participation rates or the effects of female employment on family structures in rural areas have not been analyzed with sufficient care.

Although it is perhaps the major starting point for most studies of the effect of rural industries, relatively little is known about many of the issues related to population growth in rural areas. We do not really know how much growth is too much growth except in the very gross sense nor do we know under what conditions various levels of growth may be manageable. The effects that new immigrating populations will have on the future demographic patterns in rural areas and the extent to which these effects are likely to be one time versus continuous sources of population change are unknown.

Again, although indirectly discussed in many works, there is simply too little attention given to disclosing the effects of rural industrialization on agriculture and other businesses in the developing area. What are the likely long term environmental effects of heavy industry on agricultural productivity? To what extent does labor availability become problematic for agriculture? To what extent are local businessmen's short-term gains offset by increased competition with superior management expertise? Much greater attention must be given to these factors.

The area is also lacking in sound information on the probability of linked industrial developments in rural areas. Many rural industries are sold to rural areas with the idea that the development of such
industry will lead to the development of other industries which utilize the by-products of the first. In many cases, however, the costs of transporting linked-industry products to their markets eliminate the possibility of linked industrial developments. These factors require more careful analysis.

One of the conditions that is often noted in industrializing rural communities is a sharp increase in the cost of living. The distribution of such costs is thought to be especially problematic. Those on fixed incomes are particularly vulnerable to such increases. In most industrializing communities, however, housing costs appear to rise most precipitously, but if elderly persons are home owners, most of these costs are avoided. In addition, we do not know the extent to which such cost increases are simply a function of community size rather than industrial growth. In many western impacted communities, for example, the costs do not appear to have increased to the level for such goods in urban areas, and most of the increased costs seem to be for new residents rather than longtime residents. These dimensions require more careful consideration.

One of the areas where the lack of data on baseline conditions in rural areas is especially apparent is in terms of the actual levels of public service availability, quality and costs in rural areas. It is often extremely difficult to obtain such information without extensive surveying of personnel in each type of service, and even then, the data are often of questionable validity. Anyone who has attempted to obtain information on levels of deviance in rural areas can appreciate this point. The initiation of projects aimed at establishing management
information systems that would provide comparable data items for rural areas would greatly expedite efforts to better evaluate required service levels and allow changes in service impacts to be compared and evaluated over time. In many cases (criminal justice and medical services, for example), all that may be necessary is for already existent agencies to extend their monitoring systems to rural areas.

In addition, more work and experimentation is needed on alternative systems of service delivery. What are the optimal service units and service areas in rural parts of the nation? It is clear that in many cases, they are not counties or politically defined regions. How and under what circumstances can the distribution of resources be altered by differentially locating long-term and short-term health facilities or by busing students to take advantage of underutilized capital facilities. Equally important given that service demands often occur before the advent of new tax revenues to pay for such services, alternative forms of financing and revenue collection systems should be examined.

Perhaps one of the most often mentioned research topics that receives relatively little actual research attention is that of the distribution of the effects of industrialization. The elderly, those on fixed incomes, and agricultural groups are perceived to be negatively impacted while others, such as some business interests, are expected to benefit. In fact, speculation far exceeds levels of knowledge on these issues, and little information is available on the related question of how those so impacted would have prospered in non-industrialized rural areas.
In fact, the whole question of the relative effects of industrial growth on new and longtime residents requires more careful analysis. Do new residents really fail to participate or do they tend to assume leadership of community organizations and institutions? What are the likely areas of conflict and the level of overall conflict between new and indigenous residents? Clearly, this is an area where speculation rather than empirical facts is all too evident.

Related to such issues, very little is known about the effects of industrialization on social structural factors. Beyond those changes assumed to evolve from such processes as urbanization, economic development and social change, that are largely derived from the classical social theories referred to earlier, very little is known about what happens to stratification systems, how the elites among new industry officials and those in the community establish domains of influence or about the answers to many other essential questions. In fact, and again perhaps because such changes evolve over longer periods of time, we know less about significant changes in social structure than we do about other social phenomena.

Levels of disorganization and crime often increase among rural youth, divorce rates may increase, etc. during industrialization, but it is not clear how breakdowns in social control occur, which groups in rural areas are most susceptible to decreases in social control or even the extent to which such increases are merely a function of poor reporting procedures in rural areas that are improved with the formalization of service structures that accompanies community growth.
Finally, it appears that although there is some evidence to date on the effects of industrial change on perceptions of community, community satisfaction, and several other factors, there is yet much that is not known about the perceptual effects of industrial growth. It is unclear, for example, what the effects of perceptions are on other phenomena. How is a community affected by positive versus negative orientations toward development? If sociologists are to justify work in this area, it must be established that knowledge of these factors really matters in terms of knowing the consequences for the community. The charge that such factors change from day to day or year to year and do not appear to effect communities' desire to pursue industrial development must be addressed.

In sum, then, there are yet more unanswered than answered questions concerning the social and economic implications of rural industrialization. We do not have the answer that we require to guide rural leaders and decision-makers or to conclude under what circumstances and situations rural industries may be a boon or a detriment to the overall quality of life in rural areas. It is clear, then, that there will be sufficient research opportunities and challenges in this area of analysis to keep all of us busy for some time.
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MANUFACTURING AND RURAL DEVELOPMENT:
THOUGHTS ON A RESEARCH PROGRAM

by

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In the arena of decision-making, where rural development is concerned there are essentially four actors. They are local public, local private, non-local public and non-local private sectors. Most of the information we have and the research that has been done is of greater value to the non-local actors.

Put another way, the local public sector decision-makers are probably the weakest in terms of their ability to participate in the arena of decision-making with regard to development issues. They do not have information available. In many cases if they had it available they would not have the technical know-how to interpret it and use it.

Rural development is not equal to economic development. In thinking about rural development issues, we must get beyond the constructs and variables that are encompassed by economic analysis. I would not for one minute say that we should ignore them. We need to get beyond them. The economic analysis is absolutely essential, but there is more to rural development issues than the economic considerations, and we must get to them as well.

Development is not equal to growth. It is often assumed that if everyone is not getting a fair share of the pie, the way to solve the inequity is to increase the size of the pie. But doing so does not necessarily assure that everyone will get a more equal or more equitable piece of the pie. Consequently, development (i.e., greater equality) and
growth are not synonymous terms. In some places and in some instances, it may be that development requires growth; in others it may not.

Macro theories are of limited value for understanding micro systems. I am not speaking here only of economics but of sociology as well. Economics and sociology macro theories, and many of the methods that are used for examining phenomena at a national level, cannot be transferred simply and directly to local community analyses. Some of the assumptions which may be appropriate if one were dealing with a total nation do not hold for small geopolitical systems. And it seems to me that this is a serious limitation. Almost everything done in the way of rural development research to this point is burdened by it.

Now let me share with you several points regarding industry and employment which come from a summary of case studies of industrial plant location in nonmetropolitan areas. The case studies covered a time span from the end of World War II to 1973. Each study examined one or more communities in which new manufacturing plants had located and analyzed changes which occurred in the community.

The case studies reported that frequently the jobs created by the new manufacturing plant did not go to persons in those communities who had previously been unemployed, or underemployed, or who were living below the poverty level, or were members of racial minorities. The jobs created frequently did not go to the people for whom, presumably, the manufacturing development had been designed to assist. That is observation one.

Multiplier effects tended to be very small in most of these studies, much smaller than a good deal of the published literature would have
one believe. This is an example of the failure of macro analyses to bear up well in micro analyses. It may be that for every job created in mining in the United States, there are somewhere in the national economy three other jobs created. But if that mine happens to be in Crandon, Wisconsin, it is not very likely all new jobs created will be in Crandon.

There are reasons why local multipliers were small. One of the most important is the fact that most rural communities do not have the services and the complexities of economic activity within their boundaries which, if present, would allow them to internalize the spin-off of second round employment.

The rate of unemployment declined very little in most of the communities. Small declines may be statistical artifacts created in the following way. Most of the jobs did not go to unemployed residents. Rather people moved into the community and were added to the active labor force. In this way, they increased the denominator of the unemployment rate faster than the numerator, producing a decline in the rate of unemployment when in fact the number of unemployed persons was not decreased and might have increased slightly.

The case studies also found that jobs mean more people. People cost money, and more people cost more money from the point of view of the local public sector. In contrast, people are money. Local entrepreneurs and more people are more money. And therein lies the crux of the growth vs. no-growth controversy.

One conclusion I would draw from these studies is that we really cannot plan a program of research that focuses only on the relationship of manufacturing to employment and stop there. One simply cannot deal
intelligently with industry and employment in isolation. That relation must be dealt with in the context of the other issues.

My comments from here on and thoughts about research needs are premised on the assumptions that we need to deal with industrial sectors in addition to manufacturing when thinking about development, and we also need to deal with more than the employment aspects of development.

I want to suggest a program of research for the region consisting of four general areas of activity and offer some specific research needs within those broad categories.

One area of research should assess the geographic pattern of industrial growth in the Southern region for the period 1970-79. Use counties or municipalities, whichever unit of analysis you want. Special attention should be given to new manufacturing plants located in the rural counties. In other words, look at the metropolitan communities as well as the non-metropolitan, but give special concern to the rural counties.

The second area of research should identify those county or community attributes which are predictive of growth in selected industrial sectors, with the aim of isolating those characteristics which can be altered by means of public intervention or citizens' efforts.

The third area should assess the fiscal impact of industrial growth on local governments and school districts—the local public sector.

The fourth area of research should assess the impacts of recent growth on quality of life in local communities. By quality of life I mean more than whether people feel good and whether they are happy. I mean to include under this umbrella term many of the economic characteristics of a community, including employment, rates of unemployment,
participation rates in the labor market, as well as the social and psychological indicators.

Now let me comment on specific objectives for each area of research.

Area 1. Manufacturing growth in recent years has been mainly in the nonmetro areas; in percentage and in absolute terms, growth has been faster in nonmetro U.S. Also, much of the nonmetropolitan growth has occurred in those counties or communities adjacent to existing SMSAs. Thus, the rural industrialization phenomena to a considerable extent is a decentralization process that looks very much like a continuation of the suburban residential and commercial expansion that followed World War II. But there is some manufacturing growth occurring in more remote population centers, places over 100 miles from the nearest SMSA. There also are regional shifts from the old industrial belt to more rural regions of the country, particularly the South and the West. This has given encouragement and optimism to people in rural communities. Many rural people act as if they believe, "Manufacturing is moving our way and we should get our share of it."

But there is also firm evidence that manufacturing is barely maintaining its share of the total national employment picture, and it is losing ground as a proportion of the GNP. These facts and the general industrial location trend seem to indicate that we really need a strong dose of realism in developing cost effective public investment programs. There may not be as much industry "out there" as people seem to think.

National trends are calculated by aggregating across all categories of manufacturing. They are not specific, but they need to be. What we need is to assess the growth of manufacturing within the region on an industry by industry basis. We need data to speak to questions such
as, what kinds of industries are moving into the region. What kinds of communities are receiving which kinds of industries? At the moment, such information simply is not available anywhere. I know people who say, "Oh sure, it's available." But when you try to track it down, it evaporates. It isn't there! At least I have not been able to find it, even after a good many phone calls to data squirrelling agencies in Washington and other places.

Therefore, the first objective should be to rectify that shortcoming in our knowledge base. I emphasize again, I would want to be industry specific. Communities are not dealing in a general market. They are dealing in a specialized market, and they need that kind of information.

Area II. From the point of view of a cost effective public investment program, it is impossible to assist every community which desires growth. There are never sufficient funds to properly aid even those places with a reasonable chance of success, and spreading the limited available assistance too thinly virtually assures failure everywhere. So what is needed is a knowledge base from which one can identify communities that do in fact have a fairly high probability of success in attracting industry which will stimulate job creation in that community and generate desired local benefits without incurring fiscal deficits in the local government and creating undesired social problems which sometimes come with growth or are associated with growth.

The point of departure for this area of research is industrial location theory. The basic assumption of spatial profit maximization would lead one to expect that all firms of every industrial class cannot locate successfully in remote small towns and rural areas.
This means that local communities must be selective in their efforts to attract industry. But to be rationally selective they must be aware of which industries constitute their market, given the characteristics and resources within their community. What I am suggesting is that one turn location theory upside down and view firms as a market in which communities are attempting to sell their spatially immobile resources. Those communities with resources in clear demand by firms have a market and are the best choices for assistance.

There are at least two approaches that one could take to assessing the industrial market for communities. One would be to survey managers of firms that recently have relocated a plant, have opened a branch plant or are planning to do so and inquire about community attributes which determined their decision to locate in community A vs. community B. The Economic Development Administration did a survey of a national sample of firms and put together exactly that kind of information for 1970. Unfortunately, analysis of the data is virtually non-existent. However, the machine readable tape is available and ought to be analyzed.

A second approach would be to observe where industries have, in fact, located in recent years and to analyze these decisions in relation to community characteristics for the purpose of developing predictive models. This is a "hardline" approach in that it looks for community attributes which will predict the location decisions of executives of manufacturing firms rather than relying on attitudinal data gotten by asking managers what is important. One study has done this rather nicely. Andy Sofranko (Agricultural Economics—Rural Sociology, University of Illinois) studied 122 rural communities in Illinois and found that
location decisions were influenced by community characteristics which could be altered by citizen action (zoning regulations, presence of an overall economic development plan, etc.) as well as fixed community attributes.

Area III. The third area has to do with the local public sector. I doubt I really need to say a great deal to convince you of the importance of this area. It is quite clear from the research that has been done that manufacturing expansion does indeed stimulate the private sector; the intensity of activity almost invariably is increased.

Manufacturing growth does increase the fiscal base of the local public sector. Income goes up on a per capita basis; retail sales increase; assessed valuation of property increases; in other words, those kinds of things in the community that the local public sector has to draw on for its revenue are generally increased as a result of manufacturing growth.

But in the studies that have been done, there is also a bit of disturbing evidence. The revenues that are generated are often exceeded by increases in the costs to the local public sector. The local government frequently ends up with a deficit that leads them to become more dependent on intergovernmental transfer payments from state and Federal sources. This area of activity is much in need of investigation. Relatively little research has been done that views growth from a local public sector standpoint and attempts to come to short-term and long-term net gains.

Area IV. The quality of life domain certainly incorporates social and psychological consequences of manufacturing growth and activity in a community. But it also encompasses economic conditions because these
often indicate the ability of individuals to fulfill their needs and desires.

One of the areas I would attend to carefully is who gets the jobs when a manufacturing plant locates in a community. What is the distribution of the second round employment that is created by manufacturing? And equally important, what happens to the income? Study after study has shown that manufacturing growth increases the total aggregate income or earnings in the community; per capita income increases, which one would generally say is a better indicator of development than total income. But neither provides an indication of how it is distributed among the population. And there is some evidence which suggests income inequalities within the population are increased by manufacturing growth. That is a quality of life issue, one that I certainly would want to see studied as part of a program of research.
INDUSTRIAL PLANT SITES: SPECIFICATION AND MEASUREMENT

by

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The purpose of this paper is to examine alternative approaches to specifying and measuring the quality of plant sites in a manner consistent with the aims of analyzing regional patterns of industrial location\(^1\) (economic development). The variable should be amenable to measurement by data that is widely available from secondary sources, or which is maintained by public or private agencies in a consistent form. This statement is designed to stimulate discussion and does not represent a cohesive research paper.

Definitions

A plant site may mean a lot of different things to a lot of different people. Farmer Brown's east 40 may be the only available plant site for many communities. For research purposes, a consistent definition is needed. The definition used in the S-96 Regional Project (Kentucky and Tennessee) was "a site which is either optioned or owned by local government, or a non-profit organization, or by a private group which is held and/or is being developed for industrial purposes." The

\(^{1}\)The term "industrial location" will be used throughout this paper as it is the principal component of economic development that would be influenced by the quality of plant sites.
important point is that the site is controlled and can be made available for industrial purposes at a stable price. Privately developed industrial sites will probably command a much higher price than publicly controlled sites, but they will probably be in above average locations vis a vis industrial development potential.

Informed judgment is always called for as grey areas are hard to avoid. A cornfield, under option by local government, would be considered a site, while the same cornfield held by the farmer, ostensibly for industry, would not be so considered. A privately owned site must be partially developed to effectively remove it from non-industrial uses. These qualifications are necessary because of the realities of gathering meaningful data and because of our knowledge, albeit limited, of industrialists' perceptions of what constitutes a plant site.

Another practical matter that arises is deciding what area to include under each site. For example, a large industrial park may include 500 acres that can be subdivided into X plant sites, with the size of each site varying by the demands of each plant that desires to locate in the park. Is the park considered to be a single site of 500 acres? Or can plant sites be standardized into units of 20, 50, ...?

The answer is not obvious because the potential attractiveness of a site for each type of industry depends on the particular idiosyncracies of plant management. Some managers prefer to locate in industrial parks with other plants because of the atmosphere, availability of common facilities, and the commonality of interests with other managers. (They represent a powerful lobby for the interests of their park.) Other firms prefer an exclusive plant site to avoid striking workers in other plants
which may shut down the main transportation arteries in a park, to thwart the efforts of union organizers, and to avoid unexpected negative externalities from other firms. Some firms will not locate in a pre-planned site, but prefer to purchase and develop their own site. (Whirlpool Corporation is one example, based on personal interview.) Industrial classification, by plant site type, may be a possible research objective, though it does not seem very possible on the surface.

Measurement of Site Quality

Once a consistent operational definition of a plant site is agreed upon, the task is to develop a method of measuring the quality of the industrial site. Basically, this requires specifying those characteristics of the site which are hypothesized to influence the location decision. Generally, factors which reduce the cost of production for a given type industry can be identified, though management preference for "non-economic" factors may come into play.

The qualities of the site which influence the location of the industry should be included as physical measures. The costs of achieving the alternative levels for each quality level are not the relevant criterion for measurement. Cost becomes a major consideration for community decision making as various quality levels are developed. Cost considerations are conceptually distinct from the effectiveness of plant site quality in attracting industrial plants.

The assumption of this paper is that industrial sites affect location decisions among communities within a homogeneous regional preference. At the margins, of course, interregional decisions could also be
influenced if plant site differentials are sufficiently cost relevant.

Plant site factors that must be evaluated include the following:

- distances from main highway arteries and prime residential areas.
- size (acres).
- water availability - size of water main (in inches) with wells = 0.
- sewage - diameter of sewage main.
- presence of a rail siding (0, 1).
- electrical capacity - this may be relevant interregionally.
  Within a region, any site can usually command maximum electrical installations. This may not be true in the future and should be carefully scrutinized.
- speculative buildings. This may or may not be considered as part of the industrial site. It is probably easier to eliminate buildings and specify them as an additional variable, though it could be handled either way.
- natural gas - used to be a major consideration. New hookups have been prohibited in Kentucky and Tennessee, thus eliminating this factor. Is it relevant for other areas?
- ownership of the site. Publicly owned sites were more effectively attractants of new industry in the S-96 project, possibly due to cost differentials and ease of bargaining with public groups.

Kelch Approach. In his Ph.D. dissertation at the University of Kentucky (1977), David Kelch reported a method of measuring site quality (for
the S-96 project), as the following excerpt from his dissertation explains (pp. 61-63):

Site Quality. In order to measure the site quality of those sites designated for industrial use by a community or a private group, an index was constructed based on observable characteristics of the site. The four site characteristics selected were 1) acres of land, 2) diameter (in inches) of the water line at the site, 3) diameter (in inches) of the sewer line at the site, and 4) the presence or absence of a rail siding at the site. Data on these four site characteristics are available for every site on which a plant actually did locate during the 1970-73 period. A comparison is thus possible between each of the 708 designated industrial sites and each of the 321 sites where plants actually located whether designated or not. Quality of a given designated site is then measured by reference to the proportion of sites actually occupied, the qualifications of which are exceeded by those of the particular site. Specification of quality in this manner limits its measurement to observable fact. It is felt that such a comparison is a reasonable measure of site quality, in that, by comparison, the four site characteristics of each site that had a plant locate on it can be assumed to have at least met the basic requirements of the plant that selected it.

To repeat, the procedure whereby each designated industrial site is given a site quality score is based on a comparison of each designated site individually with each of the 321 sites selected by a plant. If a designated site satisfies all four basic requirements (land, water, sewer and rail) of an actual plant site, then that
designated site has satisfied at least one of the 321 plants' four basic site requirements. In such a manner it is then possible to calculate the proportion of plants whose four basic site requirements are satisfied by each of the designated sites. If, for example, 50 of 321 plants have had the four basic site requirements satisfied by a given designated site (as indicated by characteristics of the site on which they located), the site quality score for that designated site would be 50/321 or 15.6. The following example illustrates this point.

Designated Site A has: 5 acres of land
8 inch water line
6 inch sewer line
presence of rail siding (coded 1) - if site A had no siding it would have been coded 0.

<table>
<thead>
<tr>
<th>Site A</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plants 5-321</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>5</td>
<td>4⁺</td>
<td>5⁺</td>
<td>10⁻</td>
<td>2⁺</td>
</tr>
<tr>
<td>Water</td>
<td>8</td>
<td>10⁻</td>
<td>6⁺</td>
<td>4⁺</td>
<td>6⁺</td>
</tr>
<tr>
<td>Sewer</td>
<td>6</td>
<td>8⁻</td>
<td>6⁺</td>
<td>4⁺</td>
<td>4⁺</td>
</tr>
<tr>
<td>Rail</td>
<td>1</td>
<td>0⁺</td>
<td>1⁺</td>
<td>0⁺</td>
<td>0⁺</td>
</tr>
<tr>
<td>Total (X)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>EX N</td>
</tr>
</tbody>
</table>
Had there been only four locations (Plants 1-4) the score would have been 1/2 or 50 percent since only two plants (Plants 2 and 4) had their minimum requirements equalled or exceeded by Site A. In the bottom row (Total) a one (1) will occur only when each plant column cell has a "t" in it. The horizontal summation of the bottom row (Total) is the number of plants that had all four basic site requirements met by designated Site A. This total is then divided by the total number of plants (321) in order to arrive at the site quality score for Site A.

In the case of communities that had more than one industrial site, the site that rated highest on the site quality score is used. A positive correlation is hypothesized between site quality and plant location.

This method provided a single quality measure for each site ranging from 0 to 100 which was subsequently introduced as a single variable into a linear location probability regression analysis. The general pattern of industrial characteristics found in our data can be seen in the following table where the sites are broken out into three quality ranges:
Table 1  Characteristics of Sites of Low, Medium and High Quality

<table>
<thead>
<tr>
<th></th>
<th>Quality Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Low&quot; 1 - 20</td>
</tr>
<tr>
<td>Number of Communities(^a)</td>
<td>15</td>
</tr>
<tr>
<td>Median Sewer Line Diameter(^b)</td>
<td>None(^c)</td>
</tr>
<tr>
<td>Median Sewer Line Diameter(^b)</td>
<td>6</td>
</tr>
<tr>
<td>Median Land Area (acres)</td>
<td>7</td>
</tr>
<tr>
<td>Rail Spur Present (%)</td>
<td>50</td>
</tr>
</tbody>
</table>

\(^a\)Data refers to the single highest quality site in each community.
\(^b\)Refers to trunk lines at boundaries of the sites.
\(^c\)Only 5 had any sewer service.

Modifications of Kelch Approach. As suggested earlier, additional characteristics of plant sites could be added to the four factors analyzed by Kelch, though the computational difficulties multiply. His four factors seem to be quite reasonable. Adding a distance variable (to highways or residential areas) introduces a conceptually different matter, though a relevant factor.

More significantly, the equal weights given to each factor could be questioned and altered if either theoretical knowledge or empirical testing provides any guidelines. I have no suggestions to offer on this matter, as I have seen nothing which would help weight the factors.
A more useful suggestion may be to give partial weight to a site that scores a + on any factor, such as rail and land for Plant 1 in the above table. The total (X) for Plant 1 is 0 unless all four factors receive a +, e.g., Plants 2 and 4, according to the Kelch method. This seems a bit harsh and could easily be modified to give weight for each + factor.

A site quality score was used only for the "best" or highest quality site in the community. A community with multiple sites may be relatively more attractive because of the expectations of further industrial development. The "industrial climate" may look more favorable to a prospective industry.

Alternative Experimental Approaches. Perhaps the S-96 data could be used to experiment with alternative measurement techniques. Two alternatives come to mind:

1. Factor analysis could be used to develop a factor score for each site. The score could subsequently be used in further regression analysis. The relative value of this vs. the Kelch technique could be tested with the S-96 data.

2. A more acceptable approach would be to formulate a research method which will develop weighted values of various site characteristics. Once these weights are developed, they can be introduced into a counting scheme similar to that used by Kelch in his Ph.D. dissertation. The ultimate goal is to construct an overall site quality index to be utilized in a regression equation which explains either industrial locations or industrial expansions.
The approach which I am suggesting requires the following steps: **First**, choose a set of communities with multiple sites in which at least one industry has located on a site in the community. **Second**, within each community an equal number of sites should be selected where industry has located and where no industry has located so that for each community site characteristics are measured for an equal number of successful and non-successful sites.

The purpose of this community specific selection is to hold other variables constant, such as community population, distance from interstate highways, fire protection rating, educational expenditures, etc. Also the purpose for selecting the same number of successes and failures is to avoid statistical bias introduced by well-developed communities where either a larger number of sites may have been developed or where proportionally more locations have taken place on available sites. Therefore, to avoid possible biases from exogenous variables it is critical that the same number of sites be selected both for positive locations and no locations. **Third**, the set of site characteristics serves as independent variables in a regression analysis with the dependent variable specified as either a location or non-location, in other words a 0 or 1 dependent variable. The B values thus developed will be free of exogenous influences associated with other community characteristics and can be used to compare the relative importance of one factor versus another. In other words, we have developed a set of weights which reflect the relative importance of site characteristics, these weights being developed from statistical measures of the relative success of different site characteristics controlling for other community variables.
An alternative approach would simply be to calculate an elasticity measure between the independent variable, one factor of a site such as the size of the water main, with the dependent variable which is the success or failure of that site in attracting an industry. Either the standardized B values or the elasticity measures would reflect the relative importance of one factor versus the others. These weights could then be introduced on a component by component measure into the Kelch framework. That is, we are modifying the Kelch method to give partial credit to any factor that is superior to a site where a firm located, but the factors would then be counted on the basis of their weighted values and summed in a similar fashion to derive an overall index. This index would serve as a measure of overall site quality and could subsequently be used in a regression analysis similar to that reported in Smith, Deaton, Kelch in *SJAЕ*, 1978.

A recent EDA study presents information which may be useful to our deliberations. In *Industrial Location Determinants: 1971-1975* (U.S. Department of Commerce, February, 1973), responses from 3,633 firms in 118 growth industries are tabulated. The following table was compiled by Russ Parker, a graduate student at the University of Tennessee, to indicate the major site objectives, community attributes, and preference for industrial park location for the 14 industry groups most likely to locate in rural areas during the 1971-75 period.
Table 2 Objectives of Growth Industries Likely to Locate in Rural Areas

<table>
<thead>
<tr>
<th>SIC CODE/Descipt.</th>
<th>Locational Objective</th>
<th>#1 Site Objective</th>
<th>#2 Site Objective</th>
<th>#1 Community Attribute</th>
<th>#2 Community Attribute</th>
<th>% Firms in SIC Desiring Ind. Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>2272 Carpet Mft.</td>
<td>New Market</td>
<td>N. Gas</td>
<td>TWS-Proc</td>
<td>Fire Prot.</td>
<td>Police</td>
<td>45</td>
</tr>
<tr>
<td>2256 Knit Mills</td>
<td>***</td>
<td>Highway</td>
<td>Ind. Sewage</td>
<td>Processing Fire Prot.</td>
<td>Police</td>
<td>18</td>
</tr>
<tr>
<td>2761 Printing</td>
<td>New Market</td>
<td>Highway</td>
<td>Air Freight</td>
<td>Fire Prot.</td>
<td>Police</td>
<td>33</td>
</tr>
<tr>
<td>3494 Valves</td>
<td>Transport Efficiency</td>
<td>Highway</td>
<td>N. Gas</td>
<td>Fire Prot.</td>
<td>T. Workers/ C. Trucking</td>
<td>42</td>
</tr>
<tr>
<td>3642 Ind. Light</td>
<td>New Market</td>
<td>Highway</td>
<td>N. Gas</td>
<td>Fire Prot.</td>
<td>***</td>
<td>47</td>
</tr>
<tr>
<td>3561 Ind. Pumps</td>
<td>New Market</td>
<td>Highway</td>
<td>N. Gas</td>
<td>Fire Prot.</td>
<td>trained workers</td>
<td>51</td>
</tr>
<tr>
<td>3559 Ind. Mach.</td>
<td>New Market</td>
<td>Highway</td>
<td>Air Freight</td>
<td>Fire Prot.</td>
<td>trained workers</td>
<td>57</td>
</tr>
<tr>
<td>3941 Toy &amp; Games</td>
<td>Transport</td>
<td>Highway</td>
<td>***</td>
<td>Fire Prot.</td>
<td>Unskilled Workers</td>
<td>17</td>
</tr>
<tr>
<td>3679 Elect. Comp.</td>
<td>New Market/ No Labor Com</td>
<td>Highway</td>
<td>Air Freight</td>
<td>Fire Prot.</td>
<td>Police</td>
<td>41</td>
</tr>
</tbody>
</table>

Source: EDA Survey Data
The choices open to each respondent for characterizing the locational objective of his firm were:

1) improvement in transportation efficiency or economy (transport);
2) availability of larger parcel of land;
3) closer proximity to resources and/or major suppliers;
4) closer proximity to other plants of the company;
5) closer proximity to distributors or customers (Prox C & D);
6) closer proximity to other firms in same or related industries;
7) ability to serve new and/or expanded markets (New Market);
8) minimize competition from other plants for labor force (No Labor Com); and
9) to secure factors of location unique to the industry.

Columns three and four present the first and second most important site objectives for each growth industry. Respondents had a choice of:

1) highway access within 30 minutes of major highway interchange (Highway);
2) scheduled air freight service (Air Freight);
3) water transportation;
4) scheduled rail service (Rail Serv.);
5) piggy back facilities - rail;
6) industrial water supply - processed (IWS-Proc);
7) industrial water supply - raw;
8) natural gas service (N. Gas);
9) industrial sewage processing (Ind. Sewage Processing);
10) solid waste disposal (S.W.D.);
11) soil load-bearing capabilities;
12) increased plant site size;
Columns five and six present the first and second most important community attributes to each growth industry. Respondents had the choice of the following as the most desirable community attribute:

1) air passenger service;
2) local industrial bonds;
3) vocational training facilities;
4) higher education facilities;
5) tax incentives or tax holidays;
6) fire protection;
7) contract trucking;
8) public warehousing;
9) public refrigerated warehousing;
10) police protection
11) local industrial development group;
12) pool of trained workers;
13) pool of unskilled workers;
14) lenient industrial zoning;
15) strict industrial zoning;
16) appropriate community size.

The last column in Table 2 indicates the percentage of firms within each SIC (growth industry) which desire to relocate or expand into industrial parks. With the exception of Knitting Mills and Toy & Game Manufacturers, over a third of the firms in each growth industry likely to locate in rural areas would prefer to locate in an industrial park. The greatest preference for industrial parks is found in the House Trailer industry. From other data, it is possible to infer that 16.33% of the largest growth industries have historically preferred to locate in industrial parks. This data suggests that 15.52% of the growth industries
traditionally located in rural areas and have located in industrial parks in the past.

Concluding Observations

Operationalizing these measures of plant site quality on a regional basis would seem to offer minimum difficulties. Plant site data is collected and maintained by most state industrial development agencies. A number of factors is usually included on the site specification forms. Perhaps a set of variables can be identified which are superior to the four used by Kelch, though no obvious candidates appear at this time.

Industrial sites are important for other psychological reasons in influencing industrial location. They generally reflect aggressive local leadership and a good industrial climate. Firms which visit a community to evaluate a well-advertised site often locate elsewhere in the community even if the site does not meet their needs. The evidence in this regard is quite impressive.

The measurement approaches discussed above were based on past success records of different type sites, not on any absolute size measures for any factor. This would appear to be the proper measurement orientation, though certainly subject to further testing and evaluation.
INDUSTRIAL SITE DEVELOPMENT CONSIDERATIONS
 FOR RURAL COMMUNITIES

by

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Virginia's rural communities need to reassess their economic development strategies in the face of current budget constraints and the prospects of further belt-tightening Federal funds from the Economic Development Administration (EDA) and the Farmers Home Administration (FmHA) are important sources of financial support for the development of water and sewage facilities and industrial parks, critical steps in the process of rural community growth. These funds may be sharply reduced if President Carter proceeds as indicated in recent news reports with across the board cuts in federal funds earmarked for rural development, as part of his efforts to reduce the federal budget deficit by $38 billion.

Budget cuts which equally affect all program areas are not necessarily fair, efficient, or otherwise desirable. In fact, they may not achieve the desired objective of reduced inflation if efficient programs are cut back while other inefficient expenditures continue. Rural programs have been efficient in encouraging service and job development in rural communities which are experiencing population pressure and increasing numbers of new manufacturing locations. In other words, the rural programs have provided a high rate of return per federal dollar invested.
The taxpayer gets a good deal from the resulting new jobs, more productive workers, and better community services.

National opinion polls reveal that most people prefer rural over urban living, principally because of the perceived higher quality of rural life. They feel that rural communities are a better place to rear children, that air and water quality are superior, and that crime is less threatening. Available figures on the population turnaround support the above perceptions.

Recent population trends show that people are acting on their beliefs. From 1970-1976 rural counties experienced renewed growth and vitality as population increased by 8%. During this time, rural communities gained over 2 million migrants, mostly from urban areas. Between 1970 and 1977 nonfarm wage and salary employment increased 22% in rural areas, compared with 11% in urban areas.¹

Industrial Development

The sustained growth of rural communities is strengthened by new manufacturing employment. Virginia ranked seventh among 12 Southern states in total plant investments for the period, January 1976 to mid-1978, just ahead of Kentucky, but slightly behind South Carolina.²

As the South continues to gain in manufacturing employment vis a vis Northern states, rural areas of the South gain relatively more than do


the urban areas. Unfavorable labor conditions and deteriorating social environments of many cities compare poorly with the smaller, rural communities of the South.

In spite of this generally favorable trend, most communities do not share in the benefits to be derived from new industry. Decisive community action and careful planning are necessary to decide (a) whether new industry is desirable for your community, (b) what plans should be made to prepare the community for industrial growth, and (c) what steps are necessary to attract industry and to insure that the benefits of new industry exceed the costs associated with new locations.

All of these questions cannot be answered in this brief article, but attention will be directed to one very important question: What can your community do to attract new industry? Recent research findings will be presented that provide a partial answer to this question.

Organizing effective local leadership is a critical prerequisite to promoting industrial development. An effective industrial development program may be an expensive venture as well, and local leaders must decide how much they can afford to invest, given the probability of success. Citizens apparently feel that more effort is needed. A recent study completed by the Virginia Department of Agriculture and Consumer Services revealed that industrial development is one of the top three community needs identified by community leaders and officials.  

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Two other recent studies also provide information useful to community leaders interested in industrial development. A survey conducted by the U.S. Department of Commerce in 1973 reports the views of 700 businesses which were planning to expand their operations within the next five years.\textsuperscript{4} They were asked to rank the importance of a wide range of factors influencing their location decision. Table 1 reports the results of this survey for the critical and significant responses. The community factors are grouped by the degree of community control over them.

The largest group of critical factors are those that can be directly influenced by a local community. To improve critical factors such as fire protection services, local leadership must exercise sound judgment and planning. Although local industrial development groups were not highly ranked in the above table, communities cannot effectively deal with the more critical factors without organized group action. Industry looks for the results of effective group actions rather than the mere existence of a group.

A second study analyzed the determinants of industrial location in rural communities of Tennessee and Kentucky.\textsuperscript{5} The objectives of the study were: (1) to determine whether communities can influence their relative attractiveness to industry and (2) to measure the relative influence of different community characteristics that could be modified by direct community action.


Table 1. Relative importance of community factors classified by degree of community control over each factor.

<table>
<thead>
<tr>
<th>Community Characteristic and Degree of Community Control</th>
<th>Critical Factor</th>
<th>Critical or significant factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors beyond control of local communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural gas service</td>
<td>32</td>
<td>83</td>
</tr>
<tr>
<td>Pool of unskilled workers</td>
<td>17</td>
<td>80</td>
</tr>
<tr>
<td>Raw industrial water supply</td>
<td>16</td>
<td>60</td>
</tr>
<tr>
<td>Soil bearing capacity</td>
<td>14</td>
<td>72</td>
</tr>
<tr>
<td>Water transportation</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Factors which may be influenced by local communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major highway within 30 minutes</td>
<td>37</td>
<td>94</td>
</tr>
<tr>
<td>Scheduled rail service</td>
<td>23</td>
<td>62</td>
</tr>
<tr>
<td>Pool of trained workers</td>
<td>17</td>
<td>86</td>
</tr>
<tr>
<td>Scheduled air freight service</td>
<td>12</td>
<td>68</td>
</tr>
<tr>
<td>Scheduled air passenger service</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Vocational training facilities</td>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td>Higher educational facilities</td>
<td>2</td>
<td>57</td>
</tr>
<tr>
<td>Factors which can be altered directly by local communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire protection</td>
<td>43</td>
<td>93</td>
</tr>
<tr>
<td>Contract trucking</td>
<td>30</td>
<td>79</td>
</tr>
<tr>
<td>Police protection</td>
<td>18</td>
<td>91</td>
</tr>
<tr>
<td>Processed industrial water supply</td>
<td>23</td>
<td>74</td>
</tr>
<tr>
<td>Industrial sewage processing</td>
<td>20</td>
<td>78</td>
</tr>
<tr>
<td>Solid waste disposal</td>
<td>17</td>
<td>77</td>
</tr>
<tr>
<td>Tax incentives or holidays</td>
<td>8</td>
<td>78</td>
</tr>
<tr>
<td>Lenient industrial zoning</td>
<td>5</td>
<td>77</td>
</tr>
<tr>
<td>Local industrial development group</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>Local industrial bonds</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Public warehousing</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

1 This classification assumes that a major rail line is located within a "reasonable" distance, (no more than 10 miles from the industrial site). The community can plan for the construction of a rail spur.

2 This classification assumes the availability of a raw supply of water for industrial use.
The study revealed that interstate highway access, the presence of a college, improved fire protection, higher educational expenditures, the willingness to provide revenue bond financing, publicly owned industrial sites, and the quality of the industrial site were all statistically significant determinants of industrial location. Industrial site quality was measured by four factors: inches of water and sewer main, acres of land in the site, and the presence or absence of a rail siding at the site.

The results indicated that effective community action can improve the probability of acquiring new industries. Also, appropriate community investments can overcome, to some degree, natural and locational disadvantages which characterize some communities (i.e., those located away from interstate highways, without rail access, or well developed infrastructure). Neither community population nor the size of existing manufacturing employment were significant indicators of new plant locations. This is good news for small communities that want to attract new industry.

Communities can exercise the most direct control over the acquisition and development of industrial plant sites. Data available from the Kentucky-Tennessee research project is informative for community leaders interested in improving the quality of their sites. The characteristics of the sites by quality scores are presented in Table 2.

Fifty-four percent of the sites selected by industry were owned by a local government body or development group and 46% were privately owned. The average site was 20 acres, but size ranged from 6 to 175 acres. Water lines were usually 6-8 inches, and sewer lines were most frequently 8 inches, though some were 6, 10, and 12 inches.

A speculative building was available on 17% of the Tennessee sites.
Statistical analysis of the Tennessee data suggests that a speculative building of proper dimensions may improve the probability of attracting an industry by 30% or more. Obviously, this would be true only if relatively few communities had buildings available.

A building is an expensive venture and should be approached with caution given the budget constraints of most rural communities. Consultation with the Virginia Division of Industrial Development is recommended to determine appropriate building specifications and to help your community decide whether an industrial building is a desirable investment.

Table 2. Characteristics of Sites of Low, Medium and High Quality

<table>
<thead>
<tr>
<th></th>
<th>Quality Score</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>&quot;Low&quot;</td>
</tr>
<tr>
<td>1-20</td>
<td>15</td>
</tr>
<tr>
<td>45-55</td>
<td>0</td>
</tr>
<tr>
<td>60-100</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

1Data refers to the single highest quality site in each community

2Refers to trunk lines at boundaries of the sites.
THE DRAMA OF RURAL INDUSTRIALIZATION:
SOME SOCIOLOGICAL INSIGHTS

by

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The purpose of this paper is to provide what might be termed "sociological insight" for the advisory roles which cooperative extension personnel and others can play in attracting industry to rural communities and in helping such communities adjust to industrialization. In preparing the paper, I assumed that the benefits as well as the burdens of rural industrialization would or had received ample attention in other sessions of the workshop. Indeed, the material prepared by the members of the Functional Network on Industrialization covers these points extremely well. Let me simply emphasize that the extension agent, or other community development planner, specializing in rural industrialization must be aware of: 1) what a community can expect in the way of benefits from industry of different types; 2) what kind of problems are likely to face the community as a result of particular types of industrialization; and, 3) what the different industries are looking for in the selection of a location site.

The thrust of this paper is designed to take the rural industrialization planning and development process one step further. I will attempt to identify certain basic sociological understandings and models which I feel those persons who have a responsibility for working with rural communities in the implementation of an industrial development objective should comprehend. Too often, an extension agent is called upon to help plan the industrial development of communities without having the complete training, that is, the information he has been given is more descriptive than analytical in nature.
Since a development project, such as a new industry, always induces change in the behavioral patterns in rural communities, it might be worthwhile to briefly review concepts such as social structure and social development which help provide a conceptual base for understanding the impact of rural industrialization.

Although almost everyone comprehends that social structure refers to the complex web of social relationships which bind people together in the interest of particular objectives, few persons seem to clearly comprehend the nature of social structure which includes culture and social organization. As a component of social structure, culture provides the guidelines for behavior, that is the ideal in how one person should relate to another. However, most persons depart to a greater or lesser extent from the ideal in their actual behavior—which is termed social organization. The extension agent or development planner must be fully cognizant of these two aspects of the social structure when he embarks on a mission to help bring industry to a community. I will try to illustrate what I mean as follows. A particular individual, critical of the industrial project, may give lip service to the project because it is popular to do so. However, behind the scenes he will play down the project because he sees advantages accruing more to his local competitors than to himself. Sometimes these types of feelings, though never overtly expressed, serve to effectively block an industrial project. Whatever else, site selection committees for industry are quick to sense a less than wholehearted support in the community. I will come back to this point later, and try to show why it is important to know and understand.

Beyond a knowledge of the two aspects of the social structure, the development planner must understand the specific structural elements which make up community social systems. This is necessary because the
change wrought by industry is basically registered, as noted, in the alteration of the social structure, i.e. the positions people hold, the roles they play and the cultural norms which guide their role playing. To give a simple illustration, an increase in jobs will increase the number of people in the community, which in turn increases the demands for goods and services. One can almost sense the drama which unfolds when younger, better educated workers attracted by industry place pressure on local school systems for better teachers and facilities, on churches for more sophisticated leadership, on businesses for a greater variety of things, and on and on. This almost inevitably portends a change in leaders as well as a change in the indicators of rank and prestige.

There is, in fact, a primary and secondary effect. The primary effect is the impact on existing facilities, school rooms, banking facilities, etc. The secondary effect is the later call for better trained teachers, more sophisticated banking, etc. All in all the structure of the community is changed, sometimes to the point that basic social stratification patterns are altered. For example, the number of people in the middle class or lower class might be effected. I have seen, for instance, social strata develop in a newly industrialized community on the basis of who worked or did not work in the new industry. Differentials in wages, working hours, fringe benefits, and other company amenities account for this phenomenon.

What I am saying is that the extension worker or other development planner must be aware of the alterations which are possible in the social structure. He should attempt to anticipate the impact in behavior patterns which will be registered on specific sub-systems in the community, such as schools, churches, families, and businesses, as well as on the community as a whole. In this regard, unless the planners of the community are fore-
warned of the possibility of a realignment in terms of class and leadership, there is likely to be more stress noted. Such stress is seldom thought of as part of the price for industrialization.

The development planner, whomever he or she might be, must help people recognize that long term benefits will tend to compensate for these short term frustrations. When the new principal and better qualified teachers succeed in placing more students in college or in good jobs and when the quality of life in general has improved, the ultimate impact of the project or projects is registered. Again, the association with a change in the social structure induced by industry will seldom be given credit for the improvement in community life, or as the case might be, the deterioration in well-being of local people. The Extension Agent must have a sufficient conceptual understanding of the phenomenon of social development to place alterations in the community social structure, such as the above, in proper perspective.

The development planner and/or advisor should not only understand the potential impact of development on the social structure of a local community, he should be knowledgeable about the social climate which different industries look for before making a commitment to a particular location. At this point I am taking a proper geographic and natural resource base as granted. Obviously an industry will not consider a site which does not have the physical advantages for its operations. The question which I am addressing is why one community with equal physical resources to that of a second community loses out in competition for a given industry.

My experience and study have convinced me that the representatives of industry very carefully screen communities as well as resources before making a decision to locate a plant. What is looked for above all else is
the level of community support, which is generally measured in terms of two
criteria. First, the welcome from the community must be representative of
all segments of the community, not just from an industrial development
committee or a handful of businessmen. Industry representatives, who do
their homework, will talk with people on the street, hold public meetings,
seek out opinion leaders, visit churches, etc. before making their decisions.
The challenge of the extension agent trying to help a community obtain an
industry is to generate, by informing and enlisting, a widely based atmos-
phere of receptivity for the industry. This is the same sort of challenge
faced in trying to get farmers or homemakers to adopt new and improved
practices.

The second aspect of the local social climate which industrial site
selection teams are likely to check is often overlooked by members of the
community. It is the degree to which the industry can expect help in
overcoming the many obstacles which have to be overcome before a plant or
other endeavor can become operational. Let me illustrate what is in mind
here. Industry needs a certain number of skilled and unskilled laborers,
a number of housing units for its laborers, certain facilities to accom-
modate its workers, and, above all, access at a reasonable cost to the raw
materials or resources it needs for its type of operation. The industry
representatives I have talked to frankly acknowledge that they do not expect
the local community to provide for all their needs, or even the greatest
share of their needs. However, they have to be convinced the community
will work with them in a spirit of cooperativeness in working out their
problems. There is nothing which turns off industry representatives more
than to get the impression that local real estate people, permit authorities,
service people, and owners of mineral or other resources needed will demand
more than a reasonable price, because they are in something of a monopolistic position. Usually industry is willing to pay something more than going prices, but no one likes to be gouged. I have been informed of instances where an industry abandoned a site after considerable investment in preliminary surveys, because it could not get enough raw material resources at the right price, or too many persons were seeking exorbitant gains at the industry's expense. In such instances, the total community suffers because of the greed or orneriness of a few.

Again, the community development planner has a challenge. He or she must help industry obtain the cooperation needed for a successful venture. At this point, I do not wish to imply that industry is perfect and always altruistic in its motives. Obviously some industries take advantage of communities. In this regard, the experienced extension agent will not encourage his community to roll out the carpet for industries, which project this type of image or impression. Legitimate industrial enterprises must make a profit and they can only do this when they have the right climate. If the leaders cannot get cooperation, have to pay too high prices, or otherwise cannot protect the margin needed for profitability, the industry has no recourse but to seek a location elsewhere. In fact, the industry project leaders who fail in this respect may suffer a setback in their own careers. It is for this reason they are willing and eager to cooperate to the full extent they can with local communities.

Before bringing this rather loosely organized discussion to a close, I would like to mention one other thought which comes to my mind when I contemplate what might be termed the sociological aspects of rural industrialization. This is the fact that extension agents and other planners seldom see it as their job or goal to work with industry workers and other repre-
sentatives with the goal of acquainting them with the people of the local community. Many times, workers will be from distant places and will have little knowledge of local customs, opportunities or history. Programs to acquaint them with the local area serve a good public relations purpose and at the same time avert certain types of problems. One of the most frequent problems is associated with the rather boisterous behavior of workers which convinces the members of the community that they are an unnecessarily bad influence for local people.

The rural community which seeks an industry and the industry seeking a rural location are the principal actors in a very real drama. How the script for the drama unfolds can be directed by change agents, such as cooperative extension personnel, if they are knowledgeable about social structure and skillful in the practice of inducing or instigating change in community social structures.
RURAL INDUSTRIALIZATION OPPORTUNITIES FROM A
RURAL DEVELOPMENT EXTENSION PERSPECTIVE:
AN ECONOMIST'S VIEW

by

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Since its inception, the Cooperative Extension Service has sponsored pro-
grams directed toward the primary purpose of the improvement of rural society.

The current long-range program plans of the Extension Service
include assistance to families, youth and community leaders
in the development and improvement of rural America to make
it a better place to live and work as a high priority mission (5).

As a part of its general purpose of improving rural society, "extension's
major educational objective in rural development is improved decision making
by community leaders and citizens relative to community issues" (5). For
instance, Title V of the Rural Development Act of 1972 states that

Rural development extension programs shall consist of the
collection, interpretation and dissemination of useful in-
formation from research and other sources to ... (decision
makers). These programs also shall include technical services
and educational activity ... to facilitate and encourage the
use and practical application of this information. These
programs may also include feasibility studies and planning
assistance (17).

To be consistent with these purposes and guidelines, extension rural
industrialization programs must be structured to provide information, in
the forms of educational and technical assistance, to facilitate well
informed decisions and successful actions on the parts of community leaders
and citizens relative to local industrial development. Extension programs
must educate and inform. They must not promote. Maintenance of this dis-
inction in the highly promotional atmosphere of a community industrial develop-
ment project can be very difficult. However, the existence of such an atmos-
phere in a community heightens the importance of extension's nonadvocacy
role in the process of local decision making.
The educational and technical assistance which extension can deliver to decision makers relative to industrial development can be viewed in two broad categories: 1) information to guide rural leaders and citizens in making industrial development decisions for the short and intermediate runs and 2) information to guide rural leaders and citizens in long term industrial development and growth planning. The problems associated with extension industrial development programs are differentiable into these same two categories.

Programs for the Short and Intermediate Runs

In the context of this paper, community industrial development programs for the short and intermediate runs refer to activities which can be completed and hopefully show results in one or two years. As a community enters into an industrial development effort, there are three important elements of its planning that fit into this time frame. 1) The community must have goals that are consistent with each other. Community leaders must be aware of these goals. 2) Decision makers in a community, and ideally, their constituents must understand as fully as possible both the positive and negative aspects of the impacts of various types of development on their community. 3) A group of trained leaders with community support must be responsible for planning and monitoring community industrial development.

These three elements of planning for community industrial development cannot be view separately. At any given time in a community, activities are likely to be ongoing which involve all three of these elements. In any stage of economic development, residents of a community may have conflicting goals for the community. This problem can be compounded by the fact that, particularly in the early stages of development, the goals of
a single group of individuals may be internally conflicting. Residents of a community may desire more jobs and services for the community. But they see the increased population (outsiders moving to town) which is likely to accompany more jobs and services (and may even be necessary to make them feasible) as quite undesirable for the community.

Increased understanding on the part of residents and leaders of potential impacts of various types of community economic development can often lead to resolution of such conflicts. People can make more rational decisions as they more fully understand the implications of their decisions.

Even after the general goals of a community have been ascertained by a community's leaders, these leaders must stay in touch with the attitudes of other residents about particular development actions, such as the promotion of the community as the location of a particular plant.

The extension problems of assisting the residents of a community in addressing these short and intermediate run industrial development planning issues are primarily organizational (rather than technical). Numerous pre-tested models exist for use in such activities. Extension professionals must take the responsibility for determining which models most nearly fit community needs and capabilities as well as their own capabilities. The extension professional must then lead community decision makers in adapting such models to specific community situations, applying the models and objectively analyzing results.

Community goals and desires can be identified and measured by way of a broad, open ended problem survey (10) or by use of a more formal questionnaire (8). An extension professional working with a particular community must determine which approach best fits the needs of the community leadership and his own capabilities for assistance. He must also work very
closely with community leaders to be sure that any approach to ascertaining and assessing community goals gives the citizens opportunities to comment on the issues relevant to the problem at hand.

Economists have focused considerable attention on the estimation of both public and private sector economic impacts of industrial development and accompanying growth on areas and communities. Some understanding of the nature and extent of such impacts is very important for community leaders as they make decisions about initiating activities to pursue industrial development, and as they evaluate particular firms as industrial prospects for their communities.

Several models are currently available which utilize local data to estimate impacts of industrial development in terms of employment, income, population and tax revenues (2,9,12,14). Applications of such models require varying levels of technical expertise. However, sufficient documentation is available for most models to make them operable by most extension rural development professionals. The most serious problems associated with the use of such models relate to understanding their limitations (garbage in yields garbage out) and communicating these limitations to community leaders. When presenting results of such models, extension professionals must remember that, as discussed earlier, their job is to educate and inform not to promote and advocate.

Because of its traditional capabilities for working with local organizations, extension is uniquely qualified to play a very important role with the third element of short and intermediate run community planning for industrial development -- organizing and training a group of local leaders (an industrial development team) to be responsible for planning, promoting and monitoring such development. This group must understand community goals,
evaluate impacts of development in light of these goals and identify and evaluate community improvements or changes which might attract industry. They must also prepare themselves to discuss their community with prospective industrial firms, and finally, they must seek such firms out and contact them.

A community industrial development team is a primary audience to which results of a community attitude survey and industrial development impact analysis should be presented. The team may be heavily involved in conducting the survey and analysis. An extension professional should work closely with an industrial development team as it performs its functions. However, other agencies with specific kinds of expertise should also be involved. A major function of an extension professional in such a situation may be to seek out people from other agencies which may be of assistance to the team.

Professional industrial developers from state industrial development offices can be extremely helpful in identifying community changes which might make a town more attractive to industry. Personnel of substate planning districts and state planning offices, as well as funding agency personnel, can assist community industrial development teams in identifying possible sources of funds for making such changes.

All of these types of people can contribute to the formal training of community industrial development teams. However, the expertise of professional extension educators can be very effectively used in such training. Industrial development team training publications have been published by extension organizations in several states (11,12). The results of such training should be a well informed, permanent sales organization with the responsibility for representing its community to firms considering locating or expanding facilities in the community.
Locating industrial prospects is not an easy task for a community. As a general rule, extension professionals are not well equipped to provide direct assistance. They can, however, help communities work with other agencies, (state offices of industrial development and state chambers of commerce) which have contacts with industrial prospects. Persons from these agencies are usually very amenable to working with communities that are well prepared for industrial development. And, as discussed above, extension rural development professionals can have a great deal to do with seeing that a community is well prepared for industrial development.

Community industrial prospecting assistance from relevant agencies can be greatly enhanced by the involvement of these agencies in all phases of a community's development program. Facilitation of such interagency involvement may be the most important factor that an extension professional can contribute to a community's development.

Long Term Development Planning

The problems faced by extension rural development professionals working with community leaders on planning for long term industrial development and growth are largely technical in nature. Many community leaders are interested in such planning, but the technical tools available to rural development professionals to assist these leaders are limited.

Planning for development requires reasonable estimates of the impacts of alternative development strategies. Models such as the one developed by Schaffer (14) can be modified to be used iteratively in estimating long term development impacts, but such models do not yield estimates of development and growth impacts on specific community services. In the short and intermediate runs, community development changes are likely to be small, so these impacts are likely to be relatively small. Most communities have the ability to adapt to
such changes. However, continued community development and growth over a period of years can cause significant stress on community services. For well informed growth planning to take place, community leaders must foresee such problems and evaluate alternative solutions.

So rural development professionals attempting to assist community leaders with planning for long term industrial development and growth need long term models that specify growth impacts not only for the private sector but also for specific elements of the public sector. They also need models to assist them in estimating cost of expanding specific community services to satisfy expected needs.

Considerable research work has been done which will be useful in the development of such models. As has been noted above, numerous successful efforts at modeling private sector and general tax impacts of development have been developed for many community services. Demands for law enforcement, health care and ambulance services have been shown to relate to population, by age and sex (15,4,3). Demand for water service has been shown to relate to numbers of commercial and residential users (6). Demand for solid waste disposal service has been shown to relate to the number and location (urban/rural) of residences served (7). Demand for fire protection has been found to relate to population, land area served and numbers of vehicles, businesses and residences in the area served (1). Methods of estimating costs for alternative systems for providing these and other community services have been derived (1,3,4,6,7,13,15,16).

If private sector development and growth impact models can be amplified to generate reasonable estimates of the economic and demographic variables which relate to demands for specific community services, then such models can be linked to community service models. Resulting estimated demands for
community services could be compared to capacities of current community service systems in specific communities, to facilitate estimation of system expansions needed to keep pace with expected local growth. Existing methods of estimating costs of community service systems could be used to calculate expected costs of projected system expansions.

Given the tools specified above, extension rural development professionals could be of great assistance to local leaders in planning development and growth based on expected impacts. Much of the work necessary to develop such tools has been completed under the classifications of economic development research and community services research. The research efforts must be linked together to provide the kind of comprehensive methods needed to assist community leaders with long term growth planning.

Summary

The major objective of rural development extension programs is to provide educational and technical assistance to community leaders and citizens to improve their decision making capabilities relative to community issues. The major objective of extension industrial development programs, then, is to provide such assistance to leaders and citizens to improve their decision making capabilities relative to rural industrial development issues.

Rural industrial development issues are many faceted, and the long term success of extension programs depends on decisions about such issues being made by local citizens, not by extension professionals. So rural industrial development extension assistance must be as wholly objective as possible.

Extension industrial development programs can be viewed as short and intermediate run programs and long run programs. Short and intermediate run industrial development programs include 1) assisting community leaders and
residents in ascertaining and assessing local goals, 2) assisting these persons in understanding both the positive and negative aspects of the impacts of development on their community and 3) assisting in the training of community leaders to plan, promote and monitor desired development activities.

The extension problems of providing such assistance are primarily organizational, rather than technical. Numerous pre-tested models exist for use in such activities. Extension professionals must match appropriate models and techniques to community needs and personal capabilities. They must also work to involve industrial development professionals from other agencies in any local industrial development activities. Such people can be invaluable to communities in assisting them with attaining financial aid for community improvements and with contacting industrial development prospects.

Problems faced by extension rural development professionals working with community leaders on planning for long term industrial development are largely technical in nature. Few, if any, of the tools (models) available for such purposes are sufficiently complete and specific for their results to be of much use to community decision makers. Models for estimating long term private sector and tax impacts of development need to be linked to specific community service demand models. Such linkages would yield comprehensive models which would be much more useful than currently available partial models for assisting community leaders with long term growth planning.
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WHAT RESEARCH TELLS ABOUT THE EFFECTS RURAL COMMUNITIES WILL FACE IF THEY SUCCESSFULLY INDUSTRIALIZE

by
Dr. Bruce K. Robinette
Duffield, Virginia

I approach this topic with some very strong emotions. These mixed emotions are brought about primarily because I have spent a goodly portion of my adult career attempting in every way possible to industrialize a very poor rural section of Southwest Virginia.

Being the son of a sharecropper, having spent all of my pre-adult years on the farm in a substandard house accompanied by a collie dog, several brothers and sisters, all situated adjacent to a dirt road, I consider myself somewhat of an expert on the under-industrialization of rural America.

Since my employers, employees and I have enjoyed in the past 10 years some degree of success in rural industrialization I will briefly share with you some of the problems that we are presently facing along with others that we see approaching on the horizon due to success.

All of our efforts in Southwest Virginia in soliciting non-coal industry have been on a regional basis. I serve three employers which all operate under our regional umbrella representing one small city, three predominantly rural counties and 14 small towns. Our first endeavor in 1967 was to plan and build a regional industrial park located at Duffield, Virginia. After approximately three years of absolute frustration brought on by the numerous bureaucracies with which we had to deal, we broke ground on the Duffield Industrial Park in June of 1970. Our degree of industrial success has grown slowly but on a firm basis since 1970, and today we have seven industries which employ, collectively, 850 people with an annual payroll of $8 million, with a private investment of $11 million, and a public investment of
$7 million, keeping in mind, that our original development cost was $1.4 million representing funds from 14 state and Federal agencies and two from the private sector.

We have not encountered all of the problems brought on by industry that we can stand. In other words, we are still soliciting industry for our area, but the following will give you some insight into the problems that we either now encounter or those that we will face in the future.

I. POLLUTION

If a community has manufacturing facilities, it is going to have certain waste material that will affect the quality of water and the quality of the air, and problems surrounding the disposal of both solid and liquid waste. There exists no such thing as a perfectly clean manufacturing process until a 100 percent fool-proof recycling process is invented. Industry will have some degree of pollution regardless of what environmentalists or Federal regulatory agencies say or do.

II. TRANSPORTATION AND TRAFFIC

Traditionally, the roads, highways, and streets in rural America are outdated, poorly engineered and designed, and in many cases, barely adequate for the sparse rural traffic, much less the tremendous volume brought on by industrial activity. Most all states have an industrial access road program, and due to that fact all states are actively involved in industrial solicitation, from other states as well as abroad. Highway departments are very cognizant and receptive to improved roads and industrialization. The main problem arises from the tremendous time element involved in reconstructing roads after industrialization has taken place. I know of no state which will build or improve a road until after an industry is in place. Consequently, everyone in the area suffers.
III. OVERCROWDED EDUCATIONAL FACILITIES

Most school systems have hardly recovered from the population boom brought on by the post war (World War II) children, and now they are falling behind in classroom space daily at the primary and secondary level. Needless to say, college education in most cases is not even addressed although state community college systems are becoming very prevalent. The local school growth problem is very very expensive since local education dictates in excess of 80 percent of the local county budget. Industries do not expect education for their people; they take it for granted.

IV. ACUTE HOUSING SHORTAGE

Although I am not ranking these problems in any particular order, in many cases and especially in our own local case, the housing shortage is the worst. Lack of housing and increased housing demand breed a haven for mobile homes and the marginal modular and/or prefab market. After living in a mobile home for six years, I can personally attest that it is a very poor excuse for safe, decent and sanitary shelter.

In addition, it brings about instant subdivision developments, which in many cases are poorly conceived and planned, brought on primarily to meet the housing boom demand.

V. OVERLOADED UTILITY SYSTEMS

Most of the rural water and sewer systems are antiquated and are barely adequate to serve a sparse population, much less heavy industry and/or commercial users. Because a town has a sewer system adjacent to a piece of attractive real estate does not necessarily mean that it has treatment or trunk line capacity. This latter question is very seldom asked by an industrial prospect because the prospect, after tapping the sewer or water, has passed the problem on to some municipality.
VI. **INADEQUATE MEDICAL, HOSPITAL, EMERGENCY MEDICAL, FIRE AND POLICE SERVICES**

These services are dictated by population and its growth. They all represent a tax burden, are very expensive and must be addressed. I do not readily know of any rural community which possesses a surplus of any of these services.

VII. **METROPOLITAN ORIENTED PEOPLE**

Persons with a metropolitan background do not always adjust when transplanted to a rural setting which leads to living discomfort and dissatisfaction and eventually to citizens with a poor attitude.

VIII. **INFLATED PROPERTY VALUES**

In most cases, property values skyrocket out of reasonable proportions due to industrialization creating in many instances poorly planned commercial developments such as many mini-shopping centers and hamburger alleys.

IX. **INCONSISTENT WAGES**

Farmers and small businesses suffer drastically due to high industrial wages in a sparsely populated area. This is one prime reason for the gradual disappearance of the small farmer. One can assume that any industry operating in this country has a base wage scale which will be the prevailing minimum wage.

X. **MUNICIPAL FINANCIAL STRAIN**

If sizeable industry tax concessions are given by localities as an enticement, financial problems are in the offering, and, in addition, when a locality buys an industry it is very difficult to cease the practice.

XI. **LABOR UNREST**

Industrialization sooner or later brings organized labor and unions,
which under the very best circumstances at one time or another create labor and management unrest. When this occurs, it is very detrimental to a community, especially a small community where strong personal and family relationships exist. (Family versus family, friend versus friend, and child versus child.)

XII. RURAL HISTORY AND HERITAGE

Rural industrialization commercializes a very vital part of our heritage — the rural, red-necked American. It takes him and his family away from the farm, the home, and the land, which undoubtedly offer the best and purest quality of life. I speak to this point through a very valued personal experience.

These are only some of the problems facing rural communities which successfully industrialize. As stated earlier, the problems in most cases are tolerated in order to obtain the fringe benefits — money, the creation of jobs, and the establishment of a strong tax base, etc. I do not know of a rural elected official, businessman, minister or physician who would turn away an industry which would employ 100 new factory workers and would have the following consequences on their communities:

351 more people
79 more school children
$1,036,000 more personal income per year
97 more families
$490,000 more bank deposits
1 more retain establishment
68 more employed in non-manufacturing
$565,000 more retail sales per year
In light of these benefits, it is hard to imagine a rural community which would not want to industrialize successfully. But rural communities need to be aware of the problems which will accompany these benefits so they can work toward their solution.
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