Development Characteristics in Non-metropolitan Alabama: Social Indicators & Industrialization

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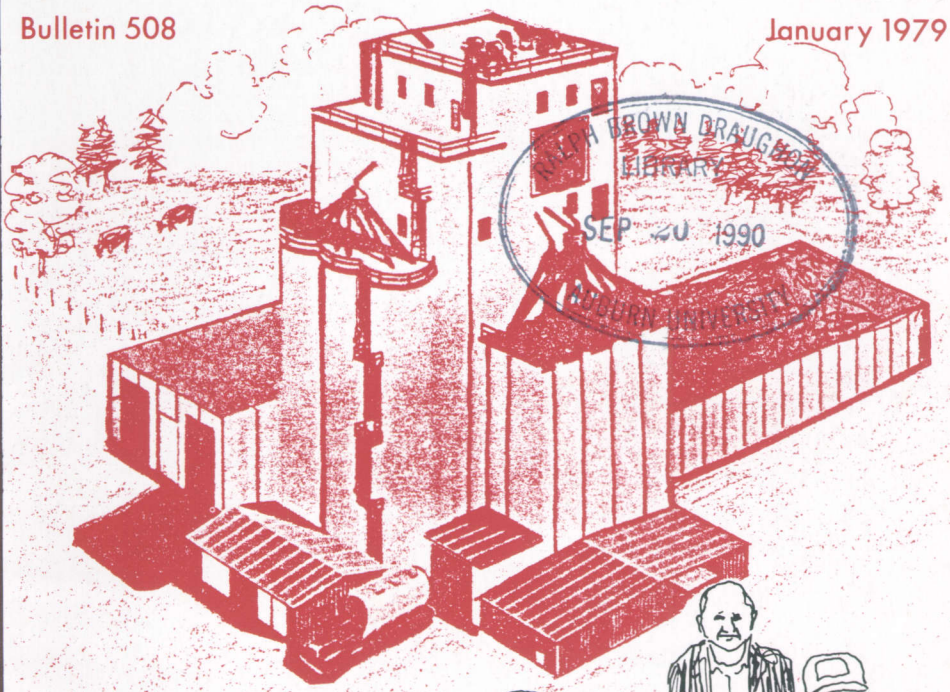

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Development Characteristics In Non-Metropolitan Alabama: Social Indicators and Industrialization

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INTRODUCTION

Development is a concept associated with a variety of different meanings. Non-metropolitan or rural development is most broadly defined as a policy goal that has as its ultimate end the improvement of social well-being among rural people (3). Rural poverty and urban problems are often seen as products of a geographic mismatch of labor supply and demand, a result of declining opportunities in rural areas and increasing opportunities in urban areas. The Economic Opportunity Act of 1964, the Economic Development Act of 1965, the Appalachian Regional Act of 1965, and the Rural Development Act of 1972, all view the location of industry in rural areas as an important policy tool for rectifying the imbalance.

For some, rural development has become equated with rural industrialization (8). Others have stressed the construction of new facilities and the improvement of community services as part of a planned approach to development. The underlying premise of development through industrialization, however, is that job creation will lead to income growth, population redistribution, housing improvements, better community services, and other positive changes (10).

The present study focuses on the creation of new jobs as one central aspect of the rural development process. Though previous research generally lends support to the belief that industrial location in rural communities can bring some economic prosperity, the trend reported in many studies reveals mixed

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effects of industrialization on employment, population size, and other social conditions (6).

Industrial development is not a single cure for the problems of rural communities. Industrial growth is associated with certain costs, and the distribution of these costs is not always matched by the distribution of benefits. Benefits do not come automatically, nor do they apply to all communities. The financial and tax requirements for new public services and schools and the social costs of integrating newcomers into the community may exceed industrialization benefits, at least in the short run. More often, the industry and local businesses have clearly gained, but with a small or even negative effect on local governments and economically disadvantaged citizens.

Though rural development through industrialization has rarely equalled the full promise of its most avid promoters, it remains an important objective for many decision makers and residents of rural areas. This report seeks to identify some of the effects of industrialization and to examine its impact on rural Alabama counties as reflected in various indicators of social development and well-being.

Social Indicators

The social well-being of individuals in any society depends greatly on the ability of policymakers to make appropriate decisions regarding effective social policies and programs. Social indicators are measures of various social conditions within communities or societies (2). They are designed to provide a more accurate and objective picture of the needs and goals of a community or area. In this way, social indicators represent an active, deliberate effort to select and present an array of measures of social change (13).

A large collection of social statistics is compiled by various government agencies, each designed to illuminate some particular phenomenon of social concern. Taken together, these indicators can be arrayed along broad content dimensions and viewed as representative of conditions within a particular unit of analysis; in this study, the county.

The present research focuses on social indicators in non-metropolitan Alabama counties. Six dimensions or sets of indicators are examined. These include: demographic, employment, labor force, housing, health, and quality of life. The study makes the assumption that social indicators reflect

differential rates of development and seeks to identify the impact of industrial employment growth in quantitative measures of various aspects of social well-being.

Objectives

The purpose of this report is to examine the relationship between selected sets of social indicators and increases in industrial employment in non-metropolitan Alabama counties. One objective is to profile those counties most likely to experience continuing improvement in employment opportunities and to identify some of the factors that facilitate their growth and development.

A second objective is to increase the information available to professional developers, local decision makers, and citizens with regard to the process of industrial development. The study describes selected social, demographic, and economic characteristics of counties that have experienced differential levels of growth in industrial employment. The findings may contribute to the understanding of the industrialization process as it is occurring in Alabama, and increase the ability of planners and local decision makers to anticipate the impacts of industrial development.

DATA AND METHODS

Data for this study were obtained from publications of the Alabama Development Office. *The Alabama County Data Book* assembles indicators of the social, demographic, economic, and physical characteristics of Alabama counties. A second data source, *Industry—New and Expanding,* provides yearly reports on new and expanding jobs, industrialization, and capital investment in Alabama counties. The present study relates various indicators of development and well-being to one measure of industrial employment growth in non-metropolitan Alabama counties.

Several reasons underlie the choice of the county as a unit of analysis. First, the county has been a historically important geo-political unit from a rural development perspective (4). Many development-oriented organizations and governmental programs are organized on a county basis. Secondly, the county is a more readily distinguishable unit than other social collectivities at lower levels of aggregation, such as the community. Counties are unambiguously differentiated, and their boundaries are most

likely to correspond to significant social, economic, and political differences.

Non-metropolitan Counties

A non-metropolitan county is one which is not included in a Standard Metropolitan Statistical Area (SMSA) by the U.S. Census Bureau. A SMSA is defined as an area having a central city of at least 50,000 inhabitants. In addition to the central city, a SMSA also includes the county in which the city is located, plus contiguous counties "if according to certain criteria they are essentially metropolitan in character and socially and economically integrated with the central city" (7).

Non-metropolitan (or non-SMSA) counties are predominantly rural in nature, though some counties defined as rural by other definitions may be excluded by this definition. The SMSA definition is employed because rurality is difficult to clearly define, and non-SMSA counties are those most likely to lack the centrality of location, population characteristics, and public facilities generally associated with industrial development. Of the 67 counties in Alabama, 49 are classified as non-metropolitan, and these constitute the focus of the study.

Growth Counties

The 49 non-metropolitan counties were categorized according to the level of employment expansion they experienced in the 1974-76 period. Though other indicators of industrial development are available, the creation of new and expanded jobs is a major concern for local decision makers and the general population and will be the focus of this study. The number of new and expanded jobs in the 3-year period ranged from 15 to 1,290. Table 1 lists the non-metropolitan counties in each of three job expansion categories, and the figure shows their location. Other methods could be employed to measure growth and development in a rural county, but few share the concern and attention directed to employment growth.

One limitation of the new and expanded jobs measure of employment growth is the gross nature of the indicator. The actual net gain in employment in an area may be far different due to plant closings, production cutbacks, and economic downswings. One study found that four industrial jobs have to be created to get a net gain of one (4).

The measure also reflects announced job openings, which may vary somewhat due to situational considerations. According to those compiling the indicator, previous experience has shown a high degree of consistency between announced and actual employment (1).

Finally, the measure does not include employment growth in the public sector, an area of significant expansion in recent years. Industrial job growth over a 3-year period does, however, give an aggregate picture of developmental change, one of major interest to many people. In a sense, the measure also reflects the prospects of an area for future growth as manifested in industrial decisions to locate or expand in a particular county.

TABLE 1. NON-METROPOLITAN ALABAMA COUNTIES: NUMBER OF NEW AND EXPANDED JOBS 1974-76

Number of new and expanded jobs (1974-1976)		
Low (15-119)	Middle (141-327)	High (355-1290)
Bullock	Barbour	Cullman
Butler	Bibb	Dale
Chambers	Blount	Dallas
Cherokee	Chilton	Dekalb
Choctaw	Clarke	Fayette
Clay	Coffee	Franklin
Cleburne	Covington	Houston
Conecuh	Geneva	Lamar
Coosa	Henry	Lawrence
Crenshaw	Jackson	Lee
Escambia	Marengo	Macon
Greene	Perry	Marion
Hale	Pickens	Monroe
Lowndes	Sumter	Morgan
Pike	Tallapoosa	Talladega
Randolph	Washington	Wilcox
		Winston
N=16	N=16	N=17

SOURCE: Alabama Development Office, Montgomery, Alabama. *Industry-New and Expanding* 1974, 1975, 1976.

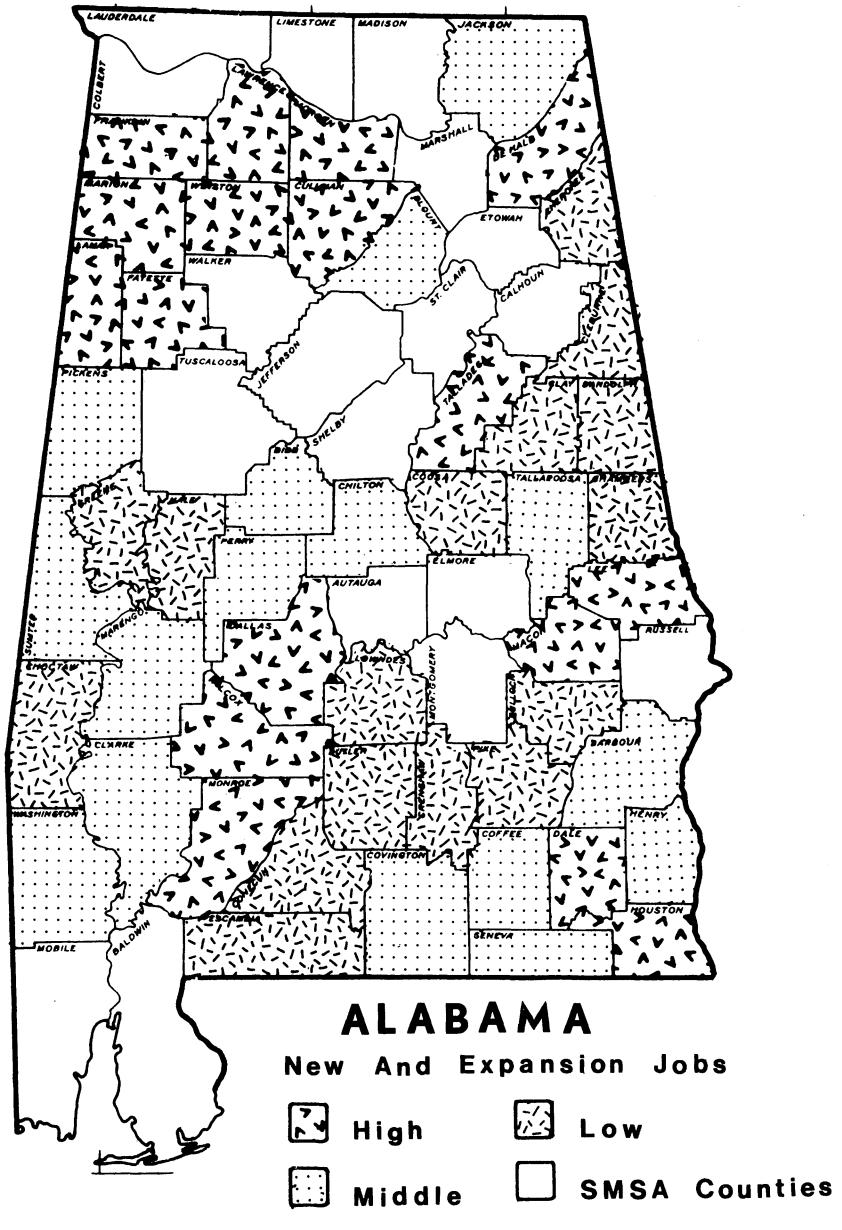

Figure 1. Non-metropolitan Alabama Counties in Three Categories of Employment Growth 1974–1976.

Social Indicators

The three non-metropolitan growth categories are compared on six sets of social and demographic indicators. *Demographic indicators* describe the size and composition of a county's inhabitants. *Labor force indicators* profile important subgroups in the population. *Housing indicators* describe the housing stock in a county. *Health indicators* reflect various aspects of medical care and well-being. *Income and Employment indicators* chart economic conditions. Finally, *Quality of life indicators* profile some aspects of the overall desirability of a county as a place to live.

FINDINGS

The following sections identify each social indicator dimension and its relevance for development. The data are analyzed by presenting the mean level of each component indicator in three categories of industrial employment growth. Analysis of variance is employed to evaluate patterns of variation across the three categories. The implications of differences on each indicator dimension are explored. A final section seeks to outline a balanced picture of the development process based on the findings of the study.

Demographic Indicators

Demographic characteristics describe the number and characteristics of a county's residential population. The number and kinds of people inhabiting an area affect the growth potential of a county. A sparse population may represent a limited market for a firm's products as well as limitations on the available pool of labor. A large labor force may enable an employer to be more selective in recruiting workers with specialized work experiences and skills, increasing the attractiveness of an area in which to locate or expand.

Nine indicators are considered. Population estimates for 1975 are made by the U.S. Census Bureau. The percent change in population from 1970 to 1975 shows the growth or decline in the number of residents during this period. Other indicators include the percent of nonwhite residents in 1970, the percent of residents living in urban areas, and the percent of residents under age 18, 18 to 64, 64 or under, and over 65. Net migration indicators show the

percent of total net migration for the periods 1960 to 1970 and 1970 to 1975. Net migration rates are computed by subtracting the number of out-migrants from the number of in-migrants expressed as a percent of expected survivors at the later time.

Table 2 shows that counties with low increases in the number of new jobs had significantly smaller populations than counties that achieved increased growth as indicated by the estimated 1975 population. More sparsely populated counties may lack many of the required facilities and resources that attract industry.

The mean population change from 1970 to 1975 was greatest in the high growth counties. The small F-ratio indicates, however, that variation within growth categories was greater than the variation between categories, and that employment growth was not necessarily associated with high population growth in the 49 non-metropolitan counties. On other measures, a significant F-ratio, denoted by an asterisk, suggests that significant differences were found across the three groups of counties.

Though high employment growth counties tended to have a high percentage of urban residents and lower percentage of

TABLE 2. MEAN POPULATION CHARACTERISTICS OF 49 NON-METROPOLITAN ALABAMA COUNTIES IN THREE CATEGORIES OF EMPLOYMENT GROWTH

Indicator	Employment growth			F-ratio
	Low	Middle	High	
Estimated population: 1975	18,187	25,437	37,213	5.95**
Percent change in total population: 1970-1975	2.4	4.8	5.3	.62
Percent urban: 1970	21.5	30.5	34.18	.43
Percent nonwhite: 1970	39.6	31.6	24.2	1.97
Percent under age 18	37.0	36.6	35.4	.82
Percent age 18-64	50.8	52.0	54.4	3.65*
Percent over 65	12.2	11.4	10.1	5.63**
Net migration 1970: percent of 1960 population	-17.3	-11.1	- 3.4	7.25**
Net migration 1975: percent of 1970 population	- .37	2.8	1.9	.69

* $p < .05$
** $p < .01$

nonwhite residents, neither indicator varied significantly across the three categories. High employment growth was associated with several differences in the age structure of county residents. High employment growth counties had higher percentages of their population between ages 18 and 64, and significantly less over the age of 65.

The findings show population differences between counties to be greatest in the working age labor force category. Some differences in age structure may be attributed to migration of younger workers out of counties with few job opportunities to areas of high employment growth. In addition, a high proportion of working age persons may be a resource encouraging further industrial development. The findings are consistent with earlier case studies that have shown similar increases in the working age population of high growth areas and concentration of the aged in low growth areas (9).

Table 2 also shows that out-migration exceeded in-migration for all three employment growth level counties between 1960 and 1970. A negative figure indicates net out-migration, or that more people were leaving than coming into a county. The rate of out-migration, however, diminished significantly from low growth counties to high growth counties.

Net migration figures for 1970-1975 show in-migration for counties experiencing high and moderate employment growth and out-migration for counties experiencing low employment growth. This shift to in-migration for counties experiencing industrial growth seems to support previous findings that out-migration diminishes as job opportunities for local workers become available, and in-migration increases as outsiders are attracted to an area's job opportunities, although the shift was greatest for the middle group of counties.

Some researchers, observing that out-migration has reduced per capita income of the sending and receiving areas, have concluded that out-migration should not be encouraged (11). Out-migration places a strain on an area by reducing the proportion of productive individuals residing there, generally those aged 18 to 64. It also increases those segments of the population that tend to be dependent on others for support, those under 18 and over 65. Out-migrants not only bear the expense of moving to obtain a job, but are often required to leave meaningful family ties and friends behind. These individuals often receive lower average incomes than long term residents,

and are more likely to experience unemployment in economic down cycles than permanent residents of an area. The creation of jobs in rural areas, then, appears to be an important mechanism for avoiding undesirable population shifts.

When considering the general well-being of rural people, however, out-migration has some advantages. If the income of people who migrated out of the community is compared with the income of those who remain, out-migrants have indeed raised their incomes. It may have reduced the average income in the receiving area, but the migrants have generally benefited on an individual basis (11).

In summary, the findings show that high employment growth areas have larger populations, have fewer individuals under the age of 18, have a significantly greater proportion age 18 to 64, and have a consistently smaller aged population. These characteristics profile some of the consequences of rural industrialization, as well as some of the conditions that may facilitate its progress.

Labor Force Indicators

A primary concern of those seeking to locate an industry in an area is the quality and quantity of the potential labor force. The skill and educational levels of residents often are important considerations in location decisions. Industrialization also can serve to upgrade the educational level of an area by increasing the likelihood that certain levels of training will be matched by appropriate opportunities. This section examines the relationship between industrial employment growth and selected county labor force characteristics. Additional discussion explores the implications of industrial location for the labor force in rural communities.

Labor force indicators specify the characteristics of a county's working age population. Male high school graduates, aged 20 to 49, generally represent the most active, trainable segment of the labor force. The proportion of male and female high school graduates and the median grade completed reflect the general education level of a work force, as does mean education.

Table 3 shows that high employment growth counties had the highest proportion of working age male high school graduates and the highest proportion of all male high school graduates. The percent of female high school graduates, however, did not significantly differ across the three groups. The mean

educational level in high growth counties was significantly higher than in low growth counties. Most new jobs go to workers with at least a high school diploma, and individuals with these qualifications may be attracted to growth areas on the basis of job availability.

The findings suggest that the working age male segment of a population is a key factor in the industrialization process, but that differences in median education also bear a strong relationship to employment growth. The educational levels of women become increasingly important as industrial jobs become automated, and white collar, clerical, and service occupations absorb a greater proportion of the work force.

An industry hiring mostly women will have a different impact than an industry hiring mostly men. Despite equal employment opportunity laws, some types of employment are intended primarily for women, while other positions, often involving strenuous physical labor, are generally occupied by men. The distribution of new employment by sex may have important implications for a community.

When an industry hiring mostly women locates in a community, the effect on population size of the community may be minimal, depending on the relative size of the industry and the current employment situation for women in the community. Most rural communities have a highly elastic supply of women

TABLE 3. MEAN LABOR FORCE CHARACTERISTICS OF NON-METROPOLITAN ALABAMA COUNTIES IN THREE CATEGORIES OF EMPLOYMENT GROWTH

Indicators	Employment			F-ratio
	Low	Middle	High	
Percent of males: high school graduates-age 20-49: 1970	45.8	48.6	53.6	3.95*
Percent of total: male high school or better: 1970	28.8	31.1	36.8	7.21**
Percent of total: females with high school or better: 1970	30.6	31.8	34.6	2.37
Median grade completed: males and females: 1970	9.2	9.4	10.0	5.38**

* $p < .05$
** $p < .01$

for the work force; that is, a very small increase in wages will attract a large quantity of female labor. This is true simply because the opportunity for women to do remunerative work outside the home is generally quite limited in small towns.

A factory hiring mostly women may result in increased income for many households in the community, and this in turn will be reflected in higher consumption, a higher level of living, and higher savings. Families with working women may require the purchase of more convenience foods, more household services performed outside the household, more laundry and dry cleaning, more restaurant meals, and may increase both the quantity and quality of women's clothes sold. There may be little increase in new housing, but increased remodeling and refurbishing of established homes could occur. What happens might be called development without growth, at least in population. Per capita income is increased with little or no change in the population base (9).

Another consequence of attracting an industry which employs mostly women is to risk increased unemployment, an outcome probably not anticipated by most communities. First, previously unemployed housewives inflate unemployment figures if they resign after a short period of plant employment. Second, there is an increase of unemployed men who stay in the area because women in their families work at the plant. The slowdown of male out-migration also increases the need for more jobs for employable males at attractive wage levels.

From the point of view of residents in communities which receive industry, several considerations are important. The age, sex, ethnic backgrounds, and wage levels of new workers represent central questions about the industry's potential impact (10). In general, the extent to which a new work force alters the character of a community will depend on the size of work force compared to the size of the community. The hiring and training policies of the company also have important implications for a new industry's effect on a community. The training levels and sex of new workers are major factors discussed here.

An industry paying high wages and requiring skilled workers will have different effects than one providing low wage and low skill jobs. High skill, high wage industries are likely to increase the total income of an area, but are least likely to hire the local disadvantaged. Low skill, low wage industries are most likely to

employ the disadvantaged, though their effect on overall incomes and wage levels is likely to be minimal (10). Training programs often can have demonstrable impacts on unemployment by upgrading the skills of local workers. Such programs are likely to give greatest benefits to areas where skill levels are low and workers lack diverse work experience (9).

Income and Employment Indicators

Community decision makers and residents seeking to establish new industry in rural areas often expect substantial positive changes in income and employment. Income growth is a major consideration for rural Americans, whose earnings are below the national average (3). An important policy objective of employment growth is that workers be recruited from the ranks of local disadvantaged residents—the unemployed, poor, and minority groups—in an effort to reduce the ranks of the unemployed and the need for assistance. A potential benefit of employment growth in this case is a reduction in income inequality. New jobs and increased incomes may raise the standard of living of disadvantaged residents. Also, a reduction in inequality in incomes may result in raising the incomes of relatively low income families more than those of high income families. Residents who operate small farms or who have low paying jobs are often the first to obtain employment in a new plant.

Another consequence of industrialization in rural areas is the extent of multiplier effects, which refer to the indirect impact of an industry on the entire area. New and expanding jobs increase capital flows, which feed back ultimately into the community through increased sales of goods and services on the retail level. A broader tax base may also contribute to the expansion of public services as industrial growth occurs. Multiplier effects such as these have been used to impress a community with the benefits to be derived from industrial development. The impact of new jobs is rarely focused directly on a single community or county; instead, it tends to spill over and benefit surrounding areas.

The questions of income distribution, employment impacts, and multiplier effects can be addressed by comparing groups of counties sharing differential levels of employment growth. Differences in growth should be reflected in differences on key indi-

cators of income level and distribution. Eight indicators are considered here. These include median family income, per capita income, percent of families below poverty level, per capita income changes, public assistance expenditures, retail sales, and retail sales changes.

Table 4 shows mean income and employment characteristics for non-metropolitan Alabama counties in three categories of employment growth. High growth counties had significantly higher incomes than low growth counties. Median family income was about $1,000 greater in high growth counties than in low growth counties. Per capita income also was significantly greater in high growth counties, though differences were not as striking. Thus, individual and family incomes tended to be greater in industrializing counties, lending support to the generalized expectation that new industry will increase real income if one considers either per capita or median family income as the criterion measure.

Although there may be real per capita income gains associated with industrial development, and an upward shift in the central tendency of the income distribution, this may not necessarily lead to more income equality within the community. Examining the distribution of income among county residents, the evidence of positive effects is less clear. In general, growth areas had significantly higher individual incomes. Fewer families had incomes below $3,000 in high growth counties. However, income changes, unemployment rates, and expenditures for public assistance were nearly the same across the three categories of growth. Though income levels were higher in growth areas, changes in income level from 1970 to 1974 did not vary significantly, although fewer families were below the poverty line in growth areas.

Retail sales volume generally increases as a consequence of industrial growth. Gains in sales activity often reflect increased money flows in the local economy and may reflect multiplier effects of new job income as well (10). The percent change was lowest in the low growth counties, although the rate of increase was slightly higher in the middle growth counties. Greater relative increases in sales activity occurred in counties undergoing moderate levels of employment growth.

Retail sales volume for 1976 reflected highly significant

TABLE 4. MEAN INCOME AND EMPLOYMENT CHARACTERISTICS FOR NON-METROPOLITAN ALABAMA COUNTIES IN TTHRE CATEGORIES OF EMPLOYMENT GROWTH

Indicator	Employment			F-ratio
	Low	Middle	High	
Median annual family income: 1970	5,237	5,592	6,157	3.32*
Per capita annual income: 1974	3,157	3,388	3,570	3.65*
Percent of families with incomes less than $3,000: 1970	33.4	28.5	26.2	2.72
Percent change in per capita income: 1970-1974	43.31	43.56	39.47	.76
Unemployment rate: percent of labor force, 1975	8.3	8.8	9.4	.53
Public assistance expenditures per capita: 1975	29.40	32.00	33.80	.27
Retail sales: percent change 1971-1975	33.5	46.2	41.2	1.17
Retail sales x $1,000: 1976	46,675	84,811	176,740	5.50**

* $p < .05$
** $p < .01$

differences across the three different categories of growth in counties as an impact of industrialization. The sales volume in the highest growth category was nearly 100 percent higher than the middle growth category and approximately 200 percent higher than the low growth category. Although partly attributable to differences in population size, this growth may reflect the multiplier effects of new employment.

A major factor, however, which may dilute positive multiplier effects of new jobs is income leakage. Income leakage occurs

when non-resident workers or commuters spend their earnings in other areas; when residents who are hired locally no longer commute and bring earnings to the community from the outside; and when new and increased earnings are put into savings or the payment of old debts. Income leakage may dilute the impact of an industrial location on an individual community or county, but the benefits to the broader region remain.

In summary, the data suggest that differential levels of employment growth were associated with slight but consistent differences in income and employment characteristics. Several limiting factors may explain the small impact observed. One is that the new jobs most often go to men who bring their families to the community. When this happens the number of household members increases, but little or no change occurs in per capita income. In addition, if manufacturing firms in small towns are characterized by low wages and high labor intensity, there may be limits to the contributions that these firms can make to the economic well-being of families and the community.

The creation of new jobs tended to have little impact on unemployment rates and expenditures for public assistance, as they were similar across levels of growth. Several lines of reasoning may explain this finding. The prospects for employment in an area experiencing industrial growth may attract low-skilled migrants in excess of the area's ability to supply new jobs. At the same time, highly skilled migrants may take jobs otherwise going to lesser skilled local workers, while low skilled migrants may remain unemployed in the place of local workers who have taken new jobs. One result seems to be small differences in unemployment rates and public assistance outlays. In addition, high growth areas may be particularly vulnerable to economic swings that may create extensive unemployment on a short-term basis when the labor supply increases at a relatively constant rate.

The initial industries to locate in non-metropolitan counties in the South often are less capital intensive or high-wage paying than those elsewhere. If firms pay low wages, there may be little improvement in incomes because the wage levels may not lift workers and their families above the poverty level to any significant degree. Furthermore, if small communities receive a disproportionate number of low-skill, low-wage, non-growth industries, rural residents might become *more* disadvantaged as a result of industrial development (10.)

The impact of employment growth on income is one of mixed effects in which industrial development may bring measurable improvements in some ways but also may have questionable or less obvious impacts in others.

Housing Indicators

Improvement in housing is a benefit which is assumed to accompany the industrial development of rural communities. Gains in rural housing may be particularly important if one considers that the money spent on homes is probably the largest single consumer expenditure a family makes. Two important factors associated with rural development may contribute to the improvement of housing in rural areas: (1) the increase in purchasing power as a result of increased income, and (2) the growth in population which stimulates demand for new home construction.

Housing indicators reflect several characteristics of the quality of housing in non-metropolitan counties, including the percentage of owner-occupied housing units in 1970 and the percentage of housing units built before 1939. Substandard housing figures are shown for 1975. Substandard housing may be defined as housing which is dilapidated or which lacks one or more of the following: running water, a private flush toilet, or a private bathtub or shower. Population per household and percentage on a public sewer line are indicated for 1970. Assessed property valuation as of 1975 describes the dollar value of real estate in a county.

Table 5 shows that an average of 66 percent of the population of non-metropolitan counties live in owner-occupied units, a surprisingly high percentage which may be partially explained by the greater number of rental units in a metropolitan area. No differences were found with respect to industrial employment growth.

The data show that counties with lower employment growth had a significantly larger percentage of older and substandard units. An influx of persons to fill new jobs coupled with higher per capita incomes in higher employment growth counties may have led to the construction of new homes and consequently improved housing quality for residents in the high growth areas. No differences were found for population per household or percent on public sewer for 1970.

TABLE 5. MEAN HOUSING UNIT CHARACTERISTICS OF NON-METROPOLITAN ALABAMA COUNTIES IN THREE CATEGORIES OF EMPLOYMENT GROWTH

Indicators	Employment growth			F-ratio
	Low	Middle	High	
Percent owner-occupied housing units: 1970	66.3	67.5	65.8	.23
Percent housing units built in 1939 or before: 1970	43.3	37.8	32.5	9.73**
Percent substandard: 1975	34.2	30.7	26.5	4.78*
Population per household: 1970	3.4	3.3	3.3	.57
Percent on public sewer: 1970	24.1	30.2	32.9	1.49
Total assessed property valuation (x $1,000) Sept. 30, 1975	31,939	52,018	78,604	3.91*

* $p < .05$
** $p < .01$

Increases in property valuation across the three levels of employment are very strong, suggesting that the market value of real estate tends to increase in high growth areas, though part of the difference is due to new construction in growth areas. This may result in a broader tax base to help support the needs of the community. It may also reflect a change in the relative ability of individuals to undertake the large debt associated with higher valued housing. Industrialization may increase incomes, but it may place a large portion of the housing market out of the reach of poor and working class families.

On the national level, the number and quality of rural housing units has improved markedly. During the past 25 years, rural housing units increased by 51 percent to accommodate a population growth of 21 percent. The number of households living in substandard housing decreased considerably, particularly for blacks (12). Crowded living conditions improved and the number of homes valued at lesss than $4,000 declined in non-metropolitan areas while rising in urban areas. In general,

however, rural housing conditions still lag behind those of metropolitan areas. Blacks, the poor, and the elderly continue to occupy a disproportionate share of substandard dwellings. Approximately one-third of housing without adequate plumbing is located in metropolitan areas, while about two-thirds are located in non-metropolitan areas (3).

The discrepancies between rural and urban housing reflect far more than the differences in what people can afford. An influencing factor is that the vast majority of new homes have been built where population growth has been greatest — in urban areas. In rural places, building a home often has been viewed as an investment that depreciates, whereas in fast growing metropolitan areas, new home construction has been viewed as an investment that produces sizable returns (3).

Considering the ratio of actual physical growth of the real estate inventory to the market value of real estate, the impact of industrial development is fairly predictable, at least in the short run (9). While the impact of industrial development does not necessarily affect the actual physical growth of the real estate inventory, the market value of real estate definitely tends to increase. This increase in the tax base is a very practical consideration underlying most communities' interest in industrialization.

The concern about tax base centers on the fact that most local units of government are heavily dependent on property tax as a source of revenue. When more than one community is involved, property tax becomes problematic. The tax base created by a new industry may be located in one taxing unit while the major number of employees reside in other taxing units. In this case, the industry will make little if any direct tax contribution to the service area from which it draws its employees. Also, the tax base problem can be aggravated by special inducements that are offered industry to encourage location in a particular place. Consequently, communities may assume some costs that are of benefit only to the firm. These community costs should be compared to the benefits gained from an increased tax base.

The relationship, then, between industrialization and housing quality is neither direct, nor continuous. On one level, industrialization increases incomes and the relative ability of individuals to afford housing. Industrialization, however, also tends to increase the value of real estate, which in turn may place the purchase price of new or improved housing out of the reach of

individual buyers. A key question for those concerned with improving the quality of housing stock is: Can rising incomes from industrialization outpace rising property values?

Generally, the data suggest that the expanding job market created by rural development tends to contribute to improved housing conditions. This may be attributable to increased demand for home construction to accommodate new residents and increased income for locally hired residents. Hopefully, the expansion of the tax base as a result of increasing real estate values will feed directly into the community and provide the resources to improve facilities for the benefit of all residents. Problems may occur if valuations rise faster than incomes, particularly if the increases reflect a shortage of good housing stock.

Health Indicators

One of the most pressing problem areas of rural Americans — and one difficult to resolve — may be the availability and quality of medical care. In 1970 there were twice as many physicians per 100,000 people in metro areas as in non-metro areas. Rural doctors tend to be older, to work more hours, and to be less adequately trained in medical advances than their urban counterparts (3). Highly trained specialists do not tend to locate in rural areas. Shortage of doctors, dentists, nurses, and other medical personnel may be a major health care problem in rural areas.

Health indicators reflect the general level of health care in a county as well as several consequences of its availability. Seven indicators are examined, including the number of doctors, dentists, nurses, county nurses, and hospital beds per unit of population, as well as overall and infant death rates.

Table 6 shows mean health care indicators in counties categorized by level of employment growth. The data show that high growth counties have a greater number of doctors, dentists, and registered nurses per capita than do low growth counties. The increase in medical personnel may be attributed, in part, to the ability of high growth areas to support increased or improved facilities.

The trend for county nurses, though not significant, is in the reverse direction. As employment growth increases from low to high, the number of county nurses per 100,000 population tends to decrease. County nurses may be the only medical personnel available to some portion of the population in rural areas. When

TABLE 6. MEAN HEALTH CHARACTERISTICS OF NON-METROPOLITAN ALABAMA COUNTIES IN THREE CATEGORIES OF EMPLOYMENT GROWTH

Indicator	Employment growth			F-ratio
	Low	Middle	High	
Doctors per 100,000 population: 1975	30.7	35.6	48.7	3.36*
Dentists per 100,000 population: 1975	13.1	19.8	20.6	3.51*
Registered nurses per 100,000 population: 1975	128.7	134.2	187.1	3.52*
County nurses per 100,000 population: 1975	15.4	13.6	10.6	2.69
Number of hospital beds per 1,000 population: 1975	3.03	3.45	3.77	.57
Death rate per 1,000 population: 1975	12.1	11.3	9.9	5.57**
Infant death rate per 1,000 live births: 1975	24.0	24.6	20.5	.80

* $p < .05$
** $p < .01$

individuals cannot afford the cost of private medical care, county nurses may assume a larger role in the initial diagnosis and referral of medical problems.

A higher level of health care should lead to an improvement in mortality rates. While infant mortality does not differ among the three groups of counties, overall death rates do show a significant decline as a function of increasing job growth. This decline may be explained by higher per capita incomes and the increased ability to afford health care insurance. Also, earlier findings suggested that a smaller proportion of elderly people reside in high employment growth counties. (See table 4).

A major consideration in the delivery of rural health care is the low population density of rural areas, which cannot adequately support medical specialists and extensive modern equipment.

Many efforts are being made to improve health services in rural areas, but the situation has shown little improvement. Older doctors are dying or retiring and are not being replaced. Between 1963 and 1970, the number of rural counties with no physicians actually increased (3).

Unavailability of health services in rural areas may also be a result of less frequent use of these services by rural people. This difference is not a result of a lower need for medical attention. In fact, rural areas exhibit a higher incidence of chronic disease, more days lost from work due to illness, and a higher rate of work-related injuries. Finally, most rural areas also experience adult and infant mortality rates far in excess of the general population (3).

In summary, the data suggest that an increase in availability of medical personnel and a decrease in mortality rates tend to be associated with employment growth in non-metropolitan Alabama counties. Industrialization appears to be associated with an increase in the quality and availability of private health care personnel. Growth areas may contain relatively greater numbers of individuals who can afford health care, as well as the number of individuals covered by insurance plans that facilitate access to medical personnel. A major concern in low growth rural areas is the provision of health care to individuals who have little physical or economic access to the private health care system.

Quality of Life Indicators

Quality of life refers to the general well-being of people and their satisfaction with the overall environment in which they live. While the concept of quality of life varies among individuals, regions, and time periods, certain objective indicators are generally accepted as reasonable measurements of items which contribute to life satisfaction. Quality of life remains, however, a subjective value concept.

This section is concerned with the effects of employment growth on a limited number of objective social indicators which may affect individual perceptions of the quality of life. These include education, public service facilities, and crime rate. Other potential indicators of quality of life such as income, health, and housing, have been discussed earlier.

Six quality of life indicators are considered. They include the pupil-teacher ratio and the expenditures per pupil in public

schools for 1975. The number of public library books per capita is examined, as well as the number of daily and weekly newspapers. Number of state parks represents the availability of one form of recreational opportunity. Violent crime rates and property crimes per 100,000 population also are considered.

Table 7 shows that the mean pupil-teacher ratio was not significantly different across the three growth categories. The increase in population density probably results in an increase in pupils as well as teachers. However, a significant difference in expenditures per pupil in public schools was associated with employment growth. This supports earlier discussion suggesting that an increased tax base as a result of new and better jobs may increase money available for improving education.

The availability of formal education is widely accepted as a

TABLE 7. MEAN QUALITY OF LIFE INDICATORS FOR NON-METROPOLITAN ALABAMA COUNTIES IN THREE CATEGORIES OF EMPLOYMENT GROWTH

Indicators	Employment growth			F-ratio
	Low	Middle	High	
Pupil-teacher ratio in public schools: 1975	19.44	19.81	20.65	2.70
Expenditures per pupil in public schools: 1975	811	818	825	3.34*
Number of daily and weekly newspapers	1.38	2.00	1.53	3.01
Public library facilities: books per capita, 1975	.69	.80	.83	.37
Number of state parks	.18	.33	.33	1.44
Violent crime per 100,000 population: 1975	242.58	264.81	271.88	.19
Property crimes per 100,000 population: 1975	826.44	952.88	1,289.29	1.86

* $p < .05$

factor contributing to the quality of life in an area. Most occupational positions in American society have certain minimum education requirements. Rural residents tend to have less formal education than urban residents, and the high school dropout rate tends to be higher in rural areas. Contributing to the difficulties of improving educational attainment in rural areas is the lack of vocational training and other post-high school opportunities in counties with low population densities and inadequate tax bases.

Table 7 further shows that the mean number of library books per capita was not significantly higher in high growth counties. Number of newspapers did not seem to be affected by growth levels. The mean number of state parks in middle and high growth counties was nearly twice the average for low growth areas, but the overall variation was not significant. The presence of a park may make an area more attractive as an industrial location site and contribute to the quality of life of county residents.

Increasing amounts of people's time are spent in some form of recreational activity, making it an important dimension of quality of life. Low population density and a scarcity of funds severely limit the ability of rural areas to build and support public libraries, movie theatres, parks, and sports facilities such as tennis courts. These deficiencies may be countered somewhat, however, by the availability of outdoor activities, such as hunting and fishing, that often cannot be found in cities.

Mean crime rates, table 7, follow the trend of previous findings that violent and property crime rates tend to increase with industrial growth. Crime rates tended to be higher in growth counties, though the differences were not significant.

During the last decade, fear of crime has consistently appeared near the top of the list of concerns expressed in public opinion surveys. At the same time, lower crime rate is generally recognized as one of the advantages of life in rural areas, although recent experience has shown this to be a growing problem. Studies tend to indicate that increased crime rate is a negative factor associated with population growth and should be considered when evaluating the impact of industrialization (3).

In summary, the findings indicate an overall association between quality of life and employment growth. Increased manufacturing activity may ease the financial burden in small communities as a result of an increased tax base, providing

additional revenue for other services. The majority of the indicators, however, also can be considered as factors contributing to the initial attraction of an industry to an area. A quality public school system, adequate public service facilities, and lower crime rates are attractive assets for the location of a new industry. If crime rates rise as population density increases, however, costs for law enforcement also increase, and this factor might be weighed by a community considering expanded industrialization. When considering the impact of industrial development on the quality of life of a community, many factors may need to be taken into account to provide an accurate and balanced picture. Net gains may be maximized by locating industries that will exert a minimal impact on population while contributing to the local tax base and disposable income.

SUMMARY AND CONCLUSIONS

The goal of rural development has been consistently identified as the improvement of the well-being of rural residents. Rural development also has tended to be equated with rural industrialization. The creation of jobs is often viewed as one solution to waning populations, poverty, and as a means for improving living conditions and public services in rural areas. Residents and decision-matters in rural communities often expect employment growth to increase incomes, achieve population redistribution, encourage housing improvements, and contribute to expanded community services.

The present study of 49 non-metropolitan Alabama counties has focused on employment growth and its positive and negative effects as reflected in various sets of statistics that profile important social dimensions. Indicators of demographic change, labor force characteristics, income and employment, health, housing, and quality of life were examined to determine these effects.

A mixed pattern of industrialization benefits emerges from the findings. Employment growth may contribute to the improvement of the standard of living of some rural Alabamians and should be encouraged. But, under certain circumstances, employment growth may not fully benefit the community and may even cause new problems. Yet a major policy objective for many small communities is the attraction of industry, often with the unrealistic expectation of a direct improvement in incomes and social conditions (10).

Income is often considered the strongest single determinant of well-being. The average earnings of rural Alabamians tend to be below the state average. A major goal of rural development, then, necessarily includes income growth, as well as a broad distribution of its benefits. The findings of this study support the common assumption that higher incomes are found in high growth counties.

An increase in income equality is not a necessary consequence of industrial growth, however. Income inequality may not be changed when workers from outside the community take the new jobs. The total income of an area may rise, but an important goal — the direct reduction of unemployment and poverty — is likely to be compromised by the population growth induced by industrialization. Some authorities, however, believe that worker migration has not been a serious problem in Alabama (1).

Demographic indicators revealed that employment growth areas have larger populations than low growth areas and a significantly greater proportion of working age residents. This outcome is understandable, given the likelihood of out-migration from areas of low growth to areas of new employment opportunities. Out-migrants may benefit by the acquisition of new employment, but the counties which they have abandoned may be disadvantaged by a loss of productive residents.

Counties losing their prime labor force may tend to become more dependent on public support as those actively seeking jobs leave, further decreasing a county's potential attractiveness as an industrial location. Also, out-migrants often move out of necessity and not personal desire. Thus, efforts aimed at improving the general well-being of rural Alabamians should attempt to discourage out-migration as a first step toward the improvement of declining counties.

Population increases accompanying employment growth often contribute to a community's ability to support more extensive medical services and equipment. The data show that high growth areas had a significantly greater number of health care personnel. A lower death rate in high growth areas may be a partial result of improved medical care. A critical question which remains to be addressed is whether low income residents are receiving these medical services. Rural communities, particularly those with a large number of disadvantaged residents, have a special need for services to those who cannot afford the high cost of medical care.

Population growth also leads to a demand for expanded housing construction. The results showed that housing was significantly older and of less quality in low employment growth areas, suggesting that improvements in the quality and availability of housing may be an important secondary impact of industrialization, though rising real estate prices may counteract this benefit somewhat.

Industrial development enlarges a community's tax base partly by increasing overall property values. A major concern, however, is keeping housing prices within the financial reach of the majority of community residents. Industrializing areas may require low income housing for disadvantaged residents for whom economic growth has failed. Spiralling home costs in fast-growing areas may offset the advantages of an expanded tax base and may reach a point of decreasing returns if population growth occurs too rapidly and constricts housing supply.

Employment opportunities also tend to draw better-educated individuals as residents. Labor force characteristics indicated that a strong relationship exists between median education and employment growth. In poor rural areas, residents may not benefit by new job opportunities which require a high skill or educational level. New employment may go to better qualified in-migrants or commuters without resolving the community's needs. An industry directed primarily at unskilled laborers may offer wage rates which are too low to meaningfully improve individual incomes. An industry with training programs for unskilled laborers, however, may help resolve local unemployment problems and raise the wage levels of workers.

If an industry seeking a new location has as a major goal the hiring of cheap labor, its benefit to a community may need to be questioned. Low-wage, cyclical employers may contribute little to community development. This problem is particularly prevalent in rural areas where earnings are often below average, and where residents may be quick to seize any opportunity, though its long-term consequences may be questionable.

A low skill industry employing a predominantly female work force has different effects on a community than one hiring predominantly males. Although women's wages may contribute to a greater flow of money into the retail services of the community, opportunities exclusively for women may also contribute to or sustain a high rate of male unemployment. A major advantage of hiring women, however, is population

stability. Women employees tend to be locally recruited, whereas men seeking jobs tend to bring household members with them. Hiring practices are a crucial consideration for communities seeking the benefits of industrial expansion (10).

The effects of industrial growth on a community's quality of life are highly controversial. If quality of life is measured by a rise in commercial activity, rural industrialization often is a resounding success. Retail sales increases were significantly higher in high growth areas, corresponding to rising incomes. Sales taxes contribute to the financial well-being of local government. More money becomes available for schools, recreational facilities, and other public services.

The more subjective features of quality of life also need to be considered. There has been much discussion revolving around the nature of quality of life and little consensus over its exact components. Many rural residents may prefer open spaces that offer excursions into a natural setting rather than an environment of closely spaced buildings and asphalt. When rural areas industrialize, crime rates tend to rise as the local population grows. The study showed, however, that crime rates were not significantly higher in high growth counties. Industrialization may bring about changes in the social as well as physical dimensions of quality of life, but these changes are not always clearly apparent.

The aspects of quality of life on which rural Alabama scores high — such as environmental quality and low crime — are partially a result of low population density. An increase in population may decrease the ability of rural areas to provide these significant advantages. Even though an expanded tax base and more taxpayers enhance the ability of local communities to provide more and better services, this contribution to the quality of life of rural areas may be offset by other changes.

The study has tended to demonstrate both the positive and negative aspects of rural industrialization. Industrial location in communities can indeed generate employment, population growth, and economic prosperity. But costs are associated with growth, and the distribution of costs may not be matched by the distribution of benefits. Industrial development may not be a cure for the problems of all rural communities.

Industrial employment growth may be most usefully considered as a form of community change. The rate of such change has a great deal to do with the quality and extent of its

impact. At some levels industrialization may provide jobs for those who need them and help everyone to prosper. In the extreme, industrial growth may bring disorder to peaceful surroundings, overrun a friendly town with strangers, and overload the capacity of local schools, businesses, and government officials to give the quality of service to which residents were accustomed.

This study has attempted to show some of the ways that industrial growth affects non-metropolitan Alabama counties. Those seeking change for their communities will provide constructive and open-minded leadership by considering both the short and long term consequences of industrialization, and by finding balanced approaches to local development and growth.

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