BENCHMARKS For Rural Industrialization
- - - A study of rural development in Monroe County, Ohio

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Wade H. Andrews
Ward W. Bauder
Everett M. Rogers

Ohio Agricultural Experiment Station
Wooster, Ohio
FOREWORD

In recent years, many industrial concerns have established plants in rural communities. This development affects rural people in several ways. It provides additional employment opportunities and income both for farm and nonfarm families in the rural area through the jobs provided in the plant as well as in expanded service and trade establishments. This, in turn, leads to increase in the local market for food and other products. In addition, human and capital resources that might otherwise leave the area are retained locally.

When many people change from farming to industrial work or to a combination of part-time farming and a nonfarm job, changes are likely to result in the economic and civic life of the community. The Rural Development Program, initiated in 1955 as a cooperative effort of the Federal, State, and local governments, includes studies of both the economic and social effects of the introduction of industries to rural areas. From the viewpoint of residents of the community, the growth and economic development that takes place are also accompanied by problems of changes and adjustment. The Department of Agriculture naturally favors developments that are likely to increase the incomes of rural people. But the Department is also concerned about the way in which these developments affect rural schools and churches, the general spirit of neighborliness, participation in community affairs, and the attitudes of rural people toward their community.

This report is based on a recent study made by the Ohio Agricultural Experiment Station and the United States Department of Agriculture. Its purpose was to find out how residents of a rural community in southeastern Ohio are being affected by an industrial plant on which construction was begun in 1957. The community will be resurveyed after the plant has been in operation for a few years to appraise the changes which have occurred since the plant was established. Other studies of the effects of rural industrialization, conducted jointly by the U. S. Department of Agriculture and the State Agricultural Experiment Stations, have been made in Louisiana, Mississippi, Utah and Iowa.

TRUE D. MORSE
Under Secretary of Agriculture
and Chairman of Committee for Rural Development Program

ROY M. KOTTMAN
Director, Ohio Agricultural Experiment Station

TRUE D. MORSE
ROY M. KOTTMAN
INTRODUCTION

Rural society in America is characterized today by a high rate of social change. Until recent years, however, there were several isolated areas in the United States that had remained relatively untouched by many of these changes and trends. Monroe County, Ohio, is one of these areas.

This county is located in the rugged and hilly southeastern corner of Ohio. It lies along the Ohio River which is not bridged for several miles above and below the county; in 1957, no railroad and no major highway bisected the county. As a result, Monroe County has been partially cut off from the main stream of American life for many years.

In 1956, construction was begun on a huge new aluminum plant in the county. What happens when a community finds itself the center of an industrial invasion? How does it meet new problems, reconcile the old and new, and adjust its organizations and institutions to sudden change? These are questions which prompted the present study.

One of the major questions facing many rural communities in America today is whether or not to attempt to secure local industrial development. The present study was designed to describe what happens when a large industry moves into a rural semi-isolated county. This bulletin is mainly a description of the population, agriculture, industry, and social organization of Monroe County at the time the
Construction on this huge aluminum plant began in Monroe County in 1956. There is also other industrial development beginning to occur in the County and the effect of this industrialization is expected to cause a number of social changes in the life of Monroe County.

construction of the new factory was starting. Future analysis will be more directly concerned with the effects and changes resulting from the rapid industrial development.

Monroe County was chosen as a site for the present study because it possessed certain specific attributes that made it well suited for research of this nature. First of all, it was a pilot county participating in the federal Rural Development Program. This Program was initiated in 1955 as a cooperative effort of the Federal, State, and local governments, including the participation of private individuals and agencies in order to improve the level of living in rural areas which have relatively low farm income. Since the people of Monroe County had chosen to participate in the Rural Development Program, they were beginning to take some preliminary steps to try to improve their low-income situation.

Secondly, about two years after the time the local people had begun to mobilize themselves for an effort toward improving their way of life, a large industrial firm purchased a plant site on the river front and began construction of a huge basic metals plant to produce finished aluminum. In conjunction with the aluminum plant, construction was
begun on both a railroad spur line that ran down-river to the plant, and on rebuilding the state highway that paralleled the Ohio River. Although this construction was largely confined to the River front, its impact will doubtless reach and extend beyond the county seat town of Woodsfield near the center of the County.

Thus, the present research problem is concerned with the effects of a community development program and of industrialization upon a low-income, rural area. These effects involve changes in the population, labor force, social institutions, agriculture, and industry.

PURPOSES

The objectives of the present publication are: (1) to describe the cultural aspects of Monroe County before the effect of the new industrial plant was felt; (2) to present the methodology of the over-all research project; (3) to spotlight specific “benchmarks” against which
future social changes will be measured; and (4) to hypothesize the
direction of expected changes. Future publications will deal with
changes in the benchmark measurements after the effect of industrializa-
tion has occurred.

A benchmark is defined as the location of a population on some
dimension from which future possible changes will be measured. In
order to measure social changes, two observations on the same popula-
tion must be taken at two different points in time. Social change is
defined as a difference in group relationships over time. Some of the
typical benchmarks against which social change will be measured in
the present study, for example, are level of living, occupational status, and
educational level. Each of these benchmarks is included in an hypothe-
sis, for example, industrialization is expected to result in higher levels of
living. The nature of these hypotheses were developed on the basis of
past research studies of industrialization in rural areas.¹

THE COUNTY

Monroe County was established in 1813 from parts of three other
counties; it contains 448 square miles. Settlement began along the
Ohio River about 1796 and spread inland. Early migrants included
German and Swiss settlers; cultural remnants of their frugality and
industry in farming still exist in parts of the county. One township is
named Switzerland.

Mineral developments such as natural gas wells, oil wells, and coal
mines have been exploited, but the big production period for these
resources was from 1891 to 1902. There are still important coal
deposits that await further development.

A narrow gauge railroad was once built into the county but has
long since been removed. No railroad existed in the county when the

¹Everett M. Rogers, Social Change in Rural Society, N. Y., Appleton-

²Typical studies in this category are: Paul H. Price and others, “The
Effects of Industrialization on Rural Louisiana: A Study of Plant
Employees”, Baton Rouge, Louisiana Agricultural Experiment Station
Bulletin 376, 1958; Sheridan T. Maitland and George L. Wilber, “Indus-
trialization in Chickasaw County, Mississippi: A Study of Plant Workers”,
State College, Mississippi Agricultural Experiment Station Bulletin 566,
Industry”, Clemson, South Carolina Agricultural Experiment Station Bulle-
tin 376, 1948; and Alvin L. Bertrand and Harold W. Osborne, “Rural
Industrialization in a Louisiana Community”, Baton Rouge, Louisiana
Agricultural Experiment Station Bulletin 524, 1959.
new industrial plant was started. At the time of the study (in 1957) the only important means of access to the County was by road. No regular bus line served most of the area.

There are several small villages in the County and many rural neighborhoods can be located. Because of the steep terrain in the area along the River, string-like farming neighborhoods have developed along ridges and creek bottoms. These are effectively separated by the steep slopes and each has its own name, such as Beautiful Ridge or Round Bottom. In the ridge communities, farms are strung along the tops of the steep ridges that run back from the River. The farmsteads are connected by roads that follow the ridges. The farm land is cultivated part-way down side slopes that are often too steep for the use of a tractor. Along the ridges a church or a grange hall may be found which serves that neighborhood. Similarly, at the mouth of a creek there may be a church located that serves those living along the stream.

Agriculture has always been the most important industry in the county. In former years the major products were tobacco, sheep and wool, dairy, poultry, and beef cattle. In 1957, the two major sources of farm income were dairying and poultry.

As in other rural areas the number of farms and farmers has been declining while the average size of farms has been increasing. The number of part-time farmers, however, increased from 17 percent of all farmers in 1940 to 33 percent in 1955.

A change has also occurred in the farm operator level of living index. The index for Monroe County changed from 66 in 1940 to 122 in 1950; this was largely due to the growth of rural electrification. The level of living index for Ohio changed from 113 to 148 during the same 15-year period. Median income for Monroe County in 1950 was the lowest for any county in the state.

Monroe County ranked at, or near the bottom of the 88 Ohio counties on nearly all of the population, agricultural, and industrial data for the state in 1950. The peak population for the county occurred in 1850 when there were over 28,000 people. After the Civil War and before 1900, the population remained comparatively stable at 25 to 27 thousand. However, the County lost population consistently from

\[\text{[Wade H. Andrews and Lorenzo H. Snow, Comparative Population Agricultural and Industrial Data for Ohio Counties, 1940-1950, Wooster, Ohio Agricultural Experiment Station, Department of Agricultural Economics and Rural Sociology Mimeo Bulletin 248, 1956.]}\]
27,031 in 1900 to 15,362 in 1950. The reduction from 1940 to 1950 alone was 18 percent. The population estimate for 1956 was 14,590, a further but less rapid reduction.4

At the time the data were gathered in 1957, the aluminum plant was under construction. Employment was estimated at 2,500 construction workers which was far below the expected peak of over 5,000 employees. The railroad was under construction and work was beginning on a new state highway in the county. The railroad and the highway were running side-by-side along the Ohio River front on the eastern edge of the county. In addition, a large gas pipeline was being laid across the western side of the county. The workers on the pipeline construction were transient and remained in the county only a few months.

Workers at the aluminum plant were moving into rural villages several miles back from the River, including the county seat which was 20 miles from the new plant. Not all of the new workers were living in the county. Many were driving from cities up or down the River or crossing on a ferry at Hannibal, Ohio, a few miles below the plant area. It was expected that after the plant construction was completed, some two to three thousand workers would be employed permanently at the plant.

Adequate housing was difficult to find near the plant area and new homes, as well as trailer housing, were appearing in the county. Piped water and sewer facilities, however, were available only in the county seat, Woodfield, and at the river-front village of Clarington, Ohio.

In summary, the locale for the study was a relatively isolated agricultural area, containing declining rural communities, limited communications, and a shrinking population.

**RESEARCH DESIGN**

The research design for the present study includes an "experimental area" (Monroe County) and a "control area" which is a contiguous county with similar characteristics but with no new industrialization. The design also included plans for a before-and-after measurement on certain benchmarks. A sample of local respondents were interviewed in both the experimental and control areas in 1957; residents of these same areas will be re-interviewed in 1962 in order to determine the rate of change in both the control and experimental areas.

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In addition to the data secured from personal interviews with local respondents in 1957, additional information was secured from secondary sources such as census, tax, welfare, and school records.

The research design may be diagrammed as shown in Figure 3. Before and after measurements on benchmark dimensions will be secured in both the “experimental” and “control” areas. The variables that were introduced were industrial development and the rural development program in the experimental area; there was no industrial development or rural development program underway in the control area. The difference between (A-C) and (B-D) is the amount of change that may be attributed to industrialization and rural development. Change in many dimensions (for example, level of living, type of employment, and nature of educational training) may be measured against 1957 benchmarks.

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Before (1957)</th>
<th>After (1962)</th>
<th>Amount of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>A</td>
<td>C</td>
<td>(A - C)</td>
</tr>
<tr>
<td>(Monroe County)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control County</td>
<td>B</td>
<td>D</td>
<td>(B - D)</td>
</tr>
</tbody>
</table>

Fig. 3.—This was the research design used in setting up the project.

An area sample of respondents was contacted by personal interviews in 1957. The sample segments for both open-country and village areas were drawn by the Agricultural Marketing Service of the United States Department of Agriculture. Each household had an equal chance of appearing in the sample. A total of 607 households in the experimental county and 332 households in the control area were interviewed. The present report is based upon the data from the 607 respondents in Monroe County.
POPULATION CHARACTERISTICS

The characteristics of the people who reside in a rural development area have great significance for the industrialization of that area. The age, income level, and educational attainment of the local people, for example, may affect the decision to locate a new industrial plant in the area.

AGE DISTRIBUTION

Fifty years of continuous decline have left their mark on Monroe County's population distribution. The decrease in population has been the result of out-migration rather than an excess of deaths over births. At no time in the history of Monroe County have deaths exceeded births. Out-migration is heavier among the older youths and younger adults.

Figure 4 is a population pyramid for the county; it presents graphic evidence of the out-migration of certain age groups. There are more persons in the 61-65 year age group than in either the 21-25 or 26-30
year age groups. There are more persons who have passed their 75th birthday than there are in the 21-25 group. There are relatively fewer persons in the employable age range than in the youthful or older age ranges.

The ratio of males to females in the sample is somewhat typical for a rural county. There is also a large proportion of elderly widowed persons.

**HOUSEHOLD SIZE**

The mean size of household is 3.3 persons, the same as the state average for all households in 1950. The state average for rural-non-farm households is 3.4 and for rural farm households 3.7. Because Monroe County is highly rural, one might expect a larger average size household than 3.3 persons. The relatively small size of household is partly due to the sizeable proportion of one and two person households made up of persons 50 years old or older. In fact, 41 percent of all households in the county consist of one or two persons.

**LEVEL OF LIVING**

Incomes and levels of living in Monroe County are generally low. For example, only about 52 percent of the homes had hot and cold running water and only 40 percent had central heating. In 1954, 73 percent of the rural population of Ohio had central heating. Almost 15 percent of the Monroe County sample said they intended to obtain hot and cold running water in the near future and seven percent had plans to secure central heating.

About 96 percent of all homes in Monroe County had electric lights, 93 percent had radios, and 92 percent had refrigerators. Nearly 71 percent of the households had television sets and telephones. In contrast, 26 percent had home freezers and 12 percent had clothes dryers.

Among those reporting having some income from farming 85 received 80 percent or more of their income from this occupation. Another 73 received between 10 and 80 percent of their income from farming, however, some of those had main occupations other than that of farming. The average gross sale of farm products for the 85 farmers concerned in the sample was $2,794. For the total 158 “full” and “part-time” farmers the average total sale was $2,248 in 1956. Both of these figures are well below the state average of $5,849 for gross farm receipts for the year.

**EDUCATION LEVEL**

There has been a steady rise in the average years of education in the U. S. population in past years. In an area that consistently loses a
large share of its young adults by out-migration, educational levels do not rise so rapidly. One reason for this tendency is that in the past Monroe County has not had the occupations available for which high school and college experience are necessary.

The average number of years of schooling in the County was 9.2 in 1957. The lower educational levels in the County are contrasted with

![Diagram showing educational levels for Ohio and Monroe County.](image)

**Fig. 5.—Educational Levels for Ohio and for Monroe County**
This figure shows that Monroe County's population has fewer years of education, on the average, than does the population of Ohio.
state averages in Figure 5. The persons with low educational levels are somewhat concentrated among the older age groups in the county.

**RESIDENTIAL MIGRATION**

In a society where occupational opportunities are rapidly developing and changing, it may be desirable to have a highly mobile population that will migrate from the areas of poor to those of better opportunities. The composite picture of the typical Monroe County resident is one of residential stability and less-than-average mobility.

The migration history of each household head was obtained by asking the location of residences beginning with the "present" place of residence and going back to January 1, 1940. Nearly half of those interviewed had not changed residence since 1940 and another 23 percent had made only one move. About one-fifth of the sample had migrated two or three times in the 17-year period. The remainder (about one-tenth) had changed residences from four to nine times.

The largest portion of the migration was for very short distances which was largely within the same township. Nearly 26 percent of the respondents who had migrated presently lived in the same township as they did before their last move. Another seven percent had moved from another township in the same county. Eight percent had moved in from adjacent counties and five percent from other Ohio counties. About five percent of the 607 respondents came from other states.

Although the respondents in the research study tended to be relatively immobile, their grown children were not. Of the families interviewed, 255 had children who had left home to live in other places. The children of 220 families had migrated out of the County. This heavy rate of out-migration suggests that there were few occupational opportunities for young people in Monroe County.

Of the 607 respondents in Monroe County, about 28 percent live on farms, 32 percent reside in rural-nonfarm homes, and 40 percent live in town.

The respondents were asked for the location of their previous residence if they had moved since 1940. This made possible an analysis of the direction of migration on the basis of farm, rural-nonfarm, and town (Figure 6). While there was considerable exchange of migrants among each of these three residential categories, the major shift was from farm to rural nonfarm.

The correlation between years of education and age (for those persons 25 years of age or older) is -.49 which is significant at the one percent level.
MIGRATION MOTIVES

The respondents were asked why they migrated to their present residence. The most important reason (listed by 45 percent) was "wanted my own home". Desire for home ownership was seldom given by those families who had migrated since 1940.
Next in importance were: better location (14 percent), to improve living (10 percent), born in present residence (8 percent), moved in with relatives (6 percent), and seeking work (4 percent). Various other migration motives accounted for the remainder of the respondents. Reasons of economy were generally of little importance. A desire to find a less expensive residence was only mentioned by 2.5 percent of the families.

**SATISFACTION WITH RESIDENCE**

Most respondents (65 percent) reported being “very well satisfied” with their present residence. About one-third reported “fair satisfaction” and very few were dissatisfied with their place of residence. This was an unexpected result because of the comparatively low level of living, lack of economic opportunities, lack of conveniences, and the comparative isolation of Monroe County. The reason for this general satisfaction with housing may be because the respondents were much alike in their opportunities. They may not have been looking beyond their own locality in making comparisons. In addition, satisfied residents were largely people who had stayed in the county rather than moving elsewhere. Their level of expectation or need was not greatly affected from contacts in other areas.

**OCCUPATIONAL STATUS**

The ability of the population of an area to fill the occupational roles created by new industrial expansion depends upon their past occupational experience and training. The largest single occupation of the Monroe County labor force was farming in 1957. Nearly one-fifth of the heads of households were farmers (Table 1).

The presence of some mining and oil wells in the County and adjoining counties and the presence of industry across the Ohio River in West Virginia has produced a sizeable proportion of the labor force with some experience in industrial jobs. Many had also worked in the Canton, Ohio, industrial area to the north. About one-sixth of the heads of households held industrial or industry-related jobs. Seven percent of the heads of households reported their occupation as housekeeping. This reflected another characteristic of the population of the county which was the high proportion of widows.

In general there has been relatively little occupational mobility among the Monroe County residents. Over one-half of the heads of households held the same job throughout the 10-year period from 1947 to 1957. Another 23 percent had changed jobs only once in the 10
years. Persons with nonfarm jobs had changed jobs much more frequently than those with farm occupations. One-fifth of the respondents had been in their present occupation for 20 years or more and two percent had had the same occupation for the past 50 years.

Fig. 7.—Many Changes Are Occurring in Housing as a Result of Industrialization in Monroe County

One photograph above was taken from one of the ridge roads and looks across a valley to a parallel ridge. The other photo shows a housing development in Woodsfield, Ohio, built mainly to house newcomers to Monroe County as a result of industrialization. Construction began on this housing development in 1957.
TABLE 1.—Occupational Status of Monroe County Heads of Households

<table>
<thead>
<tr>
<th>Occupational Category*</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonmanual Occupations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional and Technical</td>
<td>27</td>
<td>4.4</td>
</tr>
<tr>
<td>Managers, Officials, and Proprietors Except Farm</td>
<td>53</td>
<td>8.7</td>
</tr>
<tr>
<td>Clerical and Kindred Workers</td>
<td>19</td>
<td>3.1</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>9</td>
<td>1.5</td>
</tr>
<tr>
<td>Manual Occupations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Craftsmen, Foremen, and Kindred Workers</td>
<td>76</td>
<td>12.5</td>
</tr>
<tr>
<td>Farmers and Farm Managers†</td>
<td>116</td>
<td>19.1</td>
</tr>
<tr>
<td>operatives and Kindred Workers</td>
<td>63</td>
<td>10.4</td>
</tr>
<tr>
<td>Private Household Workers</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>Service Workers Except Private Household</td>
<td>15</td>
<td>2.5</td>
</tr>
<tr>
<td>Farm Laborers and Foremen</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td>Laborers Except Farm and Mine</td>
<td>71</td>
<td>11.7</td>
</tr>
<tr>
<td>Total Employed</td>
<td>462</td>
<td>76.1</td>
</tr>
<tr>
<td>Unemployed</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td>Not in the Labor Force:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keeping House</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Unable to Work</td>
<td>21</td>
<td>137</td>
</tr>
<tr>
<td>Total</td>
<td>607</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*These occupational categories are those used by the U. S. Bureau of the Census, except for "manual" and "nonmanual". The latter two types are not entirely pure types since a part of the clerical occupations are also manual. However, in general, they are useful for this analysis.

†These farmers listed their main occupation as farming.

About one-half of the household heads were working for wages or a salary at the time of the interviews; the experience of working under someone else's direction and supervision was not new.

Although many clerical jobs are manual, a rough division characterizing the types of occupations in the County can be made on the basis of manual or nonmanual labor occupations. There were fewer nonmanual occupations in proportion to manual occupations in Monroe County than in Ohio. About 18 percent of the Monroe County residents reported a nonmanual occupation; 61 percent reported a manual occupation (almost 23 percent had no occupation). The ratio of non-
manual to manual occupations in Monroe County is .293; for Ohio the
figure is .601. Monroe County residents are more likely to work with
their hands than are other Ohioans.

There was also a difference between skilled and unskilled workers,
22.9 percent of the respondents reported skilled labor occupations while
for the state in 1950 it was 39.5 percent. In 1950, the proportion for
the County was 22.5 percent.

The majority of the respondents did not go far to work; 57 percent
had jobs in the same township as their residence while seven percent
worked in a different township, but in Monroe County. Eighteen per­
cent went out of the County for work, and 11 percent to other states,
mainly to West Virginia across the Ohio River. The total of 29 percent
who worked outside of the County emphasizes the scarcity of job oppor­
tunities in the County.

It is likely that a large industry could obtain some types of labor
from the local area, but the highly skilled positions probably could not
be filled with local personnel until persons with training became avail­
able. The migration data presented earlier suggest that an important
potential labor force is available in migrants who would return to the
County if occupational opportunities were available.

Each family that was interviewed was asked how the household
head happened to get his present job. The responses give some clues
regarding sources of information on employment opportunities. Friends
and relatives are apparently the most important single source of informa­
tion about job opportunities (30 percent of the respondents). A
smaller group “just applied at the employment office” of the firm they
went to work for (16 percent). Labor unions were the means used by
4.1 percent while nearly the same proportion (4.4 percent) used private
employment offices. Only about one percent of the respondents
reported using public employment services.

The respondents were asked about any special training the head of
the household might have had for either farming or a nonfarm job.
Thirteen percent had received training for farming and 21 percent for a
nonfarm job. Vocational agriculture was the most frequently men­
tioned training for farming, and college was the most frequently
mentioned training for nonfarm jobs. Except for vocational agricul­
ture, high school is not regarded as a source of special training for jobs.
This may reflect the lack of vocational training in the high schools of
the County.
AGRICULTURE

Because of the rough topography of Monroe County, it has been difficult to utilize large power equipment in farming. As a result, many farms have remained relatively small in spite of the economic pressures toward larger units. The average Monroe County farm has about 34 acres under cultivation. Large proportions of the land in farms are not in cropland.

As in other areas of poor agriculture, the proportion of owner-operators is relatively high. Eighty-three percent own all of the land they farm and an additional 12 percent own part of it; only 5 percent are full tenants.

Farmers were asked to indicate what their most important farm enterprise was. Dairying was mentioned most often (by 55 percent) while beef cattle was next but by only 15 percent followed by grain with 4.2 percent. No other enterprise was mentioned as most important by more than 3 percent of the farm respondents. Interestingly enough, poultry was named by only 2.4 percent although in total farm income for the County poultry products stand second only to dairying. Poultry is apparently most often a small “pin money” enterprise and is seldom recognized and reported as one of the major farm enterprises.

NEW FARM PRACTICES

The agricultural practices employed by farm operators are an important index of the type and development of agriculture in an area. Each farmer was asked whether he had or had not adopted each of 26 recommended farm practices applicable to the agriculture of the County. Not all practices were applicable to every farm, of course, but the proportion of farmers using each practice that applied provides an index of the acceptance of the practice in the county. The use of phosphate fertilizer and testing cows for Brucellosis or Tuberculosis are the most widely accepted practices (Table 2).

It should be noted that in ranking the percentages of acceptance of farm practices that several recommended practices related to the major enterprises of dairying, poultry, beef and grain crops are low on the list. Comparison of the percentages of these items in the future will reflect changes in farmer behavior.
<table>
<thead>
<tr>
<th>New Farm Practice</th>
<th>Percentage of Farmers Adopting Practice If Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Phosphate Fertilizer</td>
<td>94.2</td>
</tr>
<tr>
<td>Test Cows for Brucellosis or Tuberculosis</td>
<td>96.7</td>
</tr>
<tr>
<td>Use Lime</td>
<td>84.4</td>
</tr>
<tr>
<td>Have at Least One Tractor</td>
<td>63.9</td>
</tr>
<tr>
<td>Had Soil Tested</td>
<td>64.0</td>
</tr>
<tr>
<td>Clip Permanent Pasture</td>
<td>64.2</td>
</tr>
<tr>
<td>Strip Crop</td>
<td>59.1</td>
</tr>
<tr>
<td>Do Some Work with Horses or Mules</td>
<td>49.4</td>
</tr>
<tr>
<td>Spray Weeds in Corn</td>
<td>48.0</td>
</tr>
<tr>
<td>Contour Plant</td>
<td>45.0</td>
</tr>
<tr>
<td>Artificial Breeding</td>
<td>33.6</td>
</tr>
<tr>
<td>Buy Sexed Chickens</td>
<td>51.5</td>
</tr>
<tr>
<td>Legume-Grazed Pasture</td>
<td>34.4</td>
</tr>
<tr>
<td>Band Seed with Drill</td>
<td>31.0</td>
</tr>
<tr>
<td>Have Forest Fenced and Protected from Livestock</td>
<td>33.3</td>
</tr>
<tr>
<td>Spray for Spittle Bugs</td>
<td>32.7</td>
</tr>
<tr>
<td>Use Milking Machines</td>
<td>36.0</td>
</tr>
<tr>
<td>Sample Milk Testing (D.H.I.A.)</td>
<td>32.8</td>
</tr>
<tr>
<td>Cull Hens to Eliminate Poor Layers</td>
<td>36.6</td>
</tr>
<tr>
<td>Produce Grade A Fluid Milk</td>
<td>26.5</td>
</tr>
<tr>
<td>Feed Antibiotics to Livestock or Poultry</td>
<td>22.6</td>
</tr>
<tr>
<td>Raise Meat-Type Hogs</td>
<td>27.1</td>
</tr>
<tr>
<td>Use Self Feeders for Hogs</td>
<td>21.2</td>
</tr>
<tr>
<td>Do Annual Cutting in Farm Forest</td>
<td>10.6</td>
</tr>
<tr>
<td>Make Grass Silage</td>
<td>6.3</td>
</tr>
<tr>
<td>Have Bulk Milk Tank</td>
<td>4.3</td>
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</tbody>
</table>

There were 64 percent of the farmers who had at least one tractor; yet 49 percent of the farmers did some farm work with horses or mules. This indicates the effect of the steep slopes in retarding farm mechanization and farm consolidation into larger units.

In comparison with a state-wide random sample of Ohio commercial farmers in 1957, Monroe County farmers were generally slower to adopt new farm practices. For example, about 34 percent of the

"Everett M. Rogers, "Characteristics of Innovators and Other Adopter Categories", Wooster, Ohio Agricultural Experiment Station Research Bulletin, In Press."
Monroe County farmers had adopted artificial dairy cattle breeding and 39 percent of the state-wide sample. Thirty-four percent of the present farm respondents and 36 percent of the state-wide sample band-seeded with a drill.

**NONFARM EMPLOYMENT**

The proportion of farm operators with nonfarm jobs in Monroe County increased from 17 percent in 1940 to 33 percent in 1954. By 1957, almost 35 percent of the present respondents performed at least some nonfarm employment. Expansion in nonfarm job opportunities by the introduction of the industrial plant will increase this proportion still further.

From the standpoint of the agriculture of the County, what happens to the farm enterprise when the operator takes a nonfarm job? There are at least three different possibilities: (1) farmers with nonfarm jobs may see the nonfarm job as a temporary expedient for tiding the family over a financial crisis until the income of the nonfarm job will no longer be needed, (2) they may see the nonfarm job as a step in the direction of full nonfarm status, (3) or they may see the nonfarm job as a more or less permanent state of affairs with the nonfarm job supplying the regular income and the farm supplying such things as low-cost housing, products for family consumption, and opportunities to use family labor to advantage.

Only 4 farm operators in the present study had plans to keep their nonfarm jobs and stop farming altogether. Four farmers planned to continue the nonfarm job for a short time and then go back to full-time farming. The majority of part-time farmers, 48 operators, planned to continue the combination of a nonfarm job and farming on a more or less permanent basis. These results agree with the findings of another Ohio Study7 which indicated that the majority of farm operators with nonfarm jobs intended to continue indefinitely on that basis even though some of them may have originally pictured the nonfarm job as a means of achieving full-time farming.

**SOCIAL ORGANIZATION**

**FORMAL PARTICIPATION**

Most heads of households were members of at least one organization (85 percent) but there was a wide range in extent of formal participation. The typical individual belonged to an average of 2.2 formal

---

or organized groups. Sixty-four percent were affiliated with a church group. About 21 percent belonged to a labor union or a business organization. Farm organizations, business, civic, and educational groups, which are ordinarily active in community development, had a relatively limited number of participants.

Eighty-two percent of the respondents reported holding no formal offices; 109 people or 18 percent of the total held the 234 offices that were reported. Forty-six persons held 171 of these offices; this indicates a concentration of formal leadership among relatively few persons.

INFORMAL PARTICIPATION

Although activity in formally organized groups is of importance in the function of any community, informal interaction is also of great importance. Informal groups provide the satisfactions of friendly association needed for a sense of belonging in a community, an important means of communication, and a means of assistance in time of need or crisis.

Eighty-eight percent of the respondents reported informal visiting with friends; this visiting was largely done as families or as couples. The number of different families visited during a year averaged between 10 and 11 families; although rates of visits were not necessarily evenly distributed among these families, among some they were repeated many times during the year. Informal associations, therefore, tended to be limited to a small group of families. The range of this type of informal interaction is seen in the distance covered between the homes of these friends. Over 68 percent of the respondents reported their visiting patterns began less than a mile from their own residence; that is, the nearest of their friends lived within a mile. Eight percent of the respondents said their nearest friend lived from one to five miles distant; while only a few persons visited no one within five miles of their residence.

On the other hand, the distance to the home of the friend living farthest away may be many miles; therefore, most respondents did at least some informal visiting at rather long distances. Less than 10 percent limited their visiting to within one mile of their home; over 50 percent ranged beyond 10 miles and 37 percent went beyond 20 miles for this type of social activity.

The average number of families visited over a year’s time was 10.5. About three of these families were related to the respondent. About one-third of the 607 respondents reported no visits with relatives, one-third had one to four visits per year, and another third reported more frequent kinship visiting.
COMMUNITY SATISFACTION

In order to obtain some measure of the resident's reaction to changes occurring in the County, the respondents were asked their opinion about community services and social relationships in the County. The respondents were asked whether they felt these services or relationships had changed for the better, were the same, or had become worse during the five years previous to the research interviews in 1957.

On the topics of roads, securing new industry, and a chance to get ahead, a large majority of the respondents agreed that there had been changes for the better in recent years. This, no doubt, reflected the general optimism of the area due to the construction of the new aluminum plant. A smaller majority agreed that the schools and churches were improved, although a substantial number (nearly 40 percent) felt there had been no change in the churches.

Fig. 8.—Schools and Other Community Institutions in Monroe County Are Rapidly Changing as a Result of Industrialization

Both of the schools shown above were operating in Monroe County in 1957. River Local School, shown below, was partially financed by the large industrial development in that school district.
A majority of the respondents felt neighborliness and town-country relations had not changed during the past five-year period. Nearly 40 percent, however, felt there were improvements in relations between town and country people.

The degree to which the people of Monroe County are aware of the way in which social action comes about is indicated by their knowledge of the organizations and persons that take leading roles in getting things done. Only about 58 percent of the respondents could give any name of some kind of group that they felt took the lead in "getting things done" in the County. Very few respondents mentioned the Rural Development Committee which had been expressly organized for this purpose for over a year before the study. Various farm groups, business groups, and government agencies were mentioned most frequently and usually in a rather vague way.

Even fewer respondents could name individual persons who took the lead in "getting things done". County officials were most frequently mentioned, followed by school leaders, the county agent, ministers, township trustees, and businessmen. Among the general public, there was little explicit information about the processes and leaders in the community action.

COMMUNICATION MEDIA

The nature of social change that will accompany industrial development and the rapidity of change will depend in large part on the communication media that presently exist or will subsequently develop. The communication facilities were observed in order to provide a benchmark.

COMMUNICATION FACILITIES

Magazines and newspapers are important media through which people obtain information about local, state, national, and international affairs as well as information on jobs, opportunities, new ideas, and new ways of doing things. One's range of interest in events and new ideas is usually reflected in the kinds of papers and magazines which he reads regularly.

The majority of the families interviewed (87 percent) took one or both of the Monroe County newspapers. These are both weekly papers and thus are limited to local news items. About 47 percent of the families supplement these local newspapers with a daily newspaper from a major city outside the County. Most of these dailies come from Wheeling, Zanesville, Marietta, or Martins Ferry. About 93 percent of the
respondents had a radio, which is also a source of state, national, and international news. Seventy-one percent had television sets. None of the households were without either a newspaper, radio, or television set.

News about developments on the farm and new ideas for the home is apparently what most people look for in magazines. Farm magazines are the most popular magazines with nearly one-half (48 percent) of all households subscribing to one or more. Among farm households only, the proportion was 86 percent. Women's and home magazines were next in popularity; 28 percent of all households and 22 percent of the farm households subscribed to one or more.

**SOURCES OF FARM INFORMATION**

Publications of various kinds were the most widely used sources of farm information in Monroe County. There were 38.9 percent reporting newspapers and 35.9 reporting other publications, largely farm

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**Fig. 9.—The Relative Isolation of Monroe County Is Breaking Down in the Face of Improved Transportation and Communication Media**

This bridge, under construction near Hannibal, Ohio, spans the Ohio River and will open a route eastward for local and through traffic through Monroe County removing the barriers of the river to employment in West Virginia and vice versa. The bridge was scheduled for completion in 1960.
magazines, as principal sources. Other important sources in descending order were radio (31.7 percent), the county extension agent (29.9 percent), neighbors (23.9 percent), television (17.4 percent), farm organizations (19.2 percent), relatives (12.0 percent), farm cooperatives (10.8 percent), and farm supply dealers (9 percent).

When asked to single out the most important source of information about farming, the farm respondents placed publications first and the county agent second. Neighbors were third and farm organizations were fourth.

When farmers were asked from whom they sought advice about farm practices, the majority said they did not seek advice from others. Whether this is a true reflection of satisfaction with present methods or self-reliance or a reluctance to give names cannot be determined from the present data. However, among those who did name some person, their neighbors, the county agent, and relatives were most frequently mentioned.

**AGRICULTURAL EXTENSION SERVICE**

Because the Agricultural Extension Service is taking an important part in the Rural Development Program in the County, a special effort was made to learn what direct or indirect contacts families in the County had with the Extension Service. Table 3 presents the proportions of all families and of farm families that have various kinds of contacts with the Agricultural Extension Service. In one form or another, the Extension Service reached a significant number of people.

**ATTITUDES TOWARD INDUSTRY**

The way people feel about the introduction of a new industry will have a major influence on the kinds of changes that result. The respondents were asked a series of questions to determine their attitudes toward industry.

One-fourth of the respondents did not single out any certain group as favorable toward industry, but stated the general opinion that all groups were favorable. Among those who did mention specific groups, the largest proportion (22 percent) said that labor groups were favorable. One-half as many (11 percent) thought business and professional groups were favorable. Only seven percent said farm groups were favorable and only two percent thought religious groups were favorable.

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*Respondents were not asked specifically to name individuals, although they were not discouraged from doing so. If they showed some reluctance to identify individuals, it was suggested that they might refer to them by categories such as neighbor, relative, or county agent.*
### TABLE 3.—Types of Contact with the Agricultural Extension Service

<table>
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<tr>
<th>Type of Contact</th>
<th>Total Respondents</th>
<th>Farm Households</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Heard of County Agricultural Extension Service</td>
<td>413</td>
<td>68.0</td>
</tr>
<tr>
<td>Read Extension Articles in Newspaper</td>
<td>342</td>
<td>56.0</td>
</tr>
<tr>
<td>Hear County Agent on the Radio</td>
<td>282</td>
<td>46.3</td>
</tr>
<tr>
<td>Know County Agent</td>
<td>248</td>
<td>40.9</td>
</tr>
<tr>
<td>Watch Extension Program on Television</td>
<td>228</td>
<td>37.6</td>
</tr>
<tr>
<td>Know County Home Demonstration Agent</td>
<td>187</td>
<td>30.8</td>
</tr>
<tr>
<td>Have (or had) Children in 4-H Clubs</td>
<td>178</td>
<td>29.2</td>
</tr>
<tr>
<td>Use Extension Publications</td>
<td>159</td>
<td>26.2</td>
</tr>
<tr>
<td>Visit County Agent or Home Agent in Office</td>
<td>133</td>
<td>21.9</td>
</tr>
<tr>
<td>Attend Demonstrations or Farm Tours</td>
<td>91</td>
<td>15.0</td>
</tr>
<tr>
<td>Attend Extension Meetings</td>
<td>79</td>
<td>13.0</td>
</tr>
<tr>
<td>Had Agent on Their Farm or in Their Home</td>
<td>63</td>
<td>10.4</td>
</tr>
</tbody>
</table>

All respondents were asked to react to a double series of statements designed to measure their opinions of farm and industrial work. The number of items is too few to allow for extensive analysis of the features of farm or industrial work that are most or least attractive to residents of Monroe County. Generally, industrial work is approved most favorably because of the work opportunity, and farming is most favorably approved as a way of life.

Monroe County is highly agricultural and, no doubt, many of those now working at nonfarm jobs have farm backgrounds. However, in Figure 10, the two charts show less contrast than might be expected. Although attitudes toward farming are largely favorable, there is an important proportion that are either unfavorable or undecided. In the industry chart on the other hand, it is apparent that there is far more agreement with the great majority expressing favorable attitudes toward industrial employment. It is inferred here that residents of the area though rural in background are very much interested in increased income and job opportunities.

**THOSE BENEFITING FROM INDUSTRY**

To further ascertain opinions toward the new industrial plant, respondents were asked to make a series of choices regarding which of two general categories of people in the County would benefit most. A
large majority (62 percent) held the opinion that townspeople would benefit more than farmers from the new point. About 22 percent expressed the opinion that the farmers would benefit more than the townspeople. A sizeable number (16 percent) found it too difficult to make this choice and said either they did not know or that they thought the two groups would benefit equally.

Skilled workers are expected to benefit more than businessmen, young people more than old people, and persons with high school or college educations more than persons with less than a high school education. A majority believed that newcomers would benefit more than life-long residents, and that the community would benefit more than the industrial company.
About 62 percent of the respondents believed all groups would benefit from the coming of industry, five percent did not know, and the remainder were of the opinion that some groups definitely would not benefit. Twenty percent were of the opinion that older persons as a group would not benefit. Persons on fixed income and people unable to work were mentioned as groups that would not benefit from the plant. Farmers are the only major occupational group that were mentioned as not benefiting.

Respondents were more optimistic about prospects of the community benefiting from industry than about their own personal prospects. Ninety-two percent said they thought that the overall effect of the new plant will benefit the community, while 62 percent expected to benefit personally in some way. Among those who said they did not expect to benefit, the majority thought that they were too old or that they would be unable to obtain work at the plant for various reasons.

Among those who expected to benefit personally, 47 percent expected to benefit by getting work themselves or because someone else in their family would be able to get a job. Twenty percent expected to benefit through an increase in business activity or an increase in property values and rentals; 8 percent expected to benefit from higher farm prices. The effect of industry on farm prices was apparently based on the questionable assumption that increased population and increased incomes in the County would have a sufficient influence on the demand for food to increase farm prices in the area.

Aside from the possibility of an increase in direct sales of garden-type farm products in roadside stands and possibly some improvement in local demand for milk, this appears to be a mistaken hope or an extremely limited concept of the market. Nevertheless, it is significant evidence of the “will to believe” that industry will benefit everyone including the person who remains on the farm.

EXPECTED INDUSTRIAL EMPLOYMENT

Further evidence of the high hopes for new work opportunities were found in the number of persons who expected the plant to have jobs that they would be qualified to fill. Over two-fifths (44 percent) thought there would be permanent jobs in the plant for which they could qualify. Table 4 indicates the general types of jobs they expected to be qualified for in the plant. Slightly over half think of themselves as possessing the abilities to fill the rather highly-skilled positions. However, most of those responding expected that the job opportunities would be largely in the laboring category. One-third of the sample expected
TABLE 4.—Types of Occupation the Respondents Felt They Would Be Qualified For In The New Plant

<table>
<thead>
<tr>
<th>Type of Occupation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operatives and Kindred Workers</td>
<td>74</td>
<td>27.5</td>
</tr>
<tr>
<td>Laborers, Except Farm and Mine</td>
<td>35</td>
<td>13.0</td>
</tr>
<tr>
<td>Service Workers Except Private Households</td>
<td>34</td>
<td>12.6</td>
</tr>
<tr>
<td>Clerical and Kindred Workers</td>
<td>33</td>
<td>12.3</td>
</tr>
<tr>
<td>Craftsmen, Foremen, and Kindred Workers</td>
<td>28</td>
<td>10.4</td>
</tr>
<tr>
<td>Professional, Technical and Kindred Workers</td>
<td>2</td>
<td>.7</td>
</tr>
<tr>
<td>Managers, Officials and Proprietors Except Farm</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Felt Qualified but Type of Job Not Known</td>
<td>62</td>
<td>23.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>269</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

that they, or members of their families, would actually try to get a job in the plant. However, only 166 persons actually planned to take the jobs that would be available in the plant.

**BENCHMARK HYPOTHESES**

The following benchmark hypotheses are stated for the purpose of showing the types of hypotheses that may be tested after the data are gathered in 1961 (as the “after” measurement). These hypotheses were developed both on the basis of other research studies of industrialization of rural areas and the present study. A hypothesis is an intelligent guess and remains to be proven or disproven by the research to follow.

I. Population Characteristics

1. The total population of the County will increase rapidly as a result of industrialization.

2. The proportion of the population in the working age range (20-65) will increase.

3. The average size of household will increase.

4. The average level of living of people in the County will increase.

5. Educational levels in the County will rise and educational programs will be brought up to date. This will include changes in school organization.
II. Residential Migration
1. There will be higher rates of migration in Monroe County.
2. Longer distances will be involved in the average migration; however, there will be less migration of young adults out of the County.
3. Former residents with ties in the area will move back to the County.
4. The relative number of farm people in the County will decrease in proportion to the number of people in rural nonfarm places.

III. Occupational Status
1. The actual and relative number of farmers will decrease while the numbers in nonfarm occupations will increase.
2. The relative number of persons in nonmanual occupations will increase in proportion to the number of persons engaged in manual occupations.
3. Skills represented in the labor force will become more varied and specialized.

IV. Agriculture
1. Farmers in the County will adopt new farm practices more rapidly relative to the rest of the state.
2. Mechanization of farming will increase.
3. The proportion of farmers with nonfarm employment will increase.

V. Social Organization
1. Leadership in formal organizations will become less concentrated.
2. More power groups will evolve and leadership functions will shift to new groups.
3. “Newcomers” to Monroe County will assume leadership positions formerly held by “oldtimers”.
4. Informal visiting will take place over a wider geographical area.
5. Community realignment will occur and neighborhood systems will be replaced by larger community systems.
6. Informal social participation with family and kin will decrease in importance and be replaced by more formal participation and non-kinship associations.
VI. Communication

1. Monroe County residents will become less local and more cosmopolitan in their use of communication media.

2. Highway systems will change and create new communication networks.

3. The use of the Extension Service will increase and new patterns of use will evolve.

VII. Attitudes Toward Industry

1. More favorable attitudes toward industry will develop in Monroe County.

2. Attitudes toward farming will become less favorable in comparison to attitudes toward industry.

SUMMARY

The present bulletin reports findings from a study of industrialization in a relatively isolated, low-income rural Ohio county. The main purpose of this publication is to describe the situation at the starting point of change and establish benchmark information about the County's people, industry, agriculture, social organization, and communication media before changes caused by a new industrial plant take place. The expected social changes resulting from industrialization are stated as hypotheses.

Data were secured from a random area sample of 607 households in Monroe County, Ohio, in 1957. Measures on many benchmark dimensions were secured in order that later changes caused by industrialization could be contrasted with these benchmarks. A benchmark is defined as the location of a population on some dimension from which future possible changes will be measured.

The age-sex pyramid of Monroe County indicated disproportionate numbers of young and aged, and the lack of persons of working age. This was traced partly to the heavy migration of young adults to seek education and employment outside of the County. Educational levels and the level of living are lower in Monroe County than for the rest of Ohio.

The County's present residents are also characterized by lower migration rates than the rest of Ohio. Most of the migration that does take place is for relatively short distances.
The largest single occupation of the Monroe County labor force was farming. About half of the household heads were working for wages or a salary at the time of the research interviews in 1957. There was a higher proportion of the County's labor force in manual occupations than for the rest of the state. A large industry could obtain some types of labor locally, but many highly-skilled positions probably would need to be filled with "outsiders."

Mechanization and adoption of new farm practices by Monroe County farmers has proceeded more slowly than in the rest of the state. The percent of farmers with non-farm employment is increasing.

Leadership in formal organizations in the County is fairly concentrated; 18 percent of the respondents held all of the 234 offices that were reported. The average family reported informal visiting with about 11 other families; about three of these were relatives.

Although there were favorable attitudes toward farming by a majority, a much larger majority had favorable attitudes toward industrial work. In general, farming was valued as a way of life while industrial work was valued for its shorter hours and higher wages.

In conclusion, a series of benchmark hypotheses were listed. These state the probable direction of change in the benchmarks.

ACKNOWLEDGMENTS

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