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## Economic and Population Base Study of the Lansing Tri-County Area - An Interindustry Relations Analysis

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SPONSORED BY THE TRI-COUNTY  
REGIONAL PLANNING COMMISSION  
CLINTON, EATON AND INGHAM COUNTIES

AN INTERINDUSTRY RELATIONS ANALYSIS

# **ECONOMIC AND POPULATION BASE STUDY OF THE LANSING TRI-COUNTY AREA**

BUREAU OF BUSINESS AND ECONOMIC RESEARCH  
COLLEGE OF BUSINESS AND PUBLIC SERVICE  
MICHIGAN STATE UNIVERSITY  
EAST LANSING, MICHIGAN

ECONOMIC AND POPULATION BASE STUDY  
OF THE LANSING TRI-COUNTY AREA

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Sponsored by the Tri-County Regional Planning Commission

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East Lansing, Michigan

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## PREFACE

This research report, prepared for the Tri-County Regional Planning Commission (representing Clinton, Eaton and Ingham Counties, Michigan), is the concluding phase of a contractual relationship between the Commission and Michigan State University. Under this contract, entered into on July 2, 1958, the Bureau of Business and Economic Research, a component of the College of Business and Public Service, undertook to make a comprehensive economic and population base study of the Tri-County Area.

The research project, started in October, 1958, has involved the participation of seven members of the University faculty and eight research assistants, in addition to members of the Bureau clerical staff, and has required 17 months for completion.

In addition to those whose names are listed on the title page of this report, special mention should be made of the valuable contribution of Dr. John L. Hazard, who participated with the director of the Bureau in the early stages of planning and discussion with the Planning Commission and who served as director of the project during several months of its preliminary research phase. Dr. Hazard was then forced by the pressure of other duties to leave the research group and Dr. John L. O'Donnell agreed to assume the duties of research coordination.

The very nature of the problem of studying a small economy has made this research project unusually difficult and complex. All of those who participated in the study are to be commended for the huge amounts of time, effort and interest which they devoted to it and for their persistence in carrying it through to its successful completion.

The report is divided into two main parts. Part I contains Chapter 1, which deals with the history of the Lansing Tri-County Area; Chapter 2, which analyzes past and current area population, labor force, and income distribution; and Chapter 3, which summarizes the main findings of Part II, presents the forecasts of population, labor force and income developed from the input-output matrix, and contains a discussion of conclusions that may be drawn from this analysis. In a sense Part I is a condensed version of the whole report. Consequently, the reader who prefers not to concern himself with the great amount of detail, some of it rather technical, found in Part II should be able to read only Part I and acquaint himself with the general structure of the area, its general outlook, and some of the problems with which it is likely to be faced.

Part II contains a more detailed description and analysis of the area's main economic sectors: manufacturing; government; services and education; agriculture; retail and wholesale trade; finance, insurance and real estate; and transportation, communications and public utilities.

It also contains the actual heart of the study, the input-output matrix and its accompanying tables which present the best obtainable picture of the anatomy of the Tri-County Area economy. This constitutes Chapter 11, Interindustry Flow of Goods and Services; even the non-technical reader is urged to spend some time in studying the tables and in reading the accompanying explanatory and analytical discussion. The more technical reader will find the interindustry flow tables to be of great interest.

In addition to the two main parts of the report, there is an Appendix which contains background materials, definitions of economic sector classifications, sample questionnaires, and a bibliography of secondary sources used in the study.

This is probably the most detailed study ever made of an economy as small as that of the Lansing Tri-County Area, and it is with pride that those who have participated in it submit this final report to the Tri-County Regional Planning Commission.

Eli P. Cox, Director  
Bureau of Business and  
Economic Research



## PART I

### CHAPTER I

#### HISTORY OF THE TRI-COUNTY AREA

##### The Background

A line drawn across the map of Michigan from Bay City to Muskegon would mark the northern boundary of the state's highly industrialized section. The Indiana line and the lake shores to east and west would form the other three sides of a rough rectangle. In the middle of this area lies Lansing, conspicuous as the point of intersection of railroads and highways. To judge by the map alone, it is not surprising that so centrally located and available a spot should be the capital of the state, yet the map does not reveal the real facts of Lansing's importance and growth. More than most cities, Lansing owes its significance to human initiative rather than to the exploitation of any natural advantage.

What natural advantage this state capital and Tri-County metropolis actually possesses is one of position rather than site. Locational economists make a useful distinction between these terms: position has to do with availability of markets and transportational advantages, site with location in relation to some natural resource such as a mineral deposit or a source of waterpower. While brick clay and fertile muck, marl, peat and even coal are to be found close to Lansing, none of these was of great significance in its early growth or affected its choice as the state capital. As a site, its only advantage was the common one of sufficient river gradient to provide power for a sawmill. The dense forest that covered the entire area was not looked upon as an asset. Settlers were more interested in cleared land for farming than they were in the timber they had to remove: indeed the impenetrability of the woodland retarded settlement of the Tri-County Area in general.

In considering the economic picture of the Tri-County Area today, we start with its history. Perhaps a pattern of its growth will emerge that will not only simplify understanding of the past but will permit not-too-naive hypotheses about the nature of future growth. To lay a foundation for this historical approach, we first survey the natural circumstances confronting those who sought a home in this central portion of the state. Geology, soil science and climatology make available to us information that would have been invaluable to the homesteader, who chose his land partly on a basis of misinformation, superstition and folk wisdom.

##### Physiography

Clinton, Eaton and Ingham Counties, which constitute the Tri-County Area

that is under study, are included within that physical region of Michigan's Lower Peninsula known as the Southern Upland. The immediate area is covered with glacial debris, and has a profile varying from the rolling sandy uplands of southern Ingham County to northern Clinton County's clay plains that descend to the Saginaw Lowland. Lansing's elevation of 843 feet does not differ much from that of any point within the area. The area is included within the drainage system of the upper Grand River, the state's largest watercourse. The larger tributaries are the Red Cedar, Lookingglass, Maple, and Prairie Rivers. The extent of ground water reserves has not yet been determined, though a study of them is projected.

Most land features are the result of glaciation: they include small lakes, valley swamps, some peat soils, and, notably, the largest esker or glacial hogback in the Western Hemisphere, which runs some 20 miles from north of Lansing almost to Leslie, forming a prominent local feature. This and similar deposits of sorted glacial material have been of economic value in road and railroad building. Marl and clay for land improvement and brick and tile making are also present, while limestone in the neighborhood of Bellevue has had an economic importance. Muck beds, the remains of glacial lakes, provide for the intensive cultivation of such crops as onions and mint.

### Climate

The continental interior type of climate characteristic of the Middle West is moderated, in the case of Michigan, by the waters of the Great Lakes. However, this tempering of extremes of heat and cold can be negated by very sudden changes in the weather, brought about by the collision of masses of cold air from western Canada and warm air from the Gulf of Mexico. Precipitation averages 31.02 inches (mean annual total) and is fairly well distributed throughout the year.

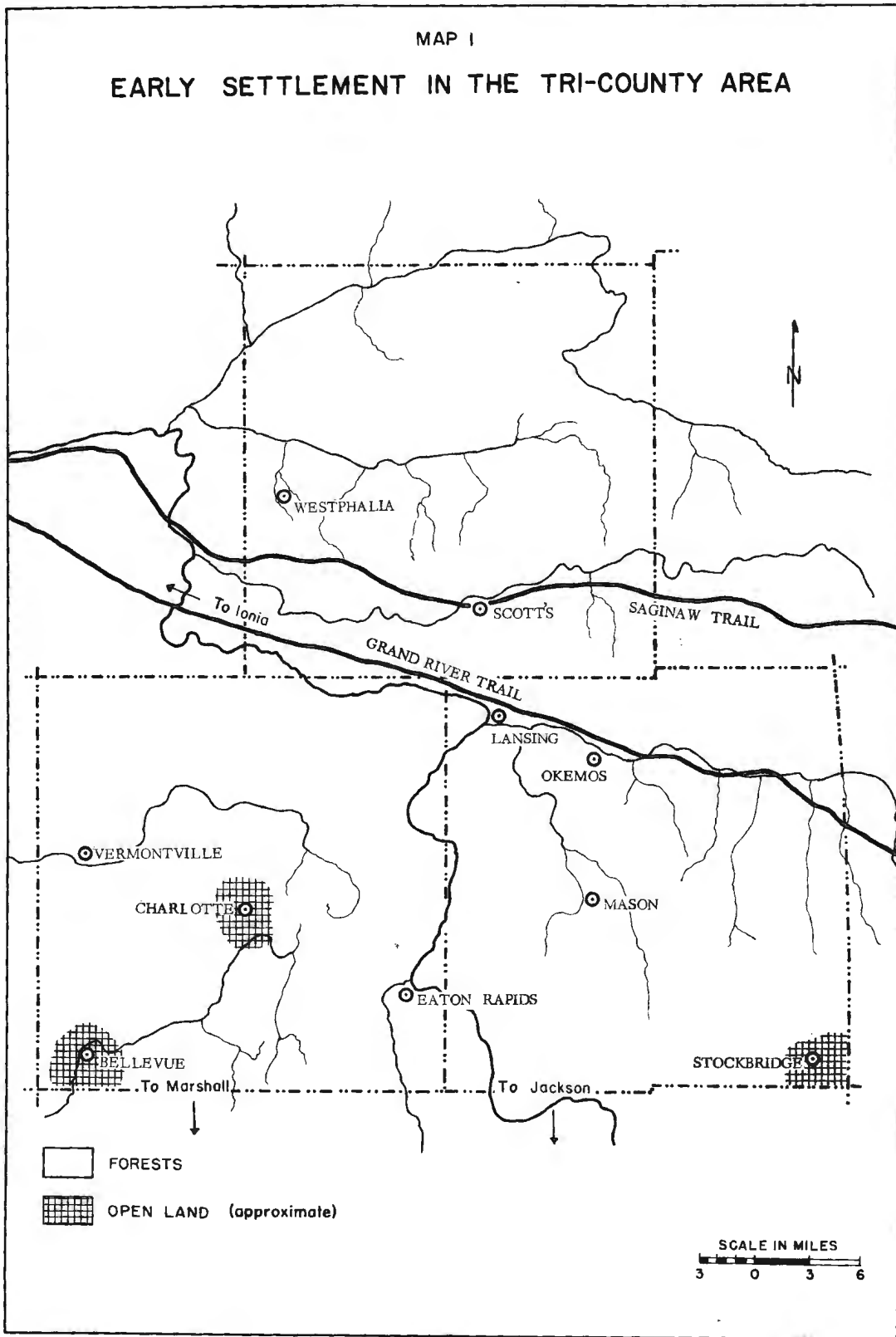
### The Forest

Some of the densest deciduous forest in human records covered the Tri-County Area when settlement began in the 30's of the last century. No old-world woodland and few in this country could boast the vast variety of trees native to southern Michigan's hardwood belt. A definite relationship exists between the timber and the soil that supports it, so that a prospective settler might know by the trees surrounding him what type of crop could be expected to do well in a given locality. Oak flourished on sandy loams suitable for hay, oats and potatoes; beech and soft maple did better on a heavier soil less favorable to farming, while for the best land for general farming the man with the ax looked for walnut, ash and sugar-maple. Burr-oak plains and grass prairies, which were scattered through the dense forests, were much favored for settlement, both because of the ease of putting such open land to use, and because the soils, distinct in their composition, were considered particularly attractive for wheat.

Map 1, which portrays the pattern of early settlement, shows how attractive the open country was to the founders of the first communities. Where towns are shown

MAP I

EARLY SETTLEMENT IN THE TRI-COUNTY AREA



in forested areas, a definite reason has to be sought outside the nature of the terrain: Vermontville, for example, was located in dense woodland because the more open country in Eaton County had already been sold.

The forest was the conditioning factor for early settlement, together with the presence of enough stream velocity to provide for mills. On the whole, the extreme density of the growth, together with the region's remoteness from the main travelled routes, served to slow settlement for decades. Consideration of the developmental pattern of the Tri-County Area must reckon primarily with this forest, at once an asset and an impediment.

### The Pioneer Era

The most careful consideration of the locational factors that will make for a successful enterprise may overlook those very ones that are to be decisive for success or failure. Metropolitan Lansing at the present time dominates Ingham County and contiguous Eaton and Clinton Counties, yet a hypothetical bird's-eye-viewer of the region in the 1830's would certainly have picked Ingham County as least likely to succeed. The reasons were obvious. Clinton County, to the north, was crossed by the oldest established of the routes of pioneer travel in the state, the Northern Route from Detroit to Newtown (Grand Haven); the county had abundant water power for saw-mills, and several centers of population. There was even talk of a canal to connect the Shiawassee and Maple Rivers; the land agents claimed it would cause "a great drift of business through this section of the country, as it will save something like one thousand miles of water carriage around the Lakes." In addition to such promise of future importance, the land was level and the soil good. While the forest was dense, the oak openings, burr-oak plains, and prairies that facilitated both travel and home-steading were more abundant than they were in Ingham County.

Eaton County had still more of these sought-after breaks in the forest that once stretched from the Atlantic to central Illinois. Charlotte, designated as county seat in 1832 even before it had its first settler, was located on a beautiful open prairie, and Bellevue on a fertile burr-oak plain. Through these openings wagons easily made their way northward after leaving the Territorial Road (Detroit to Chicago) at Marshall. Bellevue's possession of an abundance of limestone promised well for its future, as did the market for its excess sawlogs downstream in the village of Battle Creek. Such natural advantages of position and site should have put Bellevue well ahead of the neighboring communities, and it is a fact that half the population of the county was centered around that village in 1840.

If religious conviction and high civic and educational principles seemed the qualities that would eventually promote a community over its fellow towns, our hypothetical viewer of the Tri-County pioneer scene might have picked Eaton County's Vermontville for future pre-eminence. It was established by a mass emigration of Congregationalists from the Champlain Valley of Vermont, men of all professions

from printer to physician, whose special training and skills might well be expected to give their town an advantage. Yet dynamic growth passed it by, as it did the German Catholic settlement, Westphalia, in Clinton County.

Of the three counties, Ingham was the least favored in every way. Clinton had its Northern Route to draw upon; Eaton had the advantages of more open country, with easy access to the important Territorial Road; Ingham had a thicker expanse of dense deciduous forest that impeded the development of the Grand River Trail. The water-power advantage was shared among all three counties. Yet, despite its apparent lack of advantages, Ingham County's Lansing has so far outstripped its neighbors as to have virtually engulfed them. Towns that were its senior by a dozen years are now its bedroom suburbs. Many outlying farms are sun-down enterprises of men who work full shifts in a city factory.

Factually, the history of the Tri-County Area is the chronicle of consolidation into a metropolitan structure with Lansing as its core. In interpreting the history we have to determine what factors of place, timeliness, chance or determination made a sawmill site in the deep forest the capital of a state that already contained communities established almost two hundred years before. The hypothetical viewer of the scene found no reason to pick Lansing as the focus of metropolitan growth, but a traveller into the past has a wider purview, being free to explore motivation and ambition.

Few people wished to penetrate the interior of Michigan in the 1820's. The notorious Tiffin Report, issued by the Surveyor General for the Northwest Territory in 1815, had stated that, in the interior,

there would not be more than one acre out of a hundred, if there would be one out of a thousand that would, in any case, admit of cultivation. . . The intermediate space between the swamps and lakes, which is probably nearly one-half of the country, is, with a very few exceptions, a poor barren, sandy land, on which scarcely any vegetation grows, except very small scrubby oaks.

In view of the fact that the Tri-County Area was then covered with the densest of forests, it is doubtful that Tiffin's surveyors ever penetrated the middle of the Lower Peninsula. However, his report dissuaded the government from giving grants of Michigan lands to war veterans, and also launched a hard-dying legend of a nightmare of interminable swamps and sand hills west of Detroit. Prospective settlers were diverted toward Indiana, Ohio and Illinois.

Subsequently, new surveys and explorations under Governor Lewis Cass brought much more favorable attention to the economic potential of Michigan, as did published accounts of travelers' observations. Maps and gazetteers of the 30's attest an interest in our state that not even the fear of cholera, malaria and Indian uprisings could damp. As title to the Lower Peninsula passed out of Indian hands

through successive treaties, and as three transterritorial routes in addition to the Great Lakes made the approach to southern Michigan easier, settlers and speculators vied for possession of land in the Tri-County Area. The opening of the Erie Canal in 1825 had made travel to Michigan vastly easier, and the tide of settlement turned north again, reversing the trend of a few years earlier.

The aspirations and ambitions of Michigan residents are attested by their early efforts to obtain better means of transportation. While dreams of a canal between the Shiawassee and Grand River systems or between the Clinton and Kalamazoo never materialized (such dreams were shattered all over the Middle West in the financial collapse of the late 1830's), the railroads gradually proved themselves to be the answer to the problem of cheap long-distance travel. The Michigan Central, projected in 1837, the year of Michigan's admittance as a state, reached Ann Arbor in 1840, Jackson in 1842 (a six-hour trip from Detroit), and trackage to Chicago was complete in 1852. While no routes penetrated the counties to the north for several years, improvements in the engineering and construction of roads following the Plank Road act of the late 40's made the Tri-County Area more available to settlement.

By the terms of the Constitution of 1835, a central site for the capital had to be determined upon to replace Detroit. Readers of Michigan history are familiar with the tortuous process by which Lansing was finally chosen to resolve the deadlock between the proponents of various other localities. Advocates of prosperous and established communities such as Jackson and Marshall would not cede to one another--residents of Marshall had already picked a plot of ground within their village, and it is still known as Capitol Hill--and at last in semi-humorous desperation the choice fell upon a dark-horse candidate advanced by a member of the Legislature who owned land in Ingham County. The "Village of Michigan" was close to his millsite on a bend of the Grand River, and within the limits of present-day Lansing. The location's only obvious claim was the fact that it was almost precisely halfway across the Lower Peninsula. Two years later the settlement's name was changed to Lansing, after the New York state community which had been the home of some of the settlers. As Representative Goodrich remarked many years later,

When the legislature of '47 was first organized, the man who would have supposed it possible to wrest the capital from Detroit and set it down in the midst of a dense forest on the banks of the Grand River would have been considered a fit subject for a lunatic asylum.

#### The New Capital

Lansing's population was about a thousand when it began its life as a capital. It was not to be incorporated for more than a decade after its founding, but its growth in early years was rapid. It almost tripled in population between 1850 and 1860, having 3,047 inhabitants in the latter year. Grist mills, foundries, machine shops, a bank, and a diversity of manufacturing lent variety to the economic picture during this decade. It is instructive to compare the economies of the three counties of our area as portrayed

in the 1860 census. The report on manufactures in that year shows the annual value of production to be as follows: Clinton County, \$691, 122; Eaton County, \$323, 287; Ingham County, \$521, 725. The relative values are not the important fact, but rather the types and variety of undertakings. Half of the value for Clinton County was due to its sawmills, and one-third to its grist mills. Eaton County's production value depended upon cereal milling for well over half of the total amount. While cereal milling was also the single largest item in the Ingham County list, it accounted for less than one-third of the production value in manufacturing. In a comparison of the figures for the three counties, Ingham's total production value fell about halfway between those of the other two, but the greater diversity of undertakings in Lansing is striking. There were 32 standard categories of manufacturing in this census list. Twenty-four of these were represented in Ingham County, 18 in Eaton, 12 in Clinton.

Population growth in Lansing was the result of the location of the capital here. Government and manufacturing formed, from the first, two of the three economic bases for the prosperity of this area. The third, Michigan State University in East Lansing, was authorized by the Legislature in 1852, and in the years between then and the present it has played an important role in the local economy.

In 1860, the population of the Tri-County Area was 47, 827. Two decades later it was 93, 001. In each of the two ten-year periods local growth rate was below that of the state as a whole. As the home county of the state capital, Ingham County continued to outstrip its two neighbors. Indeed, Clinton County's growth was negative from the 1890 census until after 1920 and Eaton County's population experienced a similar decline.

Railroad growth and consolidation were carried out rapidly. Even as late as 1859, the Detroit-bound traveler from Lansing took the stage to Owosso in order to catch a train. However, the early 1870's brought the capital into the railroad network with at least two lines, the Detroit, Lansing and Northern, and the Jackson, Lansing and Saginaw. This improved transportation drew Lansing more and more into the national economy. At the same time, the Tri-County Area depended more and more upon Lansing for specialized goods and services. One of the first manufacturing enterprises to serve an outside market was founded in 1869; it produced agricultural implements, bobsleds and stoves for the Middle Western market. Another firm at this period made machinery for the lumber industry which was operating further and further north in the state. In 1886 R. E. Olds built his first horseless carriage here. More than any other man, he was responsible for the close association between the growing motor car industry and the economic pattern of Lansing that has persisted to this day.

During this period the villages and towns other than Lansing were becoming little more than service centers for the surrounding farms. The capital was concerned

with attracting more industry; the other communities tended to lose population to the big city.

### The Present Century

As the automobile came on the scene, the effect upon Lansing's economy was dramatic. The presence of a well-established business and manufacturing community, and R. E. Olds' determination to base his automobile enterprises in Lansing rather than Detroit, as he first planned, served to set a pattern for other manufacturing ancillary to the construction of cars. Like other communities closely dependent upon a particular industry, Lansing has been vulnerable to the effects of depressions; it had also to weather the difficult period, through the 1920's, when car makers went into and out of car making, merged, or split up, or in many cases went under. As an instance of the turmoil the nascent automobile industry has undergone in its short history, it may be noted that six makes of automobiles were manufactured in Jackson at one time or another; not one survived. Lansing's car industry survived, however, and the community flourished. While Clinton and Eaton County populations were going down, Ingham County's increased by 33% between 1900 and 1910, and by 53% in the subsequent ten years. Car building, together with government and education, had become the heart of a robust local economy. These three remain today the basis of the economic life of the Tri-County Area.

### The Metropolitan Area

Growth of recent years, especially since World War II, has meant the drawing of more and more remote rural regions, and their towns, into the orbit of a metropolis. Such a process ultimately requires a re-evaluation of an entire area for the purpose of economic or statistical study. When a population has largely left the "rural farm" category and entered that of "rural, non-farm" it is less a part of an agricultural picture and has become an essential adjunct of the city on which it depends.

Lansing's status as a metropolitan area goes back to its official census designation as such in 1947. This action was the result of a population study by the War Manpower Commission. A Standard Metropolitan Area, for census purposes, is usually made up of the county in which a major city is located; however, it has become increasingly evident in the years since this designation was made that in the case of Lansing an unusual degree of interdependence exists between the city and the adjacent counties. Lansing is located in the extreme northwest corner of its own county, so that expansion of the metropolis greatly affects two adjacent counties. With a view to arriving at a more realistic estimate of the extent of the effective reach of the city, the Michigan Employment Security Commission, in October, 1958, conducted its Commuting Survey of the Lansing Metropolitan Area and Adjacent Counties, and submitted the results to the Bureau of Employment Security of the U. S. Department of Labor for presentation to the Federal Committee on Standard Metropolitan Areas.

The Commuting Survey was designed to study that important factor in area



definition, the relation that exists between place of residence of the labor force and its place of work. It was obvious that Clinton and Eaton Counties contribute a good deal of manpower to the economy of Ingham County. The Survey covered these three counties as well as Shiawassee and Livingston Counties, to the northeast and east.

A scientifically selected sample of establishments throughout this entire area was drawn in order to ascertain from the employers where their workers reside. The size of the sample was 349 firms; the 344 replies represent a high degree of cooperation. The technical data-gathering methods are detailed in the Commuting Survey itself, and need not concern us here, but the results arrived at include the following facts, pertinent to the present Tri-County Study:

Of the residential labor force of the five counties under examination, at least 75% is non-agricultural.

Commuters to Ingham County include nearly 46% of Clinton County's workers and over 50% of Eaton County's.

Livingston and Shiawassee Counties fall far short of a comparable figure that could be considered significant. Their commuting pattern is affected by proximity to other large cities than Lansing.

Two-thirds of the out-of-county workers in Ingham County's industries are in manufacturing, and one-third in non-manufacturing.

About half of the out-of-county workers in Ingham County have jobs in the motor vehicle and equipment industries.

As a result of the Commuting Survey, the Lansing Metropolitan Area was re-defined to include all of Ingham, Clinton and Eaton Counties, but not Shiawassee and Livingston. It is apparent, in view of the facts, that such a new definition is much more in line with the actual nature of the metropolitan Lansing community. Another interesting point is that there is only one other Metropolitan Area in the state that encompasses three counties: this is, of course, Detroit, whose official Tri-County Area covers Oakland, Wayne and Macomb Counties.

With the 1947 and 1958 studies as part of our own Tri-County Area's immediate history, a study such as the present one is entirely appropriate, attempting as it does to make a complete exploration of the region in all private and public aspects that bear upon the economic picture.

If a pattern is evident in this regional history, it is that of the significance for our development of the determined effort made by certain key individuals: Lewis Cass, who forced upon a fearful public the true facts about the physiography of an inland region they dreaded to penetrate; Dewitt Clinton, whose Big Ditch made travel to the upper Middle West waterborne for most of its course; Seymour the sawmill

proprietor and his friends, who wrested from established towns like Albion, Jackson and Marshall the capital of the state, and set it down in a wilderness; R. E. Olds, who pioneered in the development of the automobile; the farsighted and stubborn members of the State Board of Agriculture, who established Michigan State College as a model for the Land Grant Colleges and defended its existence, and Dr. John Hannah, who in our own day has guided this institution to its present eminence as a university. It is obvious that neither government nor education has a structure too rigid and complex for the efforts of the individual within them to have significant effect; industry, in an age of momentous transition, also needs the impetus only the farseeing and decisive individual can give it.

## CHAPTER 2

### POPULATION, LABOR FORCE AND INCOME IN THE TRI-COUNTY AREA

There are currently rather more than 300,000 people residing in the Tri-County Area. In this chapter, we will look at this population from three different but related points of view. Consideration will first be given to population as such. The number of people in the area is in itself important; it determines needs, and a larger population means that more jobs and production are needed to sustain the population at the same level of living. Moreover, population can be examined as a productive factor, for it is the source of the labor force, and labor is an important productive factor. Finally, population can be regarded as determining the area's attractiveness as a market. Income is the crucial variable in this last calculation.

#### POPULATION

##### Trends in the Area, State, and Nation, 1900-1958

By 1958 the population of the United States had increased to about two and a quarter times the population at the turn of the century. During the same years the population of Michigan and that of the Tri-County Area more than tripled: the concentration of the U. S. population in Michigan increased (this increase being fairly constant throughout the period) and the concentration of Michigan population in the Tri-County Area was the same in the first and last years, though it fell from 1900 to 1930, and rose thereafter.

Table 1 gives the population figures for the three counties, for Michigan, and for the United States by decades from 1900 to 1950, and by years since 1950. Michigan population is also computed as a percentage of the total U. S. population, and the Tri-County population is shown as a percentage of state population. It is clear from the table that population growth has been considerably more rapid and more steady in Ingham County than in the smaller counties. Both Eaton and Clinton Counties, in fact, lost population after 1900; Clinton did not exceed the 1900 census total until 1940, and Eaton fell below the 1900 total at two subsequent censuses.

Table 2 shows the distribution of population within the area by counties, and emphasizes Ingham County's predominant position. Ingham County population has made up more than half the Tri-County total at every census since 1910, and the Ingham share of the total has increased at every census taken, and almost every year

TABLE 1

## POPULATION TRENDS IN THE TRI-COUNTY AREA, MICHIGAN, AND THE UNITED STATES, 1900-1958

	<u>1900</u>	<u>1910</u>	<u>1920</u>	<u>1930</u>	<u>1940</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Ingham County Population	39,818	53,310	81,554	116,587	130,616	172,941	179,520	185,860	191,960	193,890	203,520	208,710	214,560	216,860
Eaton County Population	31,668	30,499	29,377	31,728	34,124	40,023	41,400	42,060	43,490	44,870	46,130	47,910	50,250	52,280
Clinton County Population	25,136	23,129	23,110	24,174	26,671	31,195	31,170	31,860	32,180	32,940	33,590	33,690	34,620	34,650
Tri-County Total Population	96,622	106,938	134,041	172,489	191,411	244,159	252,090	259,780	267,630	271,700	283,240	290,310	299,430	303,790
Michigan Population (in thousands)	2,421	2,810	3,668	4,842	5,256	6,372	6,545	6,708	6,851	7,028	7,236	7,516	7,803	7,866
United States Population (in thousands)	75,995	91,972	105,711	122,775	131,669	150,697	153,384	155,761	158,313	161,191	164,302	167,261	170,293	173,260
Michigan population as percent of U. S. population	3.19	3.06	3.47	3.94	3.99	4.23	4.27	4.31	4.33	4.36	4.40	4.49	4.58	4.54
Tri-County population as percent of Michigan	3.99	3.81	3.65	3.56	3.64	3.83	3.85	3.87	3.91	3.87	3.91	3.86	3.84	3.86

SOURCE: 1900-1950, U. S. Census. For 1951-1958, U. S. and Michigan figures are Bureau of the Census estimates as of July 1, County figures are estimates by the Michigan Department of Health as of July 1. Percentages are computed from population figures.

TABLE 2

POPULATION DISTRIBUTION BY COUNTIES  
WITHIN THE TRI-COUNTY AREA, 1900-1958

Percentage of total Tri-County population located within the county

	<u>1900</u>	<u>1910</u>	<u>1920</u>	<u>1930</u>	<u>1940</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Ingham	41.2	49.9	60.8	67.6	68.2	70.8	71.2	71.5	71.7	71.4	71.9	71.9	71.7	71.4
Eaton	32.8	28.5	21.9	18.4	17.8	16.4	16.4	16.2	16.3	16.5	16.3	16.5	16.8	17.2
Clinton	<u>26.0</u>	<u>21.6</u>	<u>17.2</u>	<u>14.0</u>	<u>13.9</u>	<u>12.8</u>	<u>12.4</u>	<u>12.3</u>	<u>12.0</u>	<u>12.1</u>	<u>11.9</u>	<u>11.6</u>	<u>11.6</u>	<u>11.4</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Computed from Table 1. Detail may not add to total because of rounding.

of recent population estimates since the last census of 1950. Clinton County in particular has failed to grow as rapidly as the other counties during the entire twentieth century; Eaton County lagged during most of the period but has held its own since 1950.

#### Population Changes Since 1950

Following this overall look at population changes in the twentieth century, we can focus our attention on the most recent time period, and look at the population changes since 1950 in greater detail. This will provide us with a fuller understanding of the nature of recent population changes, and enable us to make better guesses about future trends.

Population changes in an area over time may be viewed as resulting from a combination of two factors: natural increase and migration. Births and in-migration are factors tending to increase population; deaths and out-migration cause population to fall. The difference between births and deaths is usually called "natural increase" and the difference between in-migration and out-migration is called "net migration."

Statistics of births and deaths are available for the period between April 1, 1950, and July 1, 1957. We can explain population changes in the Tri-County Area in terms of the variables mentioned above by looking at these statistics.

Table 3 gives the figures on births, deaths, natural increase, and net migration for the three counties, the Tri-County total, and the Michigan total during this seven-year period. The birth figures have been adjusted for probable under-registration, and for increasing completeness of registration. This is necessary because the Michigan Department of Health estimates that birth registrations by county vary from 86 percent of the total to 100 percent.

In each geographic area covered by the table the rate of natural increase is positive: i. e. the number of births is greater than the number of deaths. During these years, as a matter of fact, 82 of Michigan's counties had a positive rate of natural increase, with Keweenaw County in the unique position of having more deaths than births. In this time period Clinton County's population increase was somewhat smaller than the rate of natural increase, indicating that out-migration overbalanced in-migration. This was true of 45 Michigan counties, most of them being further north than Clinton County.

For the Tri-County Area, as for Michigan, in-migration is greater than out-migration, and net migration is thus a significant source of population increase. It is less important, however, than the excess of births over deaths. Natural increase explains two-thirds of the total population increase in Ingham, Eaton and Clinton counties, and almost two-thirds of the increase for the state as a whole.

TABLE 3

POPULATION CHANGES IN THE TRI-COUNTY AREA AND MICHIGAN,  
APRIL 1, 1950 to JULY 1, 1957

	<u>Number of Births</u>	<u>Number of Deaths</u>	<u>Natural Increase</u>	<u>Net Migration</u>	<u>Population Increase</u>	<u>Percentage Increase</u>
Clinton County	6,881	2,307	4,574	-1,149	3,425	11.0
Eaton County	8,240	3,192	5,048	5,179	10,227	25.6
Ingham County	38,123	10,784	27,339	14,280	41,619	24.1
Tri-County Area Total	53,244	16,283	36,961	18,310	55,271	22.6
Michigan Total	1,354,341	443,761	910,580	520,654	1,431,234	22.5

SOURCE: J. F. Thaden, "Population Growth Components and Potential in Michigan" (mimeographed),  
Institute for Community Development and Services, Michigan State University

Ingham County accounted for three-fourths of the Tri-County population increase during the 1950-1957 period. Table 4 gives a detailed breakdown of the sources of the population increase and attributes it to several subdivisions of the main area. It is notable that the rural portions of the Tri-County Area accounted for almost half the total increase.

TABLE 4

SOURCES OF POPULATION INCREASE IN THE TRI-COUNTY AREA, 1950-1957

	<u>Population Increase</u>	<u>Percent of total Increase</u>
Three Counties, Total	55,271	100.0
Ingham County	41,619	75.3
Lansing	19,721	35.7
East Lansing	4,775	8.6
Mason	696	1.2
Balance of Ingham County	16,427	29.7
	<u>41,619</u>	<u>75.3</u>
Eaton County	10,227	18.5
Charlotte	1,444	2.6
Eaton Rapids	821	1.5
Grand Ledge	1,264	2.3
Balance of Eaton County	6,698	12.1
	<u>10,227</u>	<u>18.5</u>
Clinton County	3,425	6.2
St. Johns	356	.6
Balance of Clinton County	3,069	5.6
	<u>3,425</u>	<u>6.2</u>
	<u>55,271</u>	<u>100.0</u>

SOURCE: Adapted from Thaden, op. cit. Detail may not add to total because of rounding.



The statistical analysis of recent population changes may be rounded out with Table 5. This reproduces information presented in Table 3, except that figures are given as rates per thousand of population rather than absolute figures. The generally higher rates of natural increase in the rural portions of the Tri-County Area help to explain their disproportionate contribution to population growth shown in Table 4.

TABLE 5

RATES OF BIRTH, DEATH, AND NATURAL INCREASE, TRI-COUNTY AREA,  
SELECTED COMMUNITIES IN THE AREA, AND MICHIGAN, 1950-1957

Annual Rates per thousand of the Population

	<u>Birth</u>	<u>Death</u>	<u>Natural Increase</u>
Clinton County, Total	29.0	9.7	19.3
St. Johns	26.5	12.1	14.3
Balance of County	29.6	9.3	20.2
Eaton County, Total	25.5	9.9	15.7
Charlotte	24.0	12.2	11.9
Eaton Rapids	24.6	11.4	13.2
Grand Ledge	28.3	10.4	18.1
Balance of County	25.5	9.0	16.5
Ingham County, Total	27.1	7.7	19.4
Lansing	25.1	8.6	16.5
East Lansing	22.1	3.3	18.8
Mason	26.6	11.7	14.8
Balance of County	32.0	7.5	24.5
State of Michigan, Total	26.7	8.7	17.9

SOURCE: Thaden, op. cit. Figures converted to annual rates per thousand of population

### Rural-Urban Population Movements

The movement of American population from farms to urban areas has been one of its outstanding characteristics during the twentieth century. The Tri-County Area has been subject to the same tendency. Table 6 shows the urban population of the Tri-County Area during the twentieth century.<sup>1</sup> The proportion of the population concentrated in the seven cities increased quite sharply between 1900 and 1920, and has remained fairly stable since that time.

A population phenomenon that is of more recent origin is the rapid increase of rural nonfarm population at the expense of farm and/or urban population. In recent years population figures for the Tri-County Area have manifested, to a striking degree, this same tendency which has been characteristic of American population generally. Table 7 shows the relative size of urban, rural farm and rural nonfarm population for the area in the census years 1930, 1940, and 1950. The changes are of considerable magnitude. Farm population shows a sharp decline in relative terms (in the decade from 1940 to 1950 the decline was absolute as well as relative) and the growth of rural nonfarm population is very large. Estimates for more recent years indicate that the 1960 census figures will show a further continuation of these same trends.

Notwithstanding these changes, the Tri-County population is still somewhat less urbanized than the U. S. population, and a great deal less urbanized than the Michigan population. The farm population, even after the sharp decline, is still a significantly larger proportion of the population in the Tri-County Area than in the nation as a whole. The discrepancy is even larger between the Tri-County Area and the state.

### Age Distribution of the Population

The Tri-County population appears somewhat young when compared to the United States population, and somewhat old when compared to the Michigan population, but the differences are not extreme in either case. Table 8 compares the age distribution for the Tri-County Area in the three most recent census years, and the 1950 age distribution with that of the United States and of the state of Michigan.

It is interesting to note that the 1950 age distribution for the Tri-County Area was more like that of the United States than like Michigan in several important respects. For persons aged 65 or more, the totals are 8.2 percent for the U. S. , 7.9 percent for the Tri-County Area, and only 7.2 percent for the state of Michigan. For persons in the most productive age group, 20 to 64, the percentages are 58.6 for Michigan, 57.9 for the United States, and only 56.9 percent for the Tri-County Area. The percentages in the school-age group, 5 to 19, were 24.0 for the Tri-County Area, 23.2 for the U. S. , and 23.1 for Michigan.

TABLE 6

## URBAN POPULATION OF THE TRI-COUNTY AREA, 1900-1958

	<u>1900</u>	<u>1910</u>	<u>1920</u>	<u>1930</u>	<u>1940</u>	<u>1950</u>	<u>1958</u>
Lansing	16,485	31,229	57,327	78,397	78,753	92,129	115,510
East Lansing	--	802	1,889	4,389	5,839	20,325	25,350
Charlotte	4,092	4,886	5,126	5,307	5,544	6,606	8,330
Grand Ledge	2,161	2,893	3,043	3,572	3,899	3,509	6,010
St. Johns	3,388	3,154	3,925	3,929	4,422	4,954	5,330
Eaton Rapids	2,103	2,094	2,379	2,822	3,060	3,509	4,490
Mason	1,828	1,742	1,879	2,575	2,867	3,514	4,250
Total, seven cities	30,057	46,800	75,568	100,991	104,384	135,543	169,270
Seven cities as percent of total population	31.1	44.2	56.3	58.5	54.5	55.5	55.7

SOURCE: 1900-1950, Bureau of the Census. 1958 estimates by Michigan Department of Health. East Lansing figures before 1950 exclude students normally resident elsewhere; 1950 and 1958 figures include all students.

TABLE 7

URBAN, RURAL FARM, AND RURAL NONFARM POPULATION AS  
PERCENTAGES OF THE TOTAL, 1930-1950

	Tri-County Area			Michigan	U. S.
	1930	1940	1950	1950	1950
Urban	58.5	54.5	55.5	64.3	59.0
Rural Farm	24.1	23.2	16.3	10.9	15.3
Rural Nonfarm	17.4	22.3	28.2	24.7	25.7
Total	100.0	100.0	100.0	100.0	100.0

SOURCE: Computed from census data. Detail may not add to total because of rounding.

So far as the present situation is concerned, a really accurate measurement of age distribution must wait for the 1960 census. There are, however, some informed guesses that can be made on the basis of Census Bureau estimates for the nation and school censuses in the state; there are also logical inferences to be drawn from reproduction rates and migration rates since 1950. On the basis of this information, it is reasonable to speculate that the three age distributions (in the Tri-County Area, the state, and the nation) bear about the same relationship today that they did in 1950, and that all three distributions have expanded somewhat at both ends. This is to say that the proportions of very young and very old have increased, with decreases in the middle age groups.

As long as the birth rate continues at levels as high as those since 1950, these trends will continue into the future. A significant decline in the birth rate would, of course, increase the proportion in the older age groups. For several years in the immediate future, it appears that the Tri-County Area will have a somewhat higher proportion of population in the age groups over 65 and from 5 to 19 than the state, and a smaller proportion of population in the most productive age groups between 20 and 64. This conclusion neglects the possibility of substantial in-migration or out-migration, which could alter the distribution.

TABLE 8

## AGE DISTRIBUTION OF THE POPULATION

Percent of the population in each age class

Age group, based on age at last birthday	Tri-County Area			Michigan	United States
	1930	1940	1950	1950	1950
Under 5 years	9.4	8.7	11.3	11.0	10.7
5- 9 years	9.5	8.2	8.8	8.9	8.8
10-14 years	9.0	8.6	7.3	7.4	7.4
15-19 years	8.4	8.8	7.9	6.8	7.0
20-24 years	8.3	8.4	9.9	7.7	7.6
25-29 years	8.0	8.2	8.6	8.4	8.1
30-34 years	7.3	7.6	7.2	7.9	7.6
35-39 years		7.1	6.7	7.4	7.5
40-44 years	13.9	6.5	6.1	6.7	6.8
45-49 years		6.1	5.5	6.1	6.0
50-54 years	11.2	5.4	4.8	5.5	5.5
55-59 years		4.6	4.4	4.9	4.8
60-64 years	7.9	3.9	3.7	4.0	4.0
65-69 years		3.1	3.0	3.0	3.3
70-74 years	4.9	2.3	2.2	2.0	2.3
75 years and over	2.1	2.5	2.7	2.2	2.6
	100.0	100.0	100.0	100.0	100.0

SOURCE: Bureau of the Census. Detail may not add to total because of rounding.

#### Other Qualitative Aspects of the Population: Education, Nativity and Race

The population of the Tri-County Area appears to have a significant educational advantage over both the state of Michigan and the United States. Table 9 presents some relevant figures from the 1950 Census for persons 25 years old and over. In median years of schooling completed, the area is more than a year higher than the state total and more than two and one-half years higher than the national average. The area also has a significantly lower proportion of adults with less than five years of formal education and a significantly higher proportion of high school graduates.

Table 10 compares nativity and race in the Tri-County Area with the state and the nation. The native-born Caucasian population is high in the Tri-County Area, while both the foreign-born and non-Caucasian populations are low. This is true whether the state or the nation is selected as the basis for comparison.

TABLE 9

EDUCATIONAL LEVELS OF THE POPULATION  
25 YEARS OLD AND OVER IN 1950

	Median School Years	Percent of persons who completed	
	<u>Completed</u>	<u>Less than 5 years</u>	<u>High School or more</u>
Ingham County	11.7	3.0	48.3
Eaton County	10.4	2.9	37.4
Clinton County	9.0	4.8	30.5
Tri-County total	11.1	3.2	44.2
Michigan total	9.9	7.7	34.9
United States total	8.5	10.8	33.4

SOURCE: Bureau of the Census. Tri-County total figures are the mean of the three county figures weighted by the population in each county 25 years old and over.

TABLE 10

NATIVITY AND RACE OF THE 1950 POPULATION  
(Percent of total population)

	<u>Caucasian, born in U. S.</u>	<u>Caucasian, foreign-born</u>	<u>Non-Caucasian</u>
Tri-County total	94.9	3.7	1.4
Michigan total	83.4	9.5	7.1
United States total	82.8	6.7	10.5

SOURCE: Bureau of the Census

Projections of Future Population

An important distinction must be made between projections and predictions. The predictor attempts to guess the future; in so doing he is guided only partially by the past, and exercises his personal insight. The projector, by contrast, exercises no insight, but assumes that the future will be an exact replica of the past, and extends past trends into future projections by simple or complex mathematical techniques.

The estimates presented here are projections, not predictions, and the mathematical techniques used are quite simple. They result from a process of three successive

approximations. The first of these is an estimate of future national populations made by the United States Bureau of the Census. Second, population projections for the state of Michigan are derived from the national population by assuming that the proportion of the total U. S. population resident in Michigan will change in the future in the same manner that it has changed in the past. Finally, population estimates are made for each Michigan county by projecting that future population changes in the counties will bear the same relationship to total Michigan population as they did in the years 1950-1957. These three successive estimates give projections of population for the Tri-County Area in 1960, 1965, and 1970. They are presented in Table 11.

TABLE 11  
POPULATION PROJECTIONS FOR 1960, 1965, and 1970

<u>Political Unit</u>	<u>Projected Population</u>		
	<u>1960</u>	<u>1965</u>	<u>1970</u>
United States	179, 773, 000	193, 643, 000	208, 199, 000
Michigan	8, 237, 000	9, 150, 000	10, 133, 000
Ingham County	227, 000	250, 900	282, 200
Eaton County	53, 400	59, 300	67, 000
Clinton County	35, 300	36, 900	39, 600
Total, Three Counties	315, 700	347, 100	388, 800

SOURCE: Thaden, op. cit.

The reader will find it interesting to compare the above projections for the Tri-County Area with the population estimates developed in this study and presented in the overview chapter of this report. The latter were developed from an analysis of the composition of the local economy and are not simply projections of past trends.

The estimates of U. S. population used are among the more conservative of several possibilities developed by the Census Bureau. Specifically, the 1970 estimate for the United States assumes that (1) the birth rate will decline from its relatively high 1957 level to the lower 1949-1951 level by 1970, (2) the death rate will fall sufficiently that the expectation of life at birth will rise from 66.7 years (the 1955 figure) to 69.8 years by 1975, and (3) that net immigration into the United States will be 300,000 per year. (See Bureau of the Census, Current Population Reports, Series P-25, No. 187 which contains a more detailed explanation of the techniques involved in the making of U. S. population projections.) To the extent that these assumptions are inaccurate, the population estimates for all political units will prove inaccurate.

The estimates presume that net in-migration will continue: that more people will move into Michigan from other states than leave Michigan for other states, and that this rate of in-migration will continue at the same rate in the future as it has in the past. This may not be the case if job opportunities do not expand as rapidly in the future as formerly. The figures also assume that the Tri-County Area will get the same proportion of the Michigan future in-migration as has been the case. Again this may be an inadequate assumption should job opportunities not continue to expand.

### The Labor Force

As a working definition, we can say that the labor force consists of those both willing and able to work. It therefore includes those who are employed and those who are unemployed but seeking work. A more precise definition is necessary for statistical and computational purposes; an extended discussion of the many problems inherent in defining the labor force with precision would be out of place here.

By comparison with either the nation or the state of Michigan, the Tri-County labor force is a somewhat smaller proportion of the total population. The age distribution of the population, which has been discussed earlier, is the principal explanation for this difference.

The labor force may be subdivided for analysis in a number of different ways. Two of the most important breakdowns are presented here. The first is an industrial classification, which, broadly speaking, classifies workers by the products they produce. The second is an occupational classification which classifies workers by the nature of their jobs. In the industrial classification, then, "manufacturing" will include everyone, from floorsweeper to bookkeeper, who is involved in manufacturing goods. In the occupational classification, all clerical workers are grouped together, whether they are employed by manufacturing concerns, banks, or retailing establishments. In each classification, figures for the Tri-County Area are compared with figures for the state and the nation.

### Industrial Distribution

Table 12 shows the industrial distribution of the labor force for 1958. The most significant characteristics of the Tri-County labor force appear to be as follows: The proportion of service workers is high, and the proportion of self-employed businessmen, workers in transportation, communication and public utilities, and in other non-manufacturing establishments is low, regardless of the basis for comparison. When the state of Michigan alone is selected for comparison, some additional observations can be made: government and agriculture are relatively important, and manufacturing is relatively unimportant. If the United States is the base selected for comparison, then manufacturing is relatively important in the Tri-County Area, and finance, insurance and real estate have relatively less importance.



TABLE 12

## INDUSTRIAL DISTRIBUTION OF THE LABOR FORCE, 1958\*

<u>Industry</u>	Thousands of employees <u>Tri-County Area</u>	Percentage distribution of employees		
		<u>Tri-County Area</u>	<u>Michigan</u>	<u>United States</u>
Manufacturing	25.5	28.2	34.5	23.8
Wholesale and Retail Trade	16.5	18.3	18.1	17.1
Services	15.5	17.1	13.1	9.8
Government	10.5	11.6	5.1	12.2
Agriculture	7.4	8.2	6.1	9.0
Self-employed	4.7	5.2	9.7	9.5
Construction	3.6	4.0	3.9	4.1
Transportation, communication and public utilities	3.5	3.9	5.8	6.0
Finance, insurance and real estate	2.9	3.2	3.0	3.7
Other non-manufacturing	<u>.3</u>	<u>.3</u>	<u>.8</u>	<u>4.8</u>
Total	90.4	100.0	100.0	100.0

\*Figures apply to employed labor force; unemployed workers are excluded in all cases.

SOURCE: Bureau of Labor Statistics, Michigan Employment Security Commission

### Occupational Distribution

Table 13 gives the occupational breakdown for 1950. In this profile, the Tri-County labor force shows a number of distinctive characteristics. The proportion of clerical, professional and technical, service, and sales workers is high; the proportion of managers, officials and proprietors, laborers, and private household workers is low. When Michigan is the sole basis of comparison, the numbers of farmers and farm laborers seem high, while numbers of operatives, craftsmen, and foremen seem low. By comparison with the nation at large, operatives are abundant, while farm operators, farm laborers, and unpaid family workers are in short supply.

### Income

Income is defined in a number of different ways, and different definitions are useful for different purposes. To those not trained in economic analysis, these different definitions can be confusing. In this section, only one definition of income will be used: the concept of "effective buying income" or "disposable personal income." This includes income from all sources: wages and salaries, interest, dividends, rent, and the profits of unincorporated businesses. It includes "transfer payments," such as social security benefits and unemployment compensation, which are payments not accompanied by the performance of personal services. It excludes the income of corporations, except as they are paid out in dividends to stockholders. It also excludes taxes.

Table 14 shows estimated total effective buying income in the Tri-County Area by years from 1950 to 1959. Per capita income is simply the total income divided by the total population, including men, women, and children. This figure is also shown by years in the table, and compared to per capita income for the state and the nation. Per household income is derived by dividing total income by the number of households. This figure is also shown for the Tri-County Area, and compared to the national and state-wide figure.

Total income, per capita income, and income per household have all increased sharply in the Tri-County Area during the past decade. During this period, income in the area has remained above that of the nation, and about the same as that of the state as a whole. There is no clear trend in the percentage figures for this nine-year period; income seems to be rising in the state, in the nation, and in the Tri-County Area at about the same rate.

### Distribution of Income

Any discussion of the average income conceals the fact that some people are rich and some people are poor. Some information on income distribution for the Tri-County Area is supplied in Table 15. This shows that about one household in six had disposable income of less than \$2,500 in 1958, while about one household in fourteen had disposable income over \$10,000. The middle group, with household incomes between \$4,000 and \$7,000, made up 43.8 percent of the total, and had 40.6 percent of all income.

TABLE 13

## OCCUPATIONAL DISTRIBUTION OF THE LABOR FORCE, 1950\*

Occupation	Thousands of Employees	Percentage Distribution of Employees		
	Tri-County Area	Tri-County Area	Michigan	United States
Operatives and kindred workers	19.5	21.4	25.9	19.8
Craftsmen, foremen and kindred workers	12.9	14.2	16.4	13.8
Clerical and kindred workers	12.8	14.0	12.3	12.3
Professional, technical and kindred workers	10.2	11.2	8.5	8.7
Service workers, except private household workers	7.7	8.4	7.6	7.6
Sales workers	7.3	8.1	7.0	7.0
Farmers and farm managers	6.3	6.9	4.7	7.7
Managers, officials, and proprietors (except farm)	6.0	6.5	7.9	8.9
Laborers, except farm and mine	3.0	3.3	5.0	6.1
Farm laborers, except unpaid and foremen	1.4	1.6	1.1	2.6
Private household workers	1.3	1.4	1.7	2.5
Unpaid family workers on farms	.6	.7	.7	1.6
Occupation not reported	2.0	2.2	1.3	1.3
Total	91.0	100.0	100.0	100.0

\*Figures apply to employed labor force; unemployed workers are excluded in all cases.

SOURCE: Bureau of the Census

TABLE 14

A COMPARISON OF EFFECTIVE BUYING INCOME IN THE  
TRI-COUNTY AREA, MICHIGAN, AND THE UNITED STATES, 1950-1958

<u>Year</u>	<u>Total Income, Tri-County Area (Millions of dollars)</u>	<u>Per Capita Income, Tri-County Area</u>			<u>Per Household Income, Tri-County Area</u>		
		<u>Dollars</u>	<u>Percent of Michigan</u>	<u>Percent of U. S.</u>	<u>Dollars</u>	<u>Percent of Michigan</u>	<u>Percent of U. S.</u>
1950	367	1,470	100	112	4,820	96	107
1951	402	1,570	98	110	5,450	96	111
1952	414	1,580	102	107	5,420	101	107
1953	440	1,650	101	107	5,540	99	107
1954	467	1,700	101	110	5,770	99	109
1955	515	1,840	101	115	6,230	100	114
1956	528	1,830	101	109	6,220	100	108
1957	563	1,890	102	109	6,420	100	108
1958	565	1,870	103	106	6,340	102	106

SOURCE: Sales Management, Survey of Buying Power, annual editions  
Copr. 1950-1958, Sales Management Survey of Buying Power; further reproduction not licensed.

These figures are so fragmentary that it is hazardous to draw any comparisons with the state or the nation. It does appear safe to say, however, that income is slightly more evenly distributed in the Tri-County Area than in the other political units, although the general pattern is much the same. Comparable Michigan or U. S. distributions typically show a somewhat higher percentage of incomes in the highest and lowest income brackets, and a lower percentage in the middle.

TABLE 15

DISTRIBUTION OF INCOME IN THE TRI-COUNTY AREA, 1958

<u>Income Class</u>	<u>Percent of Total Number of Households</u>	<u>Percent of Total Income</u>
Less than \$2, 500	16. 8	4. 4
\$2, 500 and less than \$4, 000	15. 5	8. 5
\$4, 000 and less than \$7, 000	43. 8	40. 6
\$7, 000 and less than \$10, 000	16. 6	23. 5
\$10, 000 and over	7. 2	23. 0

SOURCE: Adapted from Sales Management, Survey of Buying Power, 1959 edition  
Copr. 1959, Sales Management Survey of  
Buying Power; further reproduction not licensed.

FOOTNOTE

1. "Urban population" as defined by the census bureau through 1950, means population residing in places with population of 2, 500 or more. The "total, seven cities" figures of Table 6 consequently coincide with the Census Bureau's definition of "urban population" for 1930 and subsequent years, though not necessarily for earlier years.



## CHAPTER 3

### OVERVIEW

A report on an economic study is necessarily both detailed and technical. The amount of detail included often prevents its being read by busy people and its technical nature makes it difficult for even the most intelligent non-technical reader to understand it fully. In recognition of these problems, this overview chapter is written. It contains a summary of the great amount of detail carried in Chapters 4 through 10, a relatively simple presentation of the forecasts developed from the complicated inter-industry flow analysis contained in Chapter 11, and a discussion of some of the conclusions which may be drawn from this analysis of the Lansing Tri-County Area.

It is hoped that this arrangement will make it possible for the person who so desires to read only the first three chapters and still get much of the essence of the whole report. It is also hoped that a large part of the readers will find it possible to go through the whole report, as a summary has obvious limitations.

### SUMMARY OF INDUSTRY CHAPTERS

#### Manufacturing

It will come as no surprise to anyone that manufacturing is the dominant economic sector in the Lansing Tri-County Area, or that area manufacturing is dominated by the motor vehicle (transportation equipment) industry. The extent to which motor vehicles dominate manufacturing, however, may surprise a great many people.

The value of net competitive exports of the entire manufacturing sector during 1958 was \$364 million. This means that the value of all manufactured products produced in the area and sold outside it exceeded the value of manufactured products imported into the area by \$364 million. Exports of motor vehicles and related products exceeded imports of those same products by \$620 million during the same year. In other words, if the motor vehicle sector is excluded, imports of manufactured products exceed exports by \$256 million. The chemicals and allied products sector, with a net export of approximately \$3 million, was the only other manufacturing classification for which the Tri-County Area showed a "favorable balance of trade."

The fact that an industry sector has a net import deficit does not indicate that it makes a minus contribution to the local economy, however; it simply means that individuals, business firms, and governmental and other institutions of the area bought more of its products from the outside than local producers exported from the area.

An example might help to clarify the idea. Assume that local manufacturers produce \$10 million worth of electric motors, selling \$6 million worth to buyers within the three counties and the remaining \$4 million to buyers outside the area. If we assume that during the same year Oldsmobile buys \$9 million worth of electric motors from a Detroit firm, there would be a net import deficit of \$5 million (import \$9 million less export \$4 million).

A realistic idea of the relative importance of the motor vehicle sector may be obtained by comparing its total output with that of the remaining manufacturing sectors. This shows that motor vehicle output was a total of \$916 million while that of all other manufacturing combined was \$182 million. In other words, the motor vehicle sector accounted for about 83 percent of total manufacturing output. (These figures are developed in Table 1 of the matrix in the last chapter of this report. Definitions of the various industry sectors will be found in Appendix B.)

The importance of the motor vehicle industry to the Tri-County economy is also emphasized by a comparison of its output with that of total output of goods and services by all institutions in the three counties. The total 1958 Tri-County output was found to be \$2,940 million, of which \$916 million, or about 31 percent, came from the motor vehicle sector.

The value of the whole manufacturing sector to the local economy is indicated by the fact that even in 1958, a depressed year for manufacturing, the sector provided for 29 percent of the area's employment and paid 38 percent of its wages and salaries. Geographical distribution of manufacturing in 1954, the last year for which complete census data were available, was as follows: Clinton County, 9 percent of the establishments and 3 percent of the wage earners; Eaton County, 22 percent of the establishments and 6 percent of the wage earners; and Ingham County, 69 percent of the establishments and 91 percent of the wage earners.

As important as manufacturing is in the area, it seems to be becoming relatively less important as an employer. This is indicated by the fact that manufacturing employment made up 34 percent of the Tri-County total in 1949 and only 29 percent in 1958. While much of this relative drop may have been accounted for by the 1958 recession, the belief that its importance as an employer of the Tri-County labor force is declining is supported by the fact that there was significant drop in actual employment between 1954 and 1958.

This drop in employment is apparently a local reflection of a national trend in manufacturing. Since output has not been rising at as fast a rate as productivity has been



increasing, the number of workers required has been falling. There is every reason to believe that this trend will continue in the national economy. The trend will also continue in the Tri-County Area unless demand for its manufactured products rises at a faster rate than its productivity.

### Government

Government is one of the most important supports of the Tri-County economy. In 1958 it provided employment for more than 11 percent of the gainfully employed workers in the area, or approximately 10,500 people. This figure includes neither employees of government-operated public utilities nor teachers.

#### State Government

In the governmental sector, it is state government which contributes most heavily to the economic growth of the Tri-County Area. Whereas the city, county and township governments operate in an enclosed system (much as the federal government does in the nation), with local receipts and expenditures, the state government might be said to export locally-produced services and to have a net export balance with the rest of the state. This is borne out by estimates that the state annually spends considerably more than \$60 million dollars in the area, compared to \$30 million of revenue contributed by the three counties.

State salaries paid to Tri-County residents amounted to \$35 million in 1958, and this figure alone was greater than state receipts from the area. The Civil Service Commission estimated that there were a total of about 32,800 people employed by the state government, 6,800 of whom lived in Clinton, Eaton and Ingham Counties.

The outlook for state employment and salary payments in the area is one of continued gradual growth accompanying the growth of Michigan's population. There are now about 4 state employees per thousand of state population. If this ratio persists and is applied to population estimates for 1970 (which range from 9.3 million to 10.5 million), total state employment by that year would be somewhere between 37,000 and 42,000. If it is assumed that the Tri-County share of state employment continues, estimates for this area would range between 7,800 and 8,800 by 1970. If current salary levels are applied to these figures, the 1970 totals run between \$40 and \$45 million. While a drop in the ratio of local state employment to total state employment might occur, it is at least as logical to assume that the ratio of state employment to state population will rise and that average salary per state employee will increase. Consequently, the 1970 payroll estimates are probably conservative.

The state's holdings of property in the Tri-County Area (primarily buildings, land and highways) are estimated to have a value of \$105 million. Despite the magnitude of this figure, projected capital expenditures within the area by the state within the next ten years or so amount to around \$65 million.

There is no doubt that the presence of the state capital in Lansing provides the area with an important share of its employment and income or that it acts as a stabilizer in a local economy which tends to fluctuate widely in response to national changes in demand.

### Local Government

One of the most interesting and significant facts about local government in the Tri-County Area is that it is carried on by 78 separate governing entities. There are 48 townships, 27 municipalities and three counties. Each unit receives and disburses money and each one does a certain amount of planning and carrying out of government functions.

Perhaps no other set of figures dramatizes better the difficulties of the planning and coordination needed to solve the growth problems of a metropolitan area. The handling of sewage by a township may well affect the future of the city of Lansing. Lansing's providing for the future water needs of its industrial firms (or failing to do so) may profoundly influence future employment and incomes of residents of Grand Ledge. Local government is not a growth-stimulating economic sector in the sense that manufacturing is, but the future growth of the area may still depend heavily on the way local government functions are carried out.

Local governments in the Tri-County Area had receipts and expenditures of approximately \$24 million in 1958. Receipts of municipalities were about \$14 million, and those of townships and county governments were approximately \$1.2 million and \$9 million respectively. A great deal of additional detail about local government units is carried in Chapter 5 of this report.

### Federal Government

Since a sizable part of federal government expenditures go abroad to maintain United States military establishments and to bolster the economic and military strength of friendly foreign countries, receipts from the nation's taxpayers considerably exceed the government's expenditures within the United States. The same thing holds true of federal government receipts from and expenditures within local economies. The only exceptions are small local economies which are fortunate enough to have major federal installations within their boundaries.

In this respect, the Tri-County Area is not exceptional. In fact, the federal government collects \$2.60 in receipts for every dollar spent in the area. In 1958 total federal revenues from the area amounted to \$182 million and expenditures totaled about \$70 million. Major sources of revenue from the area in order of size were: personal income tax and Social Security, corporate profits tax, manufacturers' excise taxes, alcohol and cigarette taxes, post-office receipts, and miscellaneous excise taxes.

The most important types of federal expenditures in the area, also in order of size, were: purchases from area manufacturers, public assistance and Social Security,

payments to veterans (including educational benefits paid to 2,500 veterans enrolled at Michigan State University), payrolls, aid to education and payments to agriculture.

The Tri-County Area's relationship with the federal government is probably similar to that of other highly industrialized metropolitan economies, and, consequently, has little effect on the competition between industrial areas and their relative growth.

### Services and Education

The services sector as it is usually defined includes fourteen classifications of employment: hotels, rooming houses and camps; personal services; business services; automotive repair and services; medical and other health services; legal services; educational services; museums and art galleries; nonprofit membership organizations; private households; and miscellaneous services.

The services sector is very important to the Tri-County economy. In 1958 it provided employment for nearly 20,000 people who received over \$80 million in wages and salaries. These figures, which included self-employed service workers (5 percent of area employment), represented about 22 percent of total employment and 20 percent of the wages and salaries in the three counties. The most important classifications are those which embrace professional and related services, including education. These employed more than 14,000 people, 72 percent of the service workers, who received 80 percent of the income in the services sector.

Personal services ranked second among major classifications, employing 16 percent of service workers (3,230) and accounting for about 10 percent of the sector's wages and salaries. Business services ranked third with 4.6 percent of employment and 4.3 percent of wages and salaries.

It seems quite probable that employment in various service occupations will increase both absolutely and relatively in the future as increasing efficiency in agriculture and manufacturing reduces relative employment requirements in those industries and directs the labor force towards service employment. It also seems likely that rising income and changing population characteristics (growing segments of children and aged persons) will bring about a changing pattern of demand for relatively more services and relatively less goods.

Consequently, service employment is likely to grow at a somewhat greater rate than either population or total employment, both in the nation and in the Tri-County Area.

### Elementary and Secondary Education

The economic importance of elementary and secondary education is largely a function of increased population growth, increased proportions of school age population actually attending school, and rising costs of operation. Because of changes in these

three variables, Tri-County receipts rose from \$8.3 million in 1948 to \$30.5 million in 1958, with a considerable proportion of the increase being occasioned by needs for additional physical plant. In 1958 both state and Tri-County expenditures were approximately 3 1/2 times their 1948 level. School age population had increased by 45 percent and actual school enrollment by 51 percent during the same period, with costs per pupil rising from \$201 to \$486.

While costs have been rising, consolidations of school districts in order to improve both quality of education and efficiency have been going ahead at a rapid pace. This is shown by the fact that the number of school districts has dropped by almost 50 percent during the 1948-1958 period, from 339 to 175.

The outlook is one of continuing increases in costs per pupil in the future as the drive for improved educational services proceeds. Total costs will increase even more rapidly if Tri-County population continues to grow.

#### Higher Education

While elementary and secondary education in the Tri-County Area might be considered in the economic sense to be a local service industry, higher education is a basic or exporting industry. Another way of making this comparison is to say that while the magnitude of elementary and secondary education is a reflection of local growth, higher education contributes to local growth in much the same way that automobile manufacturing does, in that it brings outside dollars into the community.

These generalizations about higher education and its economic impact on the local economy are primarily generalizations about Michigan State University, since it has 95 percent of the students enrolled in area institutions. In the 1958-59 school year, Michigan State had 19,500 out of a total of approximately 20,600 enrolled in four institutions. The other three, Olivet College, Lansing Community College, and Lansing Business University, had only about 1,100 among them.

Slightly more than 80 percent of Michigan State University's students come from outside the Tri-County Area and spend a minimum of \$1,340 per single student per nine-month session. Since more than 30 percent of the students are married and since many of them also attend the University during the summer session, the \$1,340 figure is probably a gross understatement of average student expenditures.

In 1958-59, the University had 15,774 students from outside the Tri-County Area, 4,156 of them from outside the state. Of the out-of-state students, 444 came from foreign countries.

Michigan State University's total operating expenses for the 1957-58 year amounted to nearly \$56 million, of which \$21 million came from state appropriations. In addition to such annual expenditures, the University spent \$61 million for construction

during the six-year period ending with the 1958-59 year. Of this total amount for construction, less than one-fourth came from funds appropriated by the state and the remainder came from University borrowing (to be paid for out of dormitory receipts, etc.) and grants.

To these revenues brought into the local economy must be added those from out-of-area football fans who help fill up a 76,000 seat stadium during autumn Saturday afternoons, those from the 50,000 people who attend conferences at the University's Kellogg Center each year and the thousands who attend the institution's Farmers' Week, and those from countless others who are drawn into the area by the University in other ways.

Whatever total impact the University may now be having on the Tri-County economy, it is likely to be increased greatly with its prospective growth during the years ahead. A fairly recent study of higher education in Michigan estimated that total college enrollments in the state would increase by 79 percent from 1957 to 1970. If such growth is shared by Michigan State University, its 1970 enrollment will be over 35,000. This figure coincides with projections made by University officials.

#### Agriculture

In 1958 agricultural production occupied about 86 percent of the Tri-County Area's space, employed about 8 percent of its workers, and was responsible for about 2 percent of the value of its economic output.

During the same year, total sales of local farm products outside the area was exceeded by purchases from outside the three counties, producing a net import deficit of about \$5 million. Animal products showed an import deficit of about \$15 million, while crops had an export surplus of approximately \$10 million. Gross income from the sales of farm products produced in the Tri-County Area amounted to about \$38 million.

The number of gainfully employed agricultural workers in the area has dropped consistently, decreasing by about a third from 1949 to 1958, when agricultural employment amounted to about 7,400. Many included in this number also had other employment, since about one-fourth of the farm operators had incomes in excess of their earnings from the sale of farm products.

As might be expected, the number of farms has also declined consistently, falling from 10,100 in 1935 to 7,700 in 1954. There has probably been an additional decline since 1954, but no figures are available for a later date. There is every reason to believe that the number of units will continue to drop as economies of scale make small farms less and less profitable. The average size per unit increased from 99 acres to 122 between 1935 and 1954. Half of the farms contained 180 or more acres by the latter year and more than one-fourth of them exceeded 250 acres.

The long-run prospect for agriculture in the Tri-County Area appears to be one of declining relative economic importance as residential suburbs, highway development, and industrial expansion continue to take up more of the available land. It is likely that the agricultural economic sector will furnish progressively less of the area's income and employment and support a progressively smaller proportion of its population.

### Retail and Wholesale Trade

The retail and wholesale trade sector is one of the largest employers in the Tri-County Area. In 1958 it had slightly over 16,000 paid full and part-time workers, or about 18 percent of total area employment. In addition there were 2,867 self-employed proprietors of unincorporated businesses.

#### Retail Trade

One of the most significant trends in retail trade, both in the Tri-County Area and in the rest of the United States, is that of the increasing size of the average establishment. Whereas the average retail store in the Tri-County Area had sales of only \$29,000 in 1939, the 1958 average had risen to almost \$133,000. Even after adjustment for price change, sales volume per store still doubled. The average number of employees per store increased from 3.4 to 5.1 during the same period.

As might be expected, Tri-County retailing tends to be concentrated in Ingham County, which in 1958 had 71 percent of area population, 68 percent of the retail establishments, 80 percent of the retail sales and 83 percent of the paid employees. This retail concentration is a manifestation of the tendency for retail trade to flow from relatively sparsely settled areas and small towns toward the great assortments of goods and services available at retail stores in larger cities. The fact that stores in areas of population concentration tend to be larger is indicated by the fact that in 1958 the average Ingham County store had sales of about \$156,000, while those in Clinton and Eaton averaged a little over \$80,000. The average for the entire state was \$125,500 per store.

While the retail segment of the Tri-County economy is a relatively large employer, it can make a positive contribution to area growth only if it develops shopping facilities which are strong enough to pull in considerably more trade from outside the three counties. The interindustry flow analysis in Chapter 11 of this report indicates that in 1958 more retail trade flowed out of the area than the amount attracted from the outside, with the amount of the deficit probably running to more than \$50 million in retail sales. The local economy will be strengthened if these flows can be balanced. If the import deficit can be turned into an export surplus, retailing can become a vital growth factor.

#### Wholesale Trade

Many of the generalizations just made about the retailing structure of the Tri-County Area also apply to wholesaling. There have been considerable increases in the average size of wholesalers during the past 20 years, with sales per firm increasing

from \$176,000 in 1939 to \$837,000 in 1958, while employees per firm increased from 6.8 to 9.0 during the same period. Wholesaling, like retailing, tends to be concentrated in Ingham County. In 1958 Ingham had 80 percent of the wholesale establishments, 82 percent of the employees and 91 percent of the sales.

Wholesaling also had a net import deficit during 1958, and will not be an important growth factor until it improves its relative balance of trade. This problem is discussed more fully later in this chapter.

### Finance, Insurance, and Real Estate

The finance, insurance and real estate sector of the Tri-County economy employed 2,900 people in 1958 and paid them \$13 million in wages and salaries. There were 79 financial institutions, 11 locally-based insurance companies and 166 real estate firms.

The 79 financial institutions, which employed 1,087 people, were of the following types: 22 commercial banks, 3 savings and loan companies, 18 small loan companies, 29 credit unions and 7 investment banking and brokerage firms. The total assets of these institutions are not known since figures for one of the largest banks, all the investment firms and 14 credit unions were not available. The remaining institutions, however, reported assets of \$283 million. It is apparent that the financial institutions are showing a healthy growth. This is pointed up by the fact that figures from reporting commercial banks showed an increase of 83 percent in assets from 1948 to 1958. Savings and loan companies report asset growth of 170 percent for the same period.

The Tri-County insurance sector employed 1,300 people in 1958, with most of them working for the 11 companies which maintain headquarters in the Tri-County Area. Assets reported for 10 locally operated firms amounted to \$85 million. Two firms, Auto Owners Insurance Co. and Michigan Millers Mutual Insurance Co., accounted for \$60 million of the total reported.

The real estate sector is made up of 166 firms employing 513 people. The Lansing Board of Realtors, made up of 56 of the larger firms, reported sales of \$25 million for 1958.

It is obvious from the statistics reported above that the finance, insurance, and real estate sector accounts for a relatively small proportion of total employment and income in the Tri-County Area. While the sector's importance in facilitating economic activity is probably much greater than employment and income figures indicate, there seems to be little likelihood that it will be a great generator of growth in the area.

### Transportation, Communications, and Public Utilities

The transportation, communications, and public utilities sector employed about

3, 600 people in the Tri-County Area during 1958 and paid out wages and salaries of something over \$20 million. These figures represent about 4 percent of total employment and a slightly higher proportion of total wages and salaries.

Considering the fact that the Tri-County Area is located in the middle of a peninsula and not on a direct line between major cities, transportation facilities are surprisingly good. The area is served by three railroads, 126 trucking companies, three intercity bus lines, and two scheduled air lines.

The planned development of superhighways through Lansing indicates that truck transportation will become relatively more important, bringing the area closer in time, and perhaps in cost, to major population centers of the Midwest. Lansing's location, away from navigable waterways and off the main air and rail routes, makes development of faster and more efficient highway transportation unusually important to its economic growth.

The Tri-County Area seems to be adequately served as regards telephone communication and electric power. There were eight telephone companies operating in the three counties during 1958, but Michigan Bell and General Telephone supplied most of the service. Their shares of the 105, 633 telephones in use were 87 percent and 9 percent, respectively.

Electric power is supplied to the Tri-County Area by four different organizations. These, in order of kilowatt hours sold in the area, are the Lansing Board of Water and Light, Consumers Power Company, the Detroit Edison Company, and the Tri-County Electric Cooperative. All of the companies serving the area are linked together in a grid system, thus ensuring supplies in case a single organization has generating difficulties. In addition, this linkage, plus current generating capacity and planned expansion, seems to provide adequately for the future needs of the area.

Consumers Power is the only supplier of natural gas in the area. Consumption almost tripled during the 1948-58 period, and would have increased at an even higher rate if more gas had been available. The supply problem, occasioned by the capacity limitation of the pipe lines which bring gas into the state, will probably be solved when additional lines are put in place.

The Tri-County Area depends almost entirely on wells for its fresh water supplies at the present time. In addition to the public water systems provided by the municipalities, thousands of individual households and business establishments have private wells. While water resources and water needs are beyond the scope of this study, it appears that underground supplies are adequate to provide the quantities of water required for population and industrial growth in the immediate future.

The sewage problem seems to be even more urgent, particularly in the Lansing



area. This, too, is a factor which might inhibit growth of the metropolitan area unless the local governmental units are able to coordinate their efforts to solve a problem involving a number of jurisdictions.

## FORECASTS

### Problems of Forecasting for a Small Area

The smaller the geographical area, the greater the difficulties of forecasting and the greater the possibility of error. While this may not seem to be logical at first glance, the truth of the statement becomes apparent when the problems of forecasting for the nation, a state, and a metropolitan area are examined. For specific examples, some problems of forecasting change in the United States, in Michigan, and in the Tri-County Area will be considered.

The population growth of the United States during any period of time in the future will be largely a function of birth rates and death rates. This is true because both immigration and emigration are relatively small. If it is assumed that this situation will continue to exist, the population forecaster needs only to estimate the changes in birth and death rates which will take place during the span of time in question and work out a relatively simple mathematical problem.

Despite the apparent simplicity of forecasting national population, those who have attempted it in the past have found it to be a hazardous undertaking because of their inability to estimate future birth and death rates. In fact, the current population of the United States is greater than was predicted thirty years ago for the end of this century. The forecasters assumed then that the birth rate would continue to drop as it had for a few decades, but a reversal of birth trends made the forecasts look ridiculous.

The problems of economic forecasting for the nation are also conceptually simple but professionally hazardous. Two factors which would be basic to such a projection are the size of the labor force expected to be employed at the target date, say 1970, and the average production per worker. The value of annual output per worker times the average number of workers employed in 1970 should give a measure of the total output of the economy. Estimates have been made fairly recently that the population of the United States will reach about 208 million by 1970 and that Gross National Product will amount to around \$750 billion (in 1958 dollars) by that time.

These figures were developed by estimating populations (on the basis of assumed birth and death rates for the intervening period), estimating what part of the population will be in the labor force, estimating what part of the labor force will be employed and multiplying by the estimated value of the output per worker. The value of output also had to be estimated on the basis of someone's guess as to the rate at which productivity

will increase in the future and as to the amount of time the average worker will be engaged in the production of goods and services during 1970.

It can be seen from the above that, even though the concepts are simple, the validity of the forecasts rests on the accuracy of the estimates on which they are based. Consequently, since the forecasts rest on assumptions which in themselves are forecasts, the conceptually simple procedure becomes complicated and sometimes frustrating.

Forecasting for a state becomes even more complex, because state estimates must be based to a degree on national estimates and carried even further. For example, an estimate that United States population would increase by 17 percent between 1960 and 1970 might indicate that Michigan will probably grow some during the same period, but not necessarily at the same rate. It is even conceivable that Michigan's population could drop while that of the nation is rising. This has happened in some of the agriculturally-oriented states during the last few decades, due largely to increasing efficiency in agriculture and the concomitant movement of displaced farm workers and their families from rural to metropolitan areas.

It is, then, evident that state populations are not purely functions of birth and death rates, but that migration between states is a potent factor. It also indicates that population tends to follow economic opportunity, with little attention being paid to state boundaries.

In addition to economic opportunities, there is an indication that people are attracted to certain states because they become known as desirable places to live, and that in these cases industry tends to follow population. The recent growth of such states as Florida, Arizona and California seems to have followed this pattern. The reputation as a good place to live may have been achieved by having warm winters, as in the case of the three states just mentioned, or by having a favorable figurative climate created by progressiveness of the population, quality of public education and other services, quality and efficiency of governmental institutions, outlook for race-relations, and many other factors.

The head of a family rarely makes a decision to move from one state to another purely on the basis of short-run economic advantage. In fact, he may be willing to give up a better-paying job to move his family to a more desirable environment. Arkansas' recently-achieved reputation for racial discord has undoubtedly caused some families to leave the state and others not to move in. Since the business enterprise is also a human organization, its location and relocation are not based entirely on economic considerations, but on an overall determination which balances economic and non-economic factors. Consequently, each state must compete with the rest of the nation in order to maintain or increase its share of national population by offering economic and other opportunities which will retain and attract a mobile population.

Economic forecasting is also easier for a nation than for a state for the same reasons that it is easier to forecast retail food sales for a whole city than it is to predict them for a single store. Food sales in the whole city are likely to be determined by the size of its population and their purchasing power, while the fate of a single store depends on a great many competitive variables which are difficult to estimate with any accuracy.

Michigan must compete economically with 49 other states. There are such competitive factors as relative productive efficiency, transportation costs to various markets, amount of industrial innovation, level of wage rates, costs of construction, tax levels, skills of the work force, access to raw materials, and, perhaps most important of all, the attitudes of the population toward change. A simple projection of past economic trends has relatively little value for long-run forecasts since the underlying factors which influenced the past may be quite different from those which will influence the future.

The forecasting of economic and population change for a single metropolitan area presents all the problems encountered in making state forecasts. These are magnified, however, by the fact that a single metropolitan area usually has a narrower economic base than a state and a much narrower one than the nation. Whereas in the broad-based national economy an unexpected downturn in one industry may easily be offset by an unexpected upturn in another, a single state may have a larger share of the first industry than the second, and a metropolitan area may be dominated by the first. This can be illustrated by imagining the relative effects a long-term decline in the automobile industry would have on the United States, Michigan, and Lansing, respectively. For example, the 1959 steel strike forced automobile manufacturers to begin shutting down their plants in October. From October 15 to November 15 percentages of unemployment rose as follows: United States, from 4.7 to 5.3; Michigan, from 6.4 to 10.9; Lansing, from 6.2 to 14.8. If Flint had been used instead of Lansing, the comparable figures would have been 6.2 and 29.5. In other words, unemployment increased by one-eighth in the United States, by two-thirds in Michigan, was more than doubled in Lansing and more than quadrupled in Flint.

In addition to the problem posed by the relatively narrow economic base, forecasting for a small economy is made more difficult by the fact that statistical data for such areas are usually out of date and often inaccurate. As the Chairman of the Committee for Economic Development has written, "We do not know very much about the economics of our little economies. Facts are inadequate, statistics obscure, the framework fuzzy. Knowledge of what goes on in our local economies. . . . is in a relatively primitive state. The situation is comparable to our lack of knowledge about the national economy prior to about thirty years ago when we began to develop our first system of national accounts. . ." 1

When the Bureau of Business and Economic Research undertook this economic and population base study during the fall of 1958, members of the research staff were con-

fronted with the problem of choosing an analytical technique which would give the best possible information about the anatomy of the Tri-County Area and provide the best basis for estimating its growth possibilities. The method chosen is one which is usually referred to as "input-output analysis" or "interindustry relations analysis."

This is a highly complex and expensive analytical technique which only recently has been applied to metropolitan areas. The National Planning Association, with financial assistance from the Ford Foundation, has recently applied the technique in studying the local impact of foreign trade on Kalamazoo, Michigan; Mobile, Alabama; and Gloversville, New York. Other interindustry flow studies are either completed or in process for Pittsburgh and St. Louis, and the University of Texas has recently published such a study of the Sabine-Neches industrial area of Texas.

### Forecasts for the Tri-County Area

Chapter 11, "Interindustry Flow of Goods and Services in Clinton, Eaton and Ingham Counties, 1958," contains both the description of a highly technical system of economic analysis which was applied to the Tri-County economy and the complex set of tables through which interindustry transactions were traced and interindustry relationships examined. The tables provide information not only about the magnitudes of outputs of each goods and services producing sector, but, in addition, show the effects that changes in output in a sector would have on the output of other sectors. In this way it has been possible to estimate the economic impact, direct and indirect, that change in an economic sector has on the local economy. Even more important, the technique was adapted to the use of a high speed electronic digital computer to obtain a systematic, simultaneous, and complete set of computations which show the direct and indirect requirements placed on all sectors by the delivery outside the goods and services producing system of \$1 of output for each of 24 economic sectors.

After making certain assumptions about future economic change outside the Tri-County Area, it was then possible to use the structural coefficients thus developed on the computer to estimate future demand for the area's goods and services. From these estimates it was possible to develop estimates of future outputs of the various sectors, and these in turn provided a basis for estimating future employment, population and income for the Tri-County Area.

In order to make the building of the input-output matrix and accompanying tables possible, a team of statisticians spent approximately one and one-half years in collecting and analyzing local industry data. First-hand data on 1958 transactions were obtained from most of the major firms in the area. The cooperation of these firms was whole-hearted, and, since the larger organizations carry on most of the area's production of goods and services, it has been estimated that primary information was obtained for between 80 and 90 percent of the area's economic output. The cooperating firms deserve the thanks of the community for their willingness to take on the burden of reporting necessary to make this possible.

In addition to the collection of primary data for 1958, the research team made arrangements with the U. S. Bureau of the Census to have special tabulations of data from the 1954 Census of Manufactures made for the Tri-County Area. The 1954 Census data were used to reinforce 1958 primary data. Many of Michigan's state agencies also made their industry data available, and appropriate secondary sources were used to fill in informational gaps.

While the reader with a technical bent is urged to read Chapter 11 and follow the flow of analysis through the tables, the next few pages contain summary information derived from the input-output analysis for the non-technical reader.

### Employment and Population Forecasts

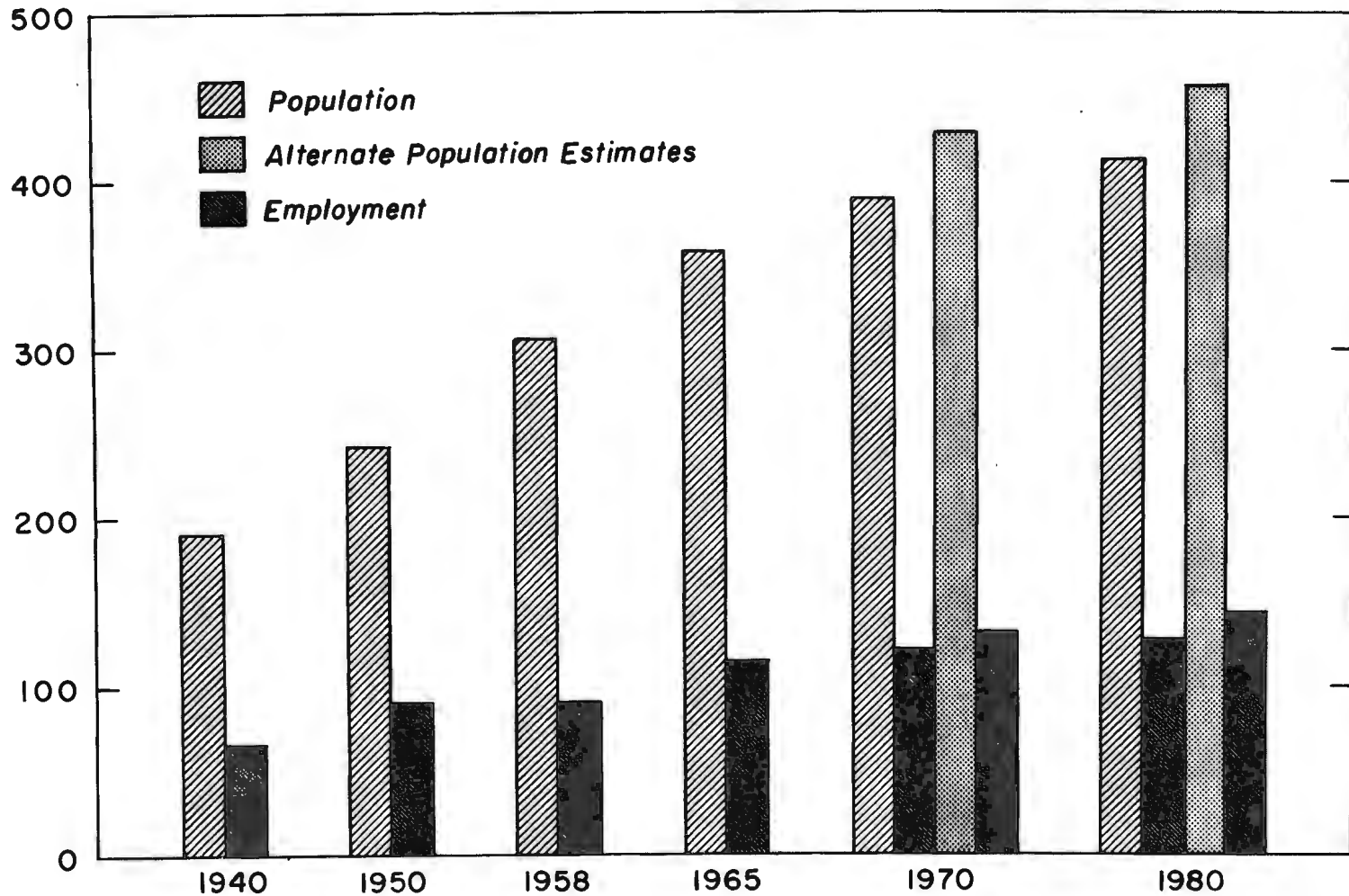
Chart I shows Tri-County employment and population for the census years of 1940 and 1950, estimates for 1958, and forecasts for the years 1965, 1970 and 1980. It also contains an alternate set of forecasts for 1970 and 1980 which are based on somewhat different assumptions. While the word "forecasts" has been used here, it would be more accurate to call these projections of future employment and population "estimates," since they are calculations based on certain assumptions about future change.

These "forecasts" assume that the amount of employment which will be provided by the local economy at any given time is a function of the volume of goods and services being produced by the economy's economic sectors, and that the population of the area will be determined by the amount of employment. In other words, it is assumed that an increase in the number of jobs available would be accompanied by a roughly proportionate increase in population, and, conversely, that a decrease in the number of jobs available will ultimately be accompanied by a similar drop in population as unemployed workers and their families gravitate to other areas where jobs are attainable.

Thus, estimates of future population at a given date require (1) an estimate of the local economy's future output, (2) an estimate of the size of the labor force needed to produce that amount of output, and (3) a projection of population based on the estimated labor force. Although the assumptions used in taking these steps are described in more detail in Chapter 11, they will be described briefly here.

In making the estimate of area output for a given year, it was necessary to look at each production sector and its growth possibilities between the benchmark date and the date for which an estimate was to be made. In the Lansing Tri-County Area the motor vehicle industry is so important that the crucial estimates involved its future output in the area. In other words, its impact is so great that if its future is estimated correctly, errors in estimating other sectors will be relatively unimportant. Also, changes in motor vehicle production are likely to cause similar changes in other sectors. Consequently, two different projections have been made for the years 1970 and 1980, involving two different estimates of motor vehicle output. These are rather complicated, and, since they are discussed in Chapter 11, will not be reiterated here.

**Chart I**  
**Tri-County Population and Employment, Actual and Estimated**  
**(in thousands)**



Sources: U.S. Bureau of the Census; Michigan Employment Security Commission; Bureau of Business and Economic Research

All estimates of employment, population and income are based on projected changes in the value of economic output in the area. Table 1 is included here to show projected increases in output by industry sector. While it should be stressed that individual sector projections are not as reliable as those for the economy as a whole, the reader will probably find both sector and total figures to be of considerable interest.

In order to estimate the number of workers required to produce a given quantity of output, it was assumed that productivity in the local economy would increase at an annual rate of 2 percent and that the average work-week would be down to 35 hours by 1980. It is obvious that if either of these assumptions is changed, the estimates will change also. For instance, an assumption of a 3 percent productivity rate would reduce employment and population estimates, while an assumption involving a shorter work week would increase them. Other assumptions were made, but will not be discussed here.

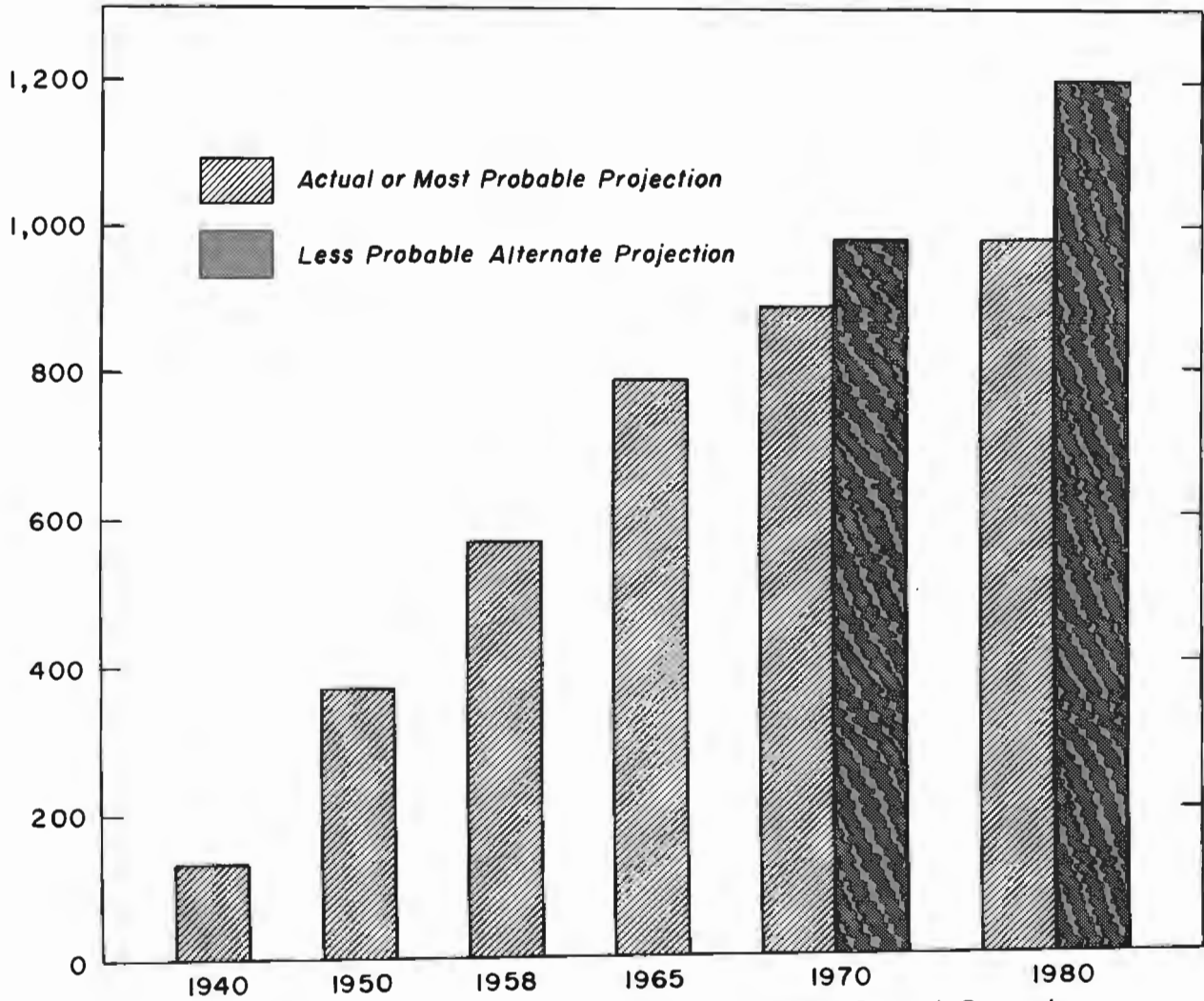
Chart I shows employment rising from 90,400 in 1958 (when the rate of unemployment was high) to 114,900 in 1965. Population growth of 54,210 (about 18 percent), from 303,790 to 358,000, is indicated for the same period. Alternate projections (depending largely on what happens to the local motor vehicle industry) of employment for 1970 are 121,200 and 133,200 and for 1980 they are 128,600 and 142,000. For population the projections are 388,000 and 427,000 for 1970 and 412,000 and 455,000 for 1980.

Chart II contains projections of changes in income for the area. Payments to Households is a measurement of gross income received by individuals, and Effective Buying Income is a net figure comparable to personal disposable income. These estimates are based on the increased output of goods and services forecast for the local economy, assuming that the same share of the value of output will continue to go to the household sector. The two sets of estimates for 1970 and 1980 reflect the results of the two different assumptions about motor vehicle output. Both sets indicate an approximate doubling of income in the area by 1980, with the first projection showing an increase of 92 percent in payments to households from the 1958 level and the alternate projection showing an increase of 113 percent. Regardless of which projections are used, per capita real income (obtained by dividing population figures from Chart I into income estimates from Chart II) should rise by about 40 percent by 1980.

The overall outlook for 1980 can be summed up as follows: population increased by 36 to 50 percent, employment increased by 42 to 57 percent, total income increased by 92 to 113 percent, and per capita income increased by 40 percent.

While population, employment and income for the Tri-County Area have been projected to the years 1965, 1970 and 1980, it is impossible even to estimate what part of this growth will take place within the corporate limits of any municipality or the legal boundaries of any township or county. The relative growths of Charlotte, St. Johns, Eaton Rapids, Mason and other small cities are likely to depend in large part on the

Chart II  
Tri-County Effective Buying Income, Estimates and Projections  
(in millions of dollars)



Sources: Soles Management, Survey of Buying Power; Bureau of Business and Economic Research



TABLE 1

PROJECTED INCREASES IN OUTPUT BY PROCESSING SECTOR,  
1958 to 1980

(in thousands of 1958 dollars)

<u>BBER Sectors</u>	<u>First Projection</u>	<u>Alternate Projection</u>
Agriculture	5,760	5,760
Food and Kindred Products	40,632	50,524
Lumber and Furniture	1,680	3,610
Printing and Publishing	16,483	18,198
Chemicals and Allied Products	89,247	30,113
Miscellaneous Manufacturing	22,711	31,206
Primary Metals	14,943	30,249
Fabricated Metal Products	35,030	48,262
Machinery including Electrical	13,051	20,585
Motor Vehicles	661,628	1,013,613
Electric Power and Gas	23,946	30,272
Transportation and Communication	17,312	26,463
Wholesale Trade	25,524	32,943
Retail Trade	82,692	104,102
Finance and Insurance	74,331	85,162
Real Estate and Rental	56,256	69,520
Personal Services and Amusements	17,599	22,223
Business Services	14,907	15,687
Repair Services	11,063	14,086
Medical and Professional Services	40,328	46,150
Education and Non-Profit Institutions	99,160	105,620
Mining and Other	3,019	3,773
Total	1,367,302	1,808,121

enterprise of their citizens and the extent to which the cities are made attractive to industry or prospective residents. The same generalizations seem to be true, perhaps to a lesser degree, of the future growth possibilities of area townships and counties.

Another important factor which is likely to affect the future of the small municipalities is their spatial relationship to the industrial heart of the Tri-County Area, Lansing, and the direction of population and industrial growth from the heart. Other things being equal, those municipalities lying closest to Lansing, with distance measured more in terms of time and convenience of travel than in actual miles, have the greatest opportunities for attracting both population and industry overflow from the metropolitan center as it becomes more congested.

In fact, the opening up of additional four-lane highways may actually invite movement of both industry and population from the central area and encourage the development of urbanized strips along the highways, with the outlying small cities along the routes becoming shopping and educational centers serving adjacent strips. Since industry, at least, is most likely to locate in the direction of Detroit, Chicago, Flint, and Grand Rapids in order to reach other markets as efficiently as possible, strip development promises most for communities lying along routes to these cities.

Communities desiring to attract residents should ask themselves, "What kinds of residents do we want to draw and what things are likely to attract them here?" Residents moving into the Lansing area, as well as those moving from Lansing proper to its environs, can choose between a number of alternative smaller urbanized areas. Certain types of residents may be attracted by low taxes and low real estate prices even if they are accompanied by poor schools, individual wells and septic tanks, and inadequate zoning. For other types the key considerations may be the quality of public services and the general environment, with economic considerations of secondary importance. Since the priorities assigned to the various considerations seem to be related to the incomes, educational levels and aspirations of family groups, the various communities can determine the character of their residential growth by the kinds of advantages they offer.

### SECTOR ANALYSIS

A study of the interindustry flow tables in Chapter 11 will give the reader some idea of the magnitudes of the outputs of the various economic sectors in the Tri-County Area. Such an examination reveals that motor vehicles led all sectors with a gross output of \$916 million and that mining, with a gross output of a little over \$3 million, was the least productive sector. Others with gross outputs of \$30 million or more were agriculture, food processing, primary metals, machinery, wholesale trade, retail trade, finance and insurance, real estate and rental, medical and other professional services, and education and non-profit institutions.

Further examination, however, indicates that despite the magnitude of their outputs, several of these actually produced less of their goods and services than were consumed in the Tri-County Area and, consequently, show net import balances. For the convenience of the reader, Table 2 has been prepared to serve as an example of some of the implications of the interindustry flow data presented in Chapter 11. It is a condensation of Table 1 of that chapter.

Table 2 shows that despite total gross output of \$64 million (including output consumed on the farm), Tri-County consumption of agricultural products exceeded output by nearly \$5 million. The question then arises whether agriculture might not be a logical area for expansion. Since this sector is probably already expanded about as much as the economics of agriculture now permits, it appears that relatively little further expansion is indicated.

The figures on manufacture of food and kindred products indicate that local consumption exceeds local output by about \$31 million dollars. This sector might warrant further analysis to find whether the Tri-County Area is a net importer of processed foods because other areas have greater natural advantages, or whether this is a local industry which might well be expanded. If such production could be carried on efficiently in the Tri-County Area it would lend stability to the economy since demand for food fluctuates very little with changes in the business cycle.

TABLE 2

GROSS TRI-COUNTY OUTPUTS AND NET COMPETITIVE  
(IMPORTS-) (EXPORTS+) FOR SELECTED SECTORS, 1958

(amounts in thousands of dollars)

	Net Competitive <u>(Imports-) (Exports+)</u>	Gross <u>Tri-County Output</u>
Agriculture	- 4,913	64,240
Food and Kindred Products	- 31,258	46,000
Primary Metals	- 78,075	30,400
Machinery	- 20,319	32,630
Motor Vehicles	+ 620,356	916,500
Wholesale Trade	- 9,372	30,000
Retail Trade	- 17,244	92,500
Finance and Insurance	+ 12,623	67,150
Medical and Other Professional Services	+ 6,625	36,150
Mining and Other	- 4,008	3,190

SOURCE: Table 1, Chapter 11

Primary metals and machinery manufacturing both show important gross outputs, but local purchases of such products exceed local outputs by \$78 million and \$20 million respectively. Here again there seem to be possibilities for local expansion of facilities and an analysis might be made to see whether this is feasible. Unlike food processing, however, expansion of these industries would probably create greater instability in the local economy since they are both durable goods producers and, as such, subject to wide fluctuations in response to the ups and downs of business cycles. While local leaders would probably welcome the expansion of any economic sector, increases in durable goods manufacturing seem to be less desirable than growth in less volatile sectors.

Wholesale and retail trade show net import balances of \$9 million and \$17 million respectively, although gross outputs were \$30 million and \$92 million. The output figures in these distributive areas generally represent trade margins (gross profits) rather than sales. The only exception is for eating and drinking establishments in the retail sector. Since these actually process raw and intermediate materials, their outputs were treated in the same manner as manufacturing, and are sales figures.

The net import balance of the wholesale trade sector indicates that total sales of wholesale firms located within the Tri-County Area were less than the total purchases from wholesalers by area firms. If wholesale gross margins average 20 percent of selling prices, the \$9 million import deficit would amount to approximately \$45 million in wholesale sales. This is important enough to merit analysis, since the central location of Lansing would, at least at first glance, appear to give it advantages as a wholesaling center. It is quite possible, however, that it is too close to the wholesale competition of Detroit and Chicago to cash in on its location in the center of Michigan's lower peninsula.

There seems to be less justification for the import deficit in the retail trade sector. If it is assumed that retail markups average 30 percent, the import deficit of \$17 million represents a net loss of about \$57 million in retail sales. In other words, the purchases of Tri-County residents from retailers were considerably greater than the total sales of area retailers.

Since retail market areas are generally much smaller than those for goods sold at wholesale, the outward flow of retail trade is somewhat surprising. In fact, a study of retail flow to determine the kinds of goods imported and the reason for their being purchased from the outside might be worthwhile. At any rate, it would unquestionably be advantageous to the Tri-County Area if its retail institutions were able to turn the tide by retaining local trade and drawing in increasing amounts from the outside. This would tend to broaden the area's economic base and make a contribution toward stability.

The Tri-County Area appears to have a net export balance in the finance and insurance sector, but there is no indication from the figures analyzed whether there is an unusual potential for future development of such institutions. It seems unlikely that

banking will grow at a much greater rate than the local economy as a whole, since banking's total size is likely to be largely a function of the amount of economic activity in the area. It may be, however, that the area's insurance firms, which sell their services far beyond the limits of the local economy, have a potential for growth at a faster rate.

Medical and other professional services seems to be a sector which not only has a current net export balance but offers possibilities for future growth and stability of the Tri-County economy. Two things which indicate natural growth in the medical area are the trends toward greater expenditures per capita for medical services and toward still further specialization in medical practice. The effect of the first is obvious, but that of the second may not be so apparent. It simply means that if more and more ailments are to be treated by specialists, the patient must go to a city where specialists are available. Thus, a trend away from the use of the general practitioner is a trend toward cities which have specialized physicians, equipment and facilities.

The fact that this sector has a net export balance does not necessarily indicate that Lansing's medical facilities are either excellent or poor. It does indicate, however, that improvements in the quality and quantity of services available are likely to be reflected by a growing economic importance of this sector. Increased hospital space and improved facilities will probably lead to more patients and more medical and surgical personnel. The development of a medical school in the area, which would provide additional facilities and specialists, would enable Lansing to become an outstanding medical center. Such a step has been considered for a number of years and has recently been proposed by the trustees of Michigan State University.

A few comments might be made here about some sectors not included in Table 2. One that is certainly worth watching is the chemicals and allied products sector. This one, which in 1958 had a gross output value of only \$10 million, showed a net export of almost \$3 million. In fact, except for motor vehicles, it was the only manufacturing sector which had a net export value. It is quite possible that this or some other sector which is making only a small contribution at this time will find the local environment favorable and grow at a considerably faster rate than the Tri-County economy as a whole.

The transportation and communications sector shows one of the largest import deficits, nearly \$55 million. This is merely a reflection of the fact that most of the transportation and communications firms which serve the area are owned outside it. Since it is unlikely that the railroads, airlines, bus lines, and telephone and telegraph companies can be purchased and operated by local firms, a large net import of such services is likely to continue.

Other sectors which appear to offer growth possibilities are business services, personal services and amusements, and repair services. These three sectors had a

total output of \$46 million in 1958 and are projected to grow significantly in the future. Some of the projected future growth may reduce their combined net import deficit of about \$10 million. These sectors are even more promising for the future in terms of employment than in increased output, since it appears that productivity per worker is not increasing as rapidly in the service trades as it is in most other economic sectors. Consequently, a given increase in output in the services sectors would provide more employment than a similar increase in manufacturing output.

### The Big Three

The three economic segments which contribute most to the Tri-County Area, and which are likely to continue to have major impacts far into the future, are the motor vehicle industry, state government, and Michigan State University. The order in which the last two are listed does not indicate their relative importance since it has not been possible to determine which of the two makes the greater contribution to the area.

#### Motor Vehicles

This is unquestionably the Lansing Tri-County Area's dominant industry, and whatever fate it has in the foreseeable future will be shared to a large degree by the rest of the local economy. The importance of this sector has been described earlier in this chapter. Its output made up 83 percent of the area's manufacturing total, 56 percent of the output of all 24 processing sectors, and 31 percent of the output of the whole Tri-County economy in 1958. Since 1958 was a depressed year for the motor vehicle industry, these figures may understate its importance.

Consequently, the key assumptions on which the forecasts were made had to do with possible changes in the Tri-County motor vehicle industry. There seemed to be four alternative assumptions which might be made, and these are listed below in the order of their probability after 1965.

1. Most probable: That the production of motor vehicles in the Tri-County Area would fall substantially below the national growth rate of the industry after 1965. This possibility was based on the idea that local productive facilities would be utilized to some approximation of capacity by 1965 and that the industry, already in a stage of decentralization, would do most of its expanding in other areas.

2. Less probable: That the rate of increase of output in the Tri-County Area would be about equal to that expected for the national industry after 1965. This would allow for some decentralization and some local expansion of facilities.

3. Still less probable: That the rate of increase in output in the Tri-County Area would greatly exceed the national growth rate of the industry. This assumes that practically all of the expansion for Oldsmobile would take place in the Tri-County, with very little decentralization.

4. Least probable but entirely possible: That an absolute decline would take place in the output of the Tri-County Area. This could come about if the Oldsmobile Division of General Motors fell on hard times or if it moved from Lansing.

Since the first two were considered to be the most likely possibilities, neither wildly optimistic nor pessimistic, both of them were used to develop the two sets of forecasts presented earlier. If the third possibility occurs, both sets of forecasts are likely to be much too low, but the local economy will be even less well balanced than it now is. If the fourth happens, the forecasts are likely to be much too high, and the Tri-County economy will have suffered such a blow that years will be required for its recovery. By having these possibilities presented to him, the reader is given a chance to make his own choice and, in so doing, make his own forecast for the area. Since there is little question about the direction of change in state government and higher education in the area, the crucial choice is between the alternatives which are possible for the motor vehicle industry.

#### State Government

The state government, as has been pointed out earlier in this chapter, is a large importer of dollars into this area and spends two dollars locally for every dollar it collects from the three counties. Not only is it now a large support to the local economy, but it will become increasingly more important as Michigan grows in population and income.

Perhaps its most important characteristic is that its growth is not dependent on the growth or decline of the other local economic sectors. It is even relatively independent, for short periods at least, of economic changes in the state. The 1958 recession in Michigan was reflected very little in reductions of state expenditures and employment, since the demand for state services probably increased rather than decreased.

The fact that the seat of state government is located in the Tri-County Area, then, provides the local economy not only with income and employment, but also with a sea anchor to help the area ride out economic storms.

#### Michigan State University

The third leg of the Lansing Tri-County Area's economic tripod is Michigan State University. This institution, one of the largest universities in the United States, spends more than \$50 million a year for operating expenses, and, over a

six-year period ending with its 1958-59 fiscal year, spent an average of almost \$10 million per year for construction.

A separate analysis of interindustry flow data provided by this study indicates that the direct and indirect effects of having the University in the area accounted for payments to households of about \$80 million in 1958. Since total payments to households for the whole local economy that year was \$711 million, Michigan State University generated about 11 percent of the total. Much of the rest of the area economy was depressed that year, so the relative contribution of the University was probably somewhat higher than it would have been in an average year. However, since the University's growth is projected at a much higher rate than that of the local economy as a whole, both its absolute and relative contributions to the area should increase.

Because the University is not an economic institution in the same sense as a factory or a bank, there is a tendency to overlook its economic impact on the community in which it resides. A major university is an economic asset not only in terms of the dollars it brings in from the outside: its value to an area may be enhanced by its helping attract industry. The electronics industry is said to have concentrated in Massachusetts and California in order to be near great technical universities. It may well be that a major university will in the future become more and more of a magnet for attracting modern, highly technical industries into the area in which it is located.

### SOME GENERAL CONCLUSIONS

#### I

The growth of the Tri-County Area in the past has been largely attributable to what some observers have called three "fortuitous accidents," (a) the decision of the legislature to place the state capitol in a largely unsettled area which later became Lansing, (b) a similar decision to establish Michigan Agricultural College (Michigan State University) near the capitol, and (c) the decision by R. E. Olds to produce his automobiles in his home town rather than in Detroit or elsewhere. Other industry has tended to flow into the area to serve the needs of these three and of the population attracted here by them.

#### II

There is nothing now present in the economic fabric of the area which indicates that the Lansing Tri-County Area will grow as explosively in the future as it did during the first half of this century, which saw the population of Ingham County doubling every 12 years. This unprecedented growth was attributable to tremendous increase in the national demand for a relatively new locally-produced product, the automobile, which was revolutionizing the way of life and the economic structure of the United States. Only a breakthrough of a similar magnitude, similarly keyed to local industry, could produce such a rate of growth in the area again.



### III

Rapid growth is a very costly process, entailing as it does the necessity for furnishing public services for larger numbers of people. The growth rates of the past have left the area with great current needs for capital expenditures and with important urbanized areas without public water, public sewerage, and adequate school plants despite vast public expenditures already made. Further growth will increase the gap between capital needs and capital expenditures unless steps are taken to ensure the providing of capital needs in an efficient and orderly manner. The Tri-County Regional Planning Commission has estimated, for example, that individuals have installed \$5 million worth of septic tanks since 1950, whereas public sewerage systems, which will have to be installed eventually anyway, could have been provided for the same amount. Since the public system will now cost about \$10 million to install, the total cost to the community will eventually be \$15 million when it might have been only \$5 million.

In connection with the costs of growth, it might be pointed out that costs seem to rise geometrically as metropolitan area population increases. A recent Tri-County Regional Planning Commission publication<sup>2</sup> cites studies which indicate that public capital costs per new family increase considerably with the size of the metropolitan area. Hence population growth for the Tri-County Area is likely to result in higher per capita capital outlay requirements and to increase the complexity of the area's problems and inter-relationships.

### IV

The tendency of population to spread out from the central core will pose real financial problems for outlying areas unless business and industry spread out also. Each local governmental unit which is required to provide public services for its residents needs commerce and industry in order to have the necessary base for producing adequate tax funds. Suburban areas which have to rely entirely on residential property to provide taxes must choose between the alternatives of unusually high tax rates or inadequate public services. This problem is likely to grow progressively more pressing as suburban development continues, unless consolidation of taxing and spending units accompanies fringe development.

### V

The Tri-County Area is actually an integrated economic unit and is likely to become progressively more unified and interdependent. The fact of economic unity was brought out clearly by the 1958 commuters' survey referred to earlier in this report. The study showed that nearly 46 percent of Clinton County's gainfully employed non-agricultural workers and more than 50 percent of Eaton County's commuted to jobs in Ingham County. On the strength of these findings, the U. S. Department of Commerce redefined the Lansing Standard Metropolitan Area to include Clinton and

Eaton Counties as well as Ingham. Consequently, data reported by the Department of Commerce for the Lansing Standard Metropolitan Area are now aggregate data for the three counties.

As a consequence of the integrated nature of the Tri-County Area, whatever affects Lansing affects all residents of the three counties to some degree, and whatever affects outlying communities also affects Lansing, though perhaps to a lesser degree. The problems of the area, then, tend to become problems which require an area solution. Piecemeal solutions by each of the 48 townships, 27 municipalities and three counties are likely to be inadequate.

## VI

The economic health of the Tri-County Area requires that every effort be made to give it better industrial balance than it now has. Further relative increases in its durable goods manufacturing sector would only make the local economy more susceptible to wide fluctuations in income and employment. While this is not a suggestion that the area would or should discourage growth in durables, it does suggest that every effort be made to encourage the entry and growth of other types of establishments for whose products or services demand is growing and not subject to wide variation.

Some types of goods or services which seem to satisfy both of these requirements and to be worth encouraging are processed foods, medical and health, higher education, retail and wholesale trade, and all types of personal and business services. The chemicals industry also seems to be an excellent possibility, particularly if it is oriented toward consumer rather than industrial markets. The area would also be benefited by having additional or expanded state operations.

## VII

The growth rates which have been forecast for the Tri-County Area in this report were based primarily on analysis of the present structure of the local economy and on trends of demand for its products and services. This involves the implicit assumption that the area will neither be badly mismanaged nor superlatively led, for it was impossible to predict the kind of leadership and direction which might be given to the Tri-County Area over the period of 22 years covered by these forecasts.

The fact that it is impossible to predict the quality of human organization the area is likely to have in the future does not indicate that it is unimportant. On the contrary, the people of the Tri-County Area have it in their power to determine the kind of metropolitan area they want and to go a long way toward attaining it. In fact, the kind of area this will be in 1980 probably depends more on the quality of decisions which will be made and carried out in the interim than it does on the economic anatomy the area had in 1958 or on the growth trends of the United States.

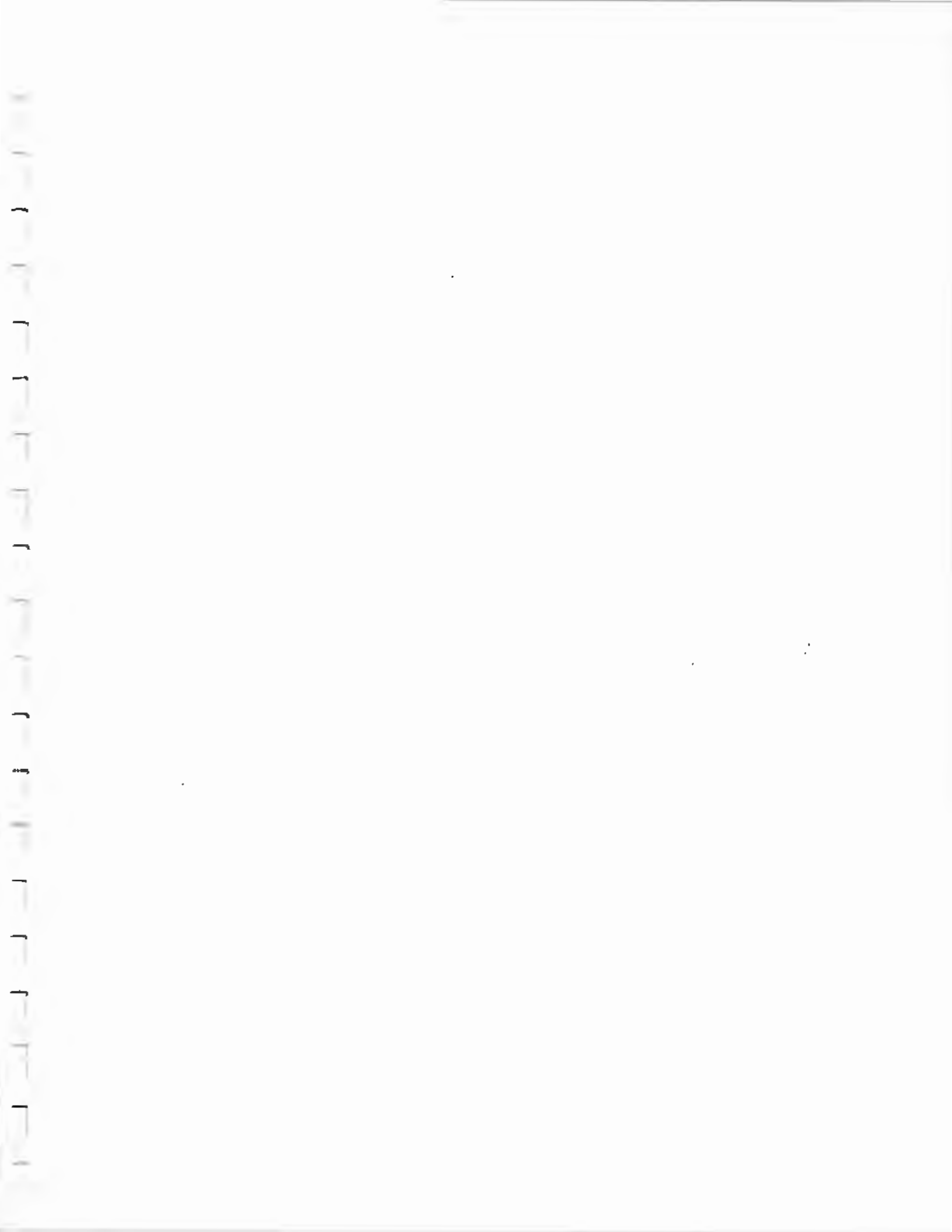
Perhaps the most valuable insight gained from an analytical study of the economic development of a metropolitan area is that its human organization, in the long run, is more important than the kind of economic structure it happened to have at any given point in time.

Consequently, the people of the Lansing Tri-County Area probably have it in their power to make the forecasts developed from this study appear to have been either high or low, depending on the future-shaping decisions they make. In order to shape the future along desired lines, decisions should be based on long-run rather than on short-run considerations. This should apply to small decisions as well as large ones, since the future is likely to be molded from the total pattern of decision over time.

#### FOOTNOTES

<sup>1</sup>From Jarvis J. Babb, "Problems of Local Growth and Area-Development," The Little Economies, p. 9, as cited by Ezra Solomon and Zarko G. Bilbija, Metropolitan Chicago, The Free Press, Glencoe, Illinois, 1959, p. 2

<sup>2</sup>Functional Organization of the Lansing Tri-County Region, Tri-County Regional Planning Commission, Lansing, 1959, p. 24



## PART II

### CHAPTER 4

#### MANUFACTURING

The manufacturing industry is truly the economic base of the Tri-County economy; in 1958 this sector produced a net export volume of \$364 million for shipment to regional, national and world markets. The largest contributor to this outflow of manufactured goods was the transportation equipment industry, which in 1958 had a net export volume of \$620 million. The overall importance of transportation equipment manufacturing in the area was reduced, however, by the fact that in 1958 imports of all other manufactured products exceeded exports by \$256 million. When the nature of the contributions to the net export volume is recognized, as well as the overwhelming importance of automobiles in the area, it is easy to appreciate that the movement of this single industry determines to a large extent the economic destiny of Ingham, Eaton and Clinton Counties. So far as manufacturing is concerned the Tri-County Area is certainly a one-industry community. The chemical and allied products industry was the only other manufacturing sector with a net export balance in 1958. Its exports were only about \$3 million more than imports.

In 1958 all divisions of manufacturing accounted for 29 percent of overall employment in the three counties, utilizing about 26 thousand workers, of whom 17 thousand were in transportation equipment production. The total wage bill for manufacturing was about \$380 million, or 38 percent of all wages and salaries in the area.

1954 is the most recent year for which detailed data are available on the number of manufacturing establishments in the Tri-County Area, and while there has certainly been some absolute change in numbers since then, it is safe to assume that these data are still fairly representative. Of the 304 manufacturing establishments in the Tri-County Area in 1954, 69 percent (209) had fewer than 19 employees, whereas in 1947 this figure was 65 percent. By 1956 it is estimated that there were 194 establishments, out of a total of 295 establishments, which had less than 20 employees. Unfortunately similar data for 1958 are not available but it is likely that some smaller establishments closed down during the 1957-1958 recession.

In 1929 there were 226 manufacturing establishments in the Tri-County Area compared to a Michigan total of 6,686. At that time the Tri-County Area had 3.4 percent of all the manufacturing establishments in the state, while in 1954 it had 2.4 percent of them (Table 1). During the same period the area's share of the state's production workers in manufacturing increased from 2.9 percent in 1947 to 3.3 in 1954 (Table 2). It can be assumed that the expansion in manufacturing employment

in the area has come about through the expansion of existing firms rather than through the establishment of additional plants.

TABLE 1  
NUMBER OF MANUFACTURING ESTABLISHMENTS,  
TRI-COUNTY AREA AND MICHIGAN

	<u>Tri-County Area</u>	<u>State of Michigan</u>	<u>Tri-County Area as Percent of State</u>
1929	226	6,686	3.4
1935	170	5,544	3.1
1937	173	5,614	3.1
1939	172	5,961	2.9
1947	269	9,892	2.7
1954	304	12,711	2.4
1956	295	12,355	2.4

SOURCES: U. S. Department of Commerce, and U. S. Department of Health, Education and Welfare

In addition to the Tri-County Area's increased share of manufacturing employment between 1947 and 1954, there was also an increase in its share of total wages going to production workers. In 1947 the three counties had 2.9 percent of all such wages in the state, while in 1954 the share was 3.4 percent. During the period 1947-1954, value added by manufacturing in the Tri-County Area increased relative to the state of Michigan. In 1947 value added by manufacture in the Tri-County Area was equal to 3.2 percent of the Michigan total, while in 1954 it was 3.9 percent.

#### Inter-County Comparisons

In 1929 Ingham County had 70 percent of all the manufacturing establishments in the Tri-County Area (Table 3). By 1954 the figure was 69 percent, indicating that no significant shift had occurred during the twenty-five year period. As Table 3 shows, between 1939 and 1954 the absolute number of manufacturing establishments increased in the Tri-County Area as a whole as well as in Eaton and Ingham Counties. According to a recent survey of the Michigan Employment Security Commission, in 1958 there were only 236 manufacturing establishments in the Tri-County Area, indicating a 20 percent attrition since 1954. However, these figures may not be comparable to the earlier ones. The MESC study does not allow for a county-by-county breakdown of the number of establishments in 1958, but the historically consistent pattern of the geographic distribution of manufacturing firms in the area suggests that one would not expect any change from the domination by Ingham County.

TABLE 2

NUMBER OF PRODUCTION WORKERS IN MANUFACTURING,  
TRI-COUNTY AREA AND STATE OF MICHIGAN

	<u>Tri-County Area</u>	<u>State of Michigan</u>	<u>Tri-County Area as Percent of State</u>
1929	20,597	530,035	3.9
1935	16,293	531,658	3.1
1937	19,032	660,676	2.9
1939	13,839	520,165	2.7
1947	23,578	821,721	2.9
1954	26,557	809,316	3.3

SOURCE: U. S. Department of Commerce

TABLE 3

GEOGRAPHIC DISTRIBUTION OF MANUFACTURING  
ESTABLISHMENTS IN THE TRI-COUNTY AREA

	<u>Ingham</u>		<u>Eaton</u>		<u>Clinton</u>		<u>Tri-County Area</u>	
	<u>Number</u>	<u>Percent of Total</u>	<u>Number</u>	<u>Percent of Total</u>	<u>Number</u>	<u>Percent of Total</u>	<u>Number</u>	<u>Percent</u>
1939	129	69	41	22	18	9	188	100
1948	181	67	58	22	30	11	269	100
1954	209	69	66	22	29	9	304	100
1956	204	69	59	20	32	11	295	100

SOURCE: U. S. Department of Commerce, and U. S. Department of Health, Education and Welfare

Of the 209 establishments in Ingham County, the great majority were small, employing fewer than 20 persons in 1954. Among firms employing 100 or more persons, 27 out of 33 were in Ingham County in 1947, while in 1954 there were 28 out of 35. In 1954, 71 percent of Eaton County's manufacturing establishments and 76 percent of Clinton County's firms employed less than 20 persons. Manufacturing growth in these counties had come through the establishment of small firms instead of through the expansion of already existing ones.

Between 1929 and 1954 the number of wage earners in manufacturing in Ingham County increased from 19 thousand to 24 thousand, while there was a net gain of only about 600 such workers in Clinton County (135 to 709), and of 267 in Eaton County (Table 4). The obvious concentration of the manufacturing industry in Ingham County, which in large part is due to the location of the automobile industry in Lansing, stresses the overwhelming importance of Lansing to the Tri-County Area; at the same time the percentage growth of employment in Clinton and Eaton Counties compares most favorably with that of Ingham County.

TABLE 4

EMPLOYEES\* IN MANUFACTURING, INGHAM,  
EATON AND CLINTON COUNTIES

	<u>Ingham</u>	<u>Eaton</u>	<u>Clinton</u>	<u>Total Tri-County Area</u>
1929	19, 132	1, 330	135	20, 597
1935	15, 128	1, 013	152	16, 293
1937	17, 874	952	206	19, 032
1939	12, 729	893	217	13, 839
1947	21, 355	1, 596	627	23, 578
1954	24, 251	1, 597	709	26, 557
1958	23, 535	1, 898	922	26, 355

\*For the years 1929-1954 figures show wage earners only, while the 1958 estimate is for wage and salary workers.

SOURCE: 1929-1954, U. S. Department of Commerce; 1958, Michigan Employment Security Commission and Bureau of Business and Economic Research

In 1958 there were approximately 26, 355 wage and salary earners employed in manufacturing in the three counties. In 1954 there were 26, 577 wage earners alone, which means that the number of wage and salary workers in 1958 was less than the number of wage earners in 1954. Referring to Table 6, we know that there was a total of 32, 163 wage and salary workers in the three counties, even though we do not have figures for a geographic breakdown. Consequently, in the four-year period, 1954-1958, there has been a decline of 5, 808 thousand in the number of employees in the manufacturing industries of the Tri-County Area. Some of this difference may be attributable to differences in data collection methods, since the 1954 figure is from the U. S. Department of Commerce and the one for 1958 is from the Michigan Employment Security Commission. While the 1957-1958 recession undoubtedly had a particularly adverse effect



upon manufacturing employment, especially because of the heavy concentration of automobile production, there apparently has been also a secular decline in manufacturing employment in recent years and a reversal of the 1939-1954 growth in the importance of manufacturing.

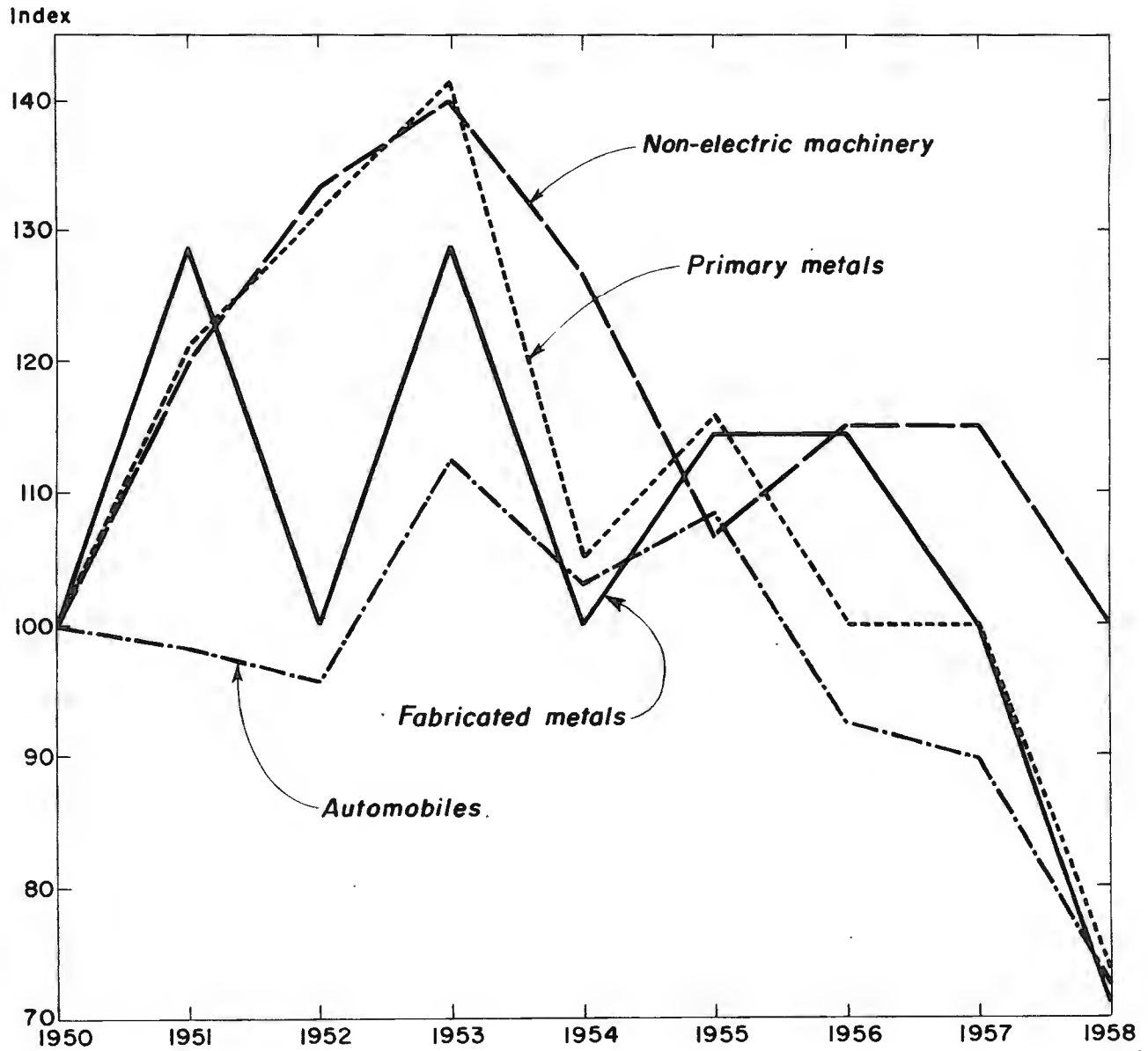
Table 5 shows the number of manufacturing establishments in the Tri-County Area, by major industry divisions, for the years 1939 to 1958. While the economic significance of these divisions is not entirely represented by the number of such enterprises, the figures afford some idea of the relative growth of particular industries. In most instances, for example, the decline in number of firms from 1954 to 1958 is in marked contrast to the increase in enterprises from 1939 to 1947. Tables 6 and 7, while restricted to the years 1954 and 1958, are more significant in that they do reflect the relative economic significance of various manufacturing industries, as employment (Table 6) and payroll (Table 7) are more indicative of the impact of the various sectors on the economy of the Tri-County Area. As already indicated, there is only one manufacturing industry which plays an outstanding role in the area's economic activity--transportation equipment. With the possible exception of the primary metals and machinery (both electrical and non-electrical) industries, there is really not much to talk about so far as the contribution of the manufacturing sector is concerned, after the discussion has covered the auto and allied industries.

#### The Durable Goods Industries

The industries producing durable goods are the backbone of manufacturing in the Tri-County Area, with about 90 percent of all manufacturing employment in the sector, as well as 90 percent of the payroll. Also, as the preceding discussion has shown, there is a geographic concentration of the manufacturing sector, since approximately 90 percent of its activity takes place in Ingham County, with only minor manufacturing in Eaton County, and relatively none in Clinton County.

Because of the concentration of manufacturing activity in Ingham County, Chart I is representative of the trends of manufacturing employment in the Tri-County Area, showing as it does the indexes of employment for the four most important durable goods industries: transportation equipment, non-electrical machinery, fabricated and primary metals and their respective allied products. The annual data make it possible to pinpoint the recent decline in manufacturing activity, and to associate it with the 1953-54 recession. The decline in employment in these industries has not been peculiar to Ingham County, of course, in view of the nation-wide decline in employment in all hard goods industries since 1953. As a matter of fact it is quite widely recognized in business circles that manufacturing employment has never recovered from the 1953 recession and furthermore that the opportunities for expansion in employment in these sectors is quite dim. In addition to automation, which accounts for a considerable amount of the decline in automobile employment, the shifting consumption patterns of American consumers are in large part responsible for the dropoff in the number of persons employed in the hard goods industries. With the relative increase of children and the elderly in population, there has been a

Chart I  
 Indexes of Employment for Selected Durable Goods Industries,  
 Ingham County, 1950-1958 (1950=100)



Source: Michigan Employment Security Commission

TABLE 5

NUMBER OF MANUFACTURING ESTABLISHMENTS IN THE  
TRI-COUNTY AREA, BY INDUSTRY DIVISION

<u>Nondurable Goods Industries</u>	<u>1958*</u>	<u>1954</u>	<u>1947</u>	<u>1939</u>
Food and Kindred Products	42	58	45	61
Textile Mill Products, Apparel and Related Products	5	6	10	4
Printing and Publishing	34	44	50	40
Chemicals, Petroleum, Coal and Rubber Products	<u>11</u>	<u>12</u>	<u>8</u>	<u>6</u>
	92	120	113	111
 <u>Durable Goods Industries</u>				
Lumber and Wood Products	9	16	20	8
Furniture and Fixtures	7	6	8	9
Stone and Clay	24	16	23	10
Primary Metals	13	17	14	16
Fabricated Metal Products	30	44	27	1
Electrical and Non-electrical Machinery	41	59	50	19
Transportation Equipment, Instruments and Related Products	16	14	12	10
Miscellaneous Manufactures	<u>4</u>	<u>12</u>	<u>11</u>	<u>4</u>
	144	184	165	77
Total	236	304	278	188

\*Figures for 1958 may not be exactly comparable to earlier years, because of different statistical techniques used by the U. S. Department of Commerce and the Michigan Employment Security Commission.

SOURCES: U. S. Department of Commerce, Michigan Employment Security Commission, Bureau of Business and Economic Research

TABLE 6

NUMBER OF MANUFACTURING EMPLOYEES IN THE  
TRI-COUNTY AREA, BY INDUSTRY DIVISION

<u>Nondurable Goods Industries</u>	<u>1958*</u>	<u>1954</u>
Food and Kindred Products	1, 473	1, 384
Textile Mill Products, Apparel and Related Products	70	284
Printing and Publishing	1, 005	998
Chemicals, Petroleum, Coal and Rubber Products	<u>408</u>	<u>437</u>
	2, 956	3, 103
 <u>Durable Goods Industries</u>		
Lumber and Wood Products	204	143
Furniture and Fixtures	184	199
Stone and Clay	564	302
Primary Metals	1, 648	2, 277
Fabricated Metal Products	1, 016	1, 424
Electrical and Non-electrical Machinery	1, 823	3, 018
Transportation Equipment, Instruments and Related Products	17, 888	21, 187
Miscellaneous Manufactures	<u>72</u>	<u>510</u>
	23, 401	29, 060
 Total	 26, 355	 32, 163

\*Figures for 1958 may not be exactly comparable to earlier years, because of different statistical techniques used by the U. S. Department of Commerce and the Michigan Employment Security Commission.

SOURCES: U. S. Department of Commerce, Michigan Employment Security Commission, Bureau of Business and Economic Research

TABLE 7

TOTAL PAYROLLS, BY INDUSTRY DIVISION, FOR THE  
TRI-COUNTY AREA

<u>Nondurable Goods Industries</u>	<u>1958*</u>	<u>1954</u>
Food and Kindred Products	6,936	5,709
Textile Mill Products, Apparel and Related Products	241	842
Printing and Publishing	4,908	4,442
Chemicals, Petroleum, Coal and Rubber Products	<u>2,489</u>	<u>1,538</u>
	14,574	12,531
 <u>Durable Goods Industries</u>		
Lumber and Wood Products	936	399
Furniture and Fixtures	673	656
Stone and Clay	2,999	1,231
Primary Metals	10,354	11,866
Fabricated Metal Products	5,358	6,851
Electrical and Non-electrical Machinery	10,044	14,661
Transportation Equipment, Instruments and Related Products	107,764	109,990
Miscellaneous Manufactures	<u>454</u>	<u>2,295</u>
	138,582	147,949
 Total	 153,156	 160,480

\*Figures for 1958 may not be exactly comparable to earlier years, because of different statistical techniques used by the U. S. Department of Commerce and the Michigan Employment Security Commission.

SOURCES: U. S. Department of Commerce, Michigan Employment Security Commission, Bureau of Business and Economic Research

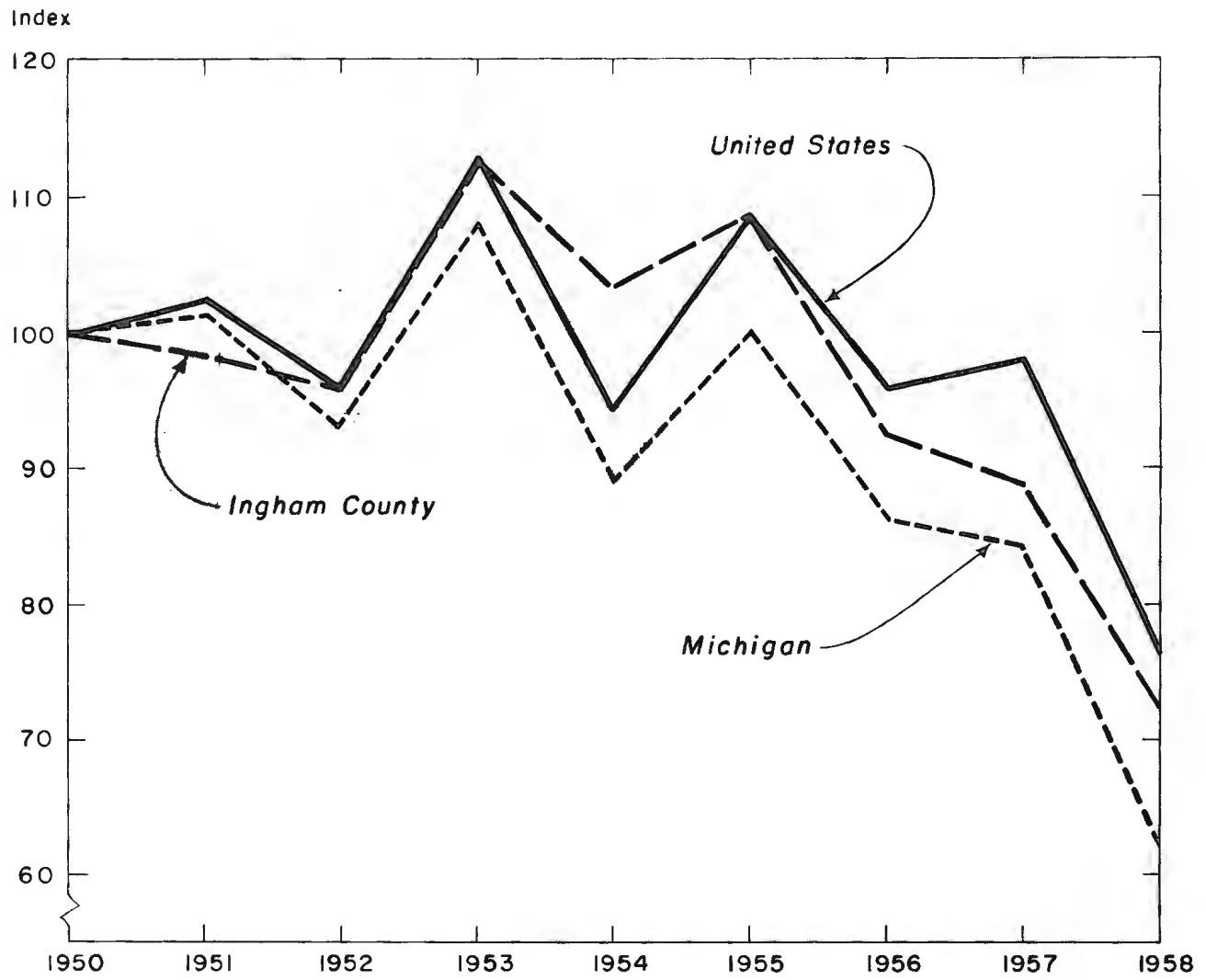
marked rise in the percentage of consumer incomes going for the purchase of services such as medical care, education and recreation. Accordingly, a smaller amount of our incomes is being spent on hard goods, and this fact contributes significantly to the decline in employment in the durable goods sector. Therefore, without even raising the issue of rising prices and the adverse effects of inflation, it is easy to appreciate from the above analysis why manufacturing employment in the Tri-County Area has been declining since 1953. As already noted, this decline is not necessarily associated with conditions in Ingham County, or even the state of Michigan, but is part of a nation-wide trend. On the brighter side, it may be noted that employment in the auto industry in Ingham County has not been reduced as much as it might have been, due to the buoyancy of the Oldsmobile market.

Chart II shows the relative changes in employment for the transportation equipment industry for Ingham County, Michigan and the United States for the years 1950-1958. It is clear that Ingham County has fared much better since 1953 than has Michigan as a whole, but not as well as the United States. It can readily be seen that the most stable period for automobile employment in Ingham County was the period 1950-1955, during which time both Michigan and the United States experienced more sharp fluctuations, while the index of Ingham County remained relatively stable. From 1955 to 1958 there has been a significant decline in automobile employment in all sectors of the country, but the Ingham County drop is less steep than Michigan's. The reason for this may be the relatively good performance of Oldsmobile in 1958. This factor naturally means a better overall employment picture for the Tri-County Area. Table 8 shows the relative performance of Oldsmobile as against all other cars in 1958. Although in absolute units Oldsmobile in 1958 produced about 70,000 fewer cars than during 1957, its position in General Motors production rose, as did its place in overall U.S. production. Oldsmobile output was 14.3 percent of the total General Motors production in 1958, as opposed to 13.9 percent in 1957; Oldsmobile's production represented 7.3 percent of the U.S. total in 1958, up from 6.4 percent in 1957.

The importance of automobile production in the Tri-County Area is not restricted to this sector alone, since most of the other divisions of durable goods manufacturing in the community are almost entirely dependent upon this industry. Accordingly one of the major reasons for the declining demand for the output of local manufacturers of hard goods is the fact that the major automotive manufacturers are locating more and more of their plants outside of Michigan, and consequently are turning toward the suppliers located in their new centers of production. Typical of these so-called subcontracting subsidiaries to transportation equipment are the numerous drop forge companies in the area which go to make up the largest segment of the primary metal products industry.

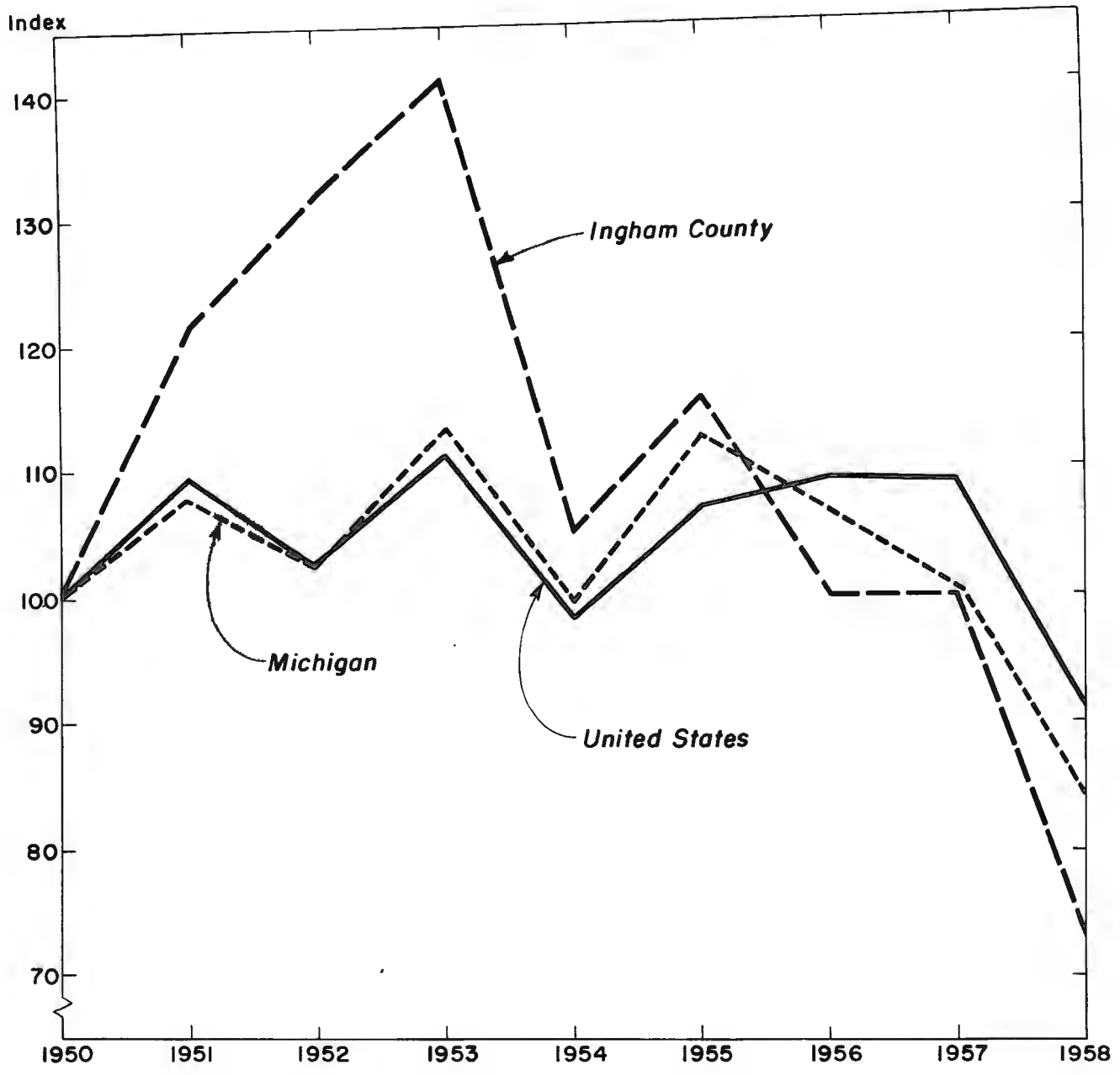
Chart III shows the relative changes in employment in the primary metal products industry for Ingham County, Michigan and the United States, for the years 1950-1958. In 1958 this sector employed about 1,160 people (about 70 percent of the total) and paid out approximately \$7,657,000 in wages and salaries. The various types of bar carbon and

Chart II  
Indexes of Transportation Equipment Employment in Ingham County, Michigan,  
and the United States, 1950-1958 (1950=100)



Sources: Michigan Employment Security Commission and U.S. Bureau of Labor Statistics

**Chart III**  
**Indexes of Primary Metal Products Employment in Ingham County, Michigan,**  
**and the United States, 1950-1958 (1950=100)**



Sources: Michigan Employment Security Commission and U.S. Bureau of Labor Statistics



TABLE 8

## PASSENGER CAR PRODUCTION

	<u>Oldsmobile</u>	<u>General Motors</u>	<u>Oldsmobile as a percent of General Motors</u>	<u>United States</u>	<u>General Motors as a percent of United States</u>	<u>Oldsmobile as a percent of United States</u>
1950	396,757	3,048,357	13.0	6,636,384	45.9	6.0
1951	285,634	2,255,497	12.7	5,311,283	42.5	5.4
1952	228,452	1,801,450	12.7	4,325,165	41.7	5.3
1953	319,414	2,799,615	11.4	6,132,244	45.7	5.2
1954	433,810	2,874,271	15.1	5,507,417	52.2	7.9
1955	643,459	3,989,987	16.1	7,950,377	50.2	8.1
1956	432,903	3,062,426	14.1	5,806,756	52.7	7.5
1957	390,091	2,816,445	13.9	6,120,029	46.0	6.4
1958	310,795	2,169,186	14.3	4,247,441	51.1	7.3

SOURCE: Automobile Manufacturers Association

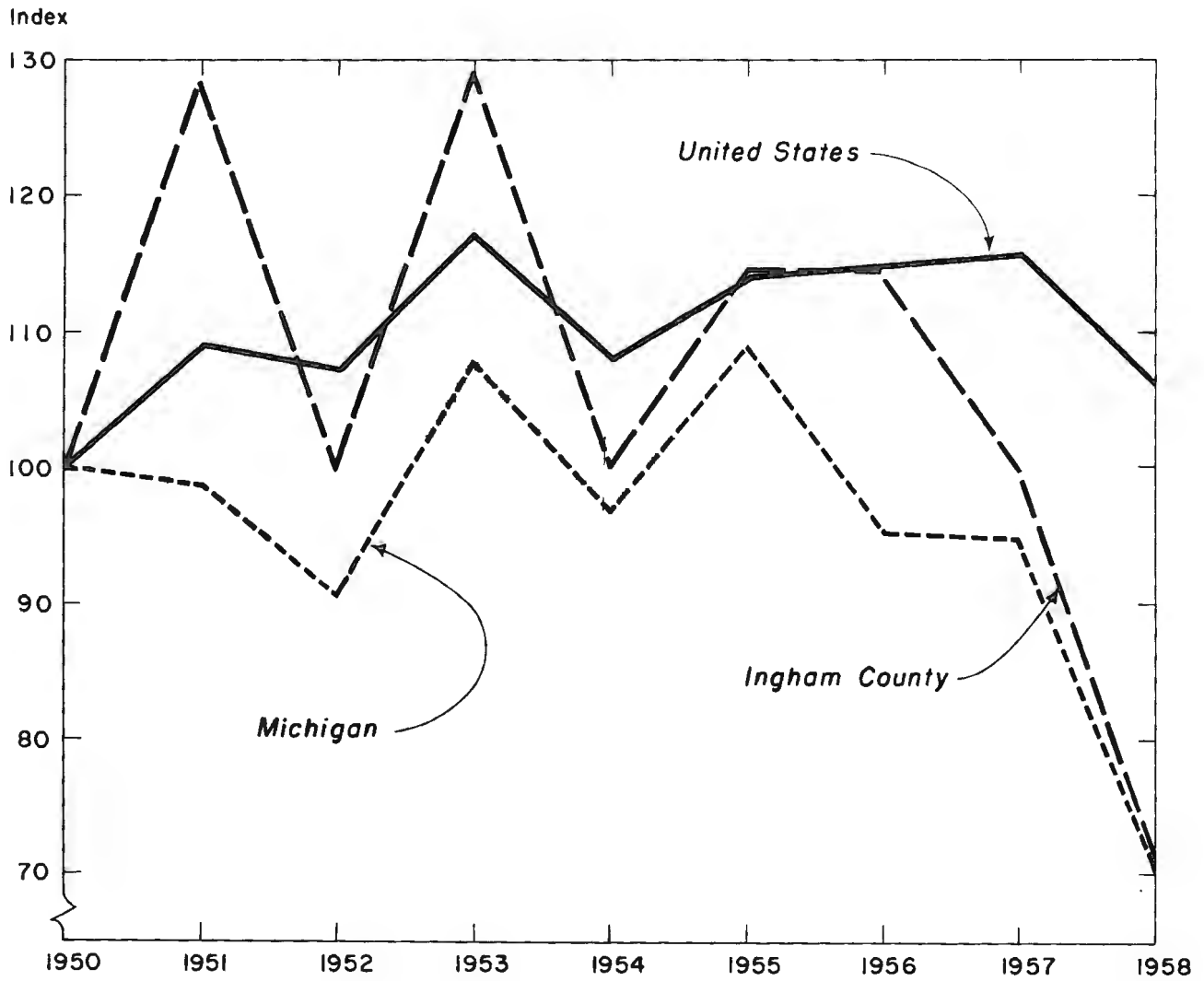
alloy steel used as the major inputs for the industry are imported from the Chicago mills, as well as those of Cleveland and Detroit, by both truck and rail. Most of the output of the local drop forge companies is destined for auto industry. Although there is a recent tendency in the Tri-County Area to develop more diversified markets and become less dependent on transportation equipment, still the local automobile companies get more than 80 percent of the total output. The techniques of making the particular type of forgings used locally have not changed much over the last several decades.

The third important group among the durable goods industries in the Tri-County Area is the fabricated metal products sector. Most of the establishments in this group are quite small. Although their number has declined since 1954, the industry still has 12.7 percent of all the manufacturing establishments in the Tri-County Area. The fact that it employs only 3.8 percent of the total shows the tendency of this group, as compared to other sectors, to have small establishments. Most of the employment in this category is engaged in producing fabricated structural metal products such as plate work, sheet metal work, screw machine products, metal stamping, and farm machinery and equipment. As in the other manufacturing sectors the majority of these establishments are concentrated in Ingham County, with about half of the employment there.

By tracing the changes in employment in this sector for the past 8 years in Ingham County, it is evident that, although it has been relatively higher than Michigan itself, it has been declining since 1956. As the figure indicates, during 1957-1958 this decline has been steeper than that of Michigan. Taking the Tri-County Area as a whole, the decline in employment of this sector, both in absolute figures and relative economic importance, can be seen in Chart IV. While the fabricated metal products industry's share of total employment in the Tri-County Area was 4.4 percent in 1954, in 1958 the share had dropped to 3.8 percent. The industry's share of total payroll also declined proportionately during this period. Reckoned in absolute figures, there were about 400 fewer people employed in this sector in 1958 than in 1954.

The industrial group that produces machinery and equipment, both non-electrical and electrical, has declined in relative and absolute importance in the Tri-County Area. The establishments of this group are scattered among the three counties to a much greater extent than the other hard goods industries. About 60 percent of the total employment in this sector is engaged in producing farm machinery and equipment, metal working machinery, such as metal cutting and metal forming machine tools, special dies, tools and other metal working machinery. Another 12 percent of the group is involved in manufacturing electronic equipment for home entertainment such as radio and television. The balance of the industry produces miscellaneous machinery and electrical supplies. Better than 80 percent of the total employment in this sector is in Ingham County.

Chart IV  
 Indexes of Fabricated Metal Products Employment in Ingham County, Michigan,  
 and the United States, 1950-1958 (1950=100)



Sources: Michigan Employment Security Commission and U.S. Bureau of Labor Statistics

Chart V portrays the changes in the non-electrical machinery employment in Ingham County, Michigan and the United States for the past eight years. It is readily apparent that Ingham County employment has been lagging behind Michigan and the United States since 1954. Prior to that date, between 1950 and 1954, the group's employment had been increasing at a faster rate in Ingham County than in the rest of the nation and state.

The tool and die making business, an important sector of this group, faces a relatively poor future. This is primarily due to the general trend of major automotive producers to undertake their own tool and die work instead of subcontracting it to smaller firms. The major reason for this trend is the nature of their labor contracts, which make unemployment expensive, and encourage stability of employment. Hence they are increasingly tending to integrate their operations in an effort to keep their labor force fully employed.

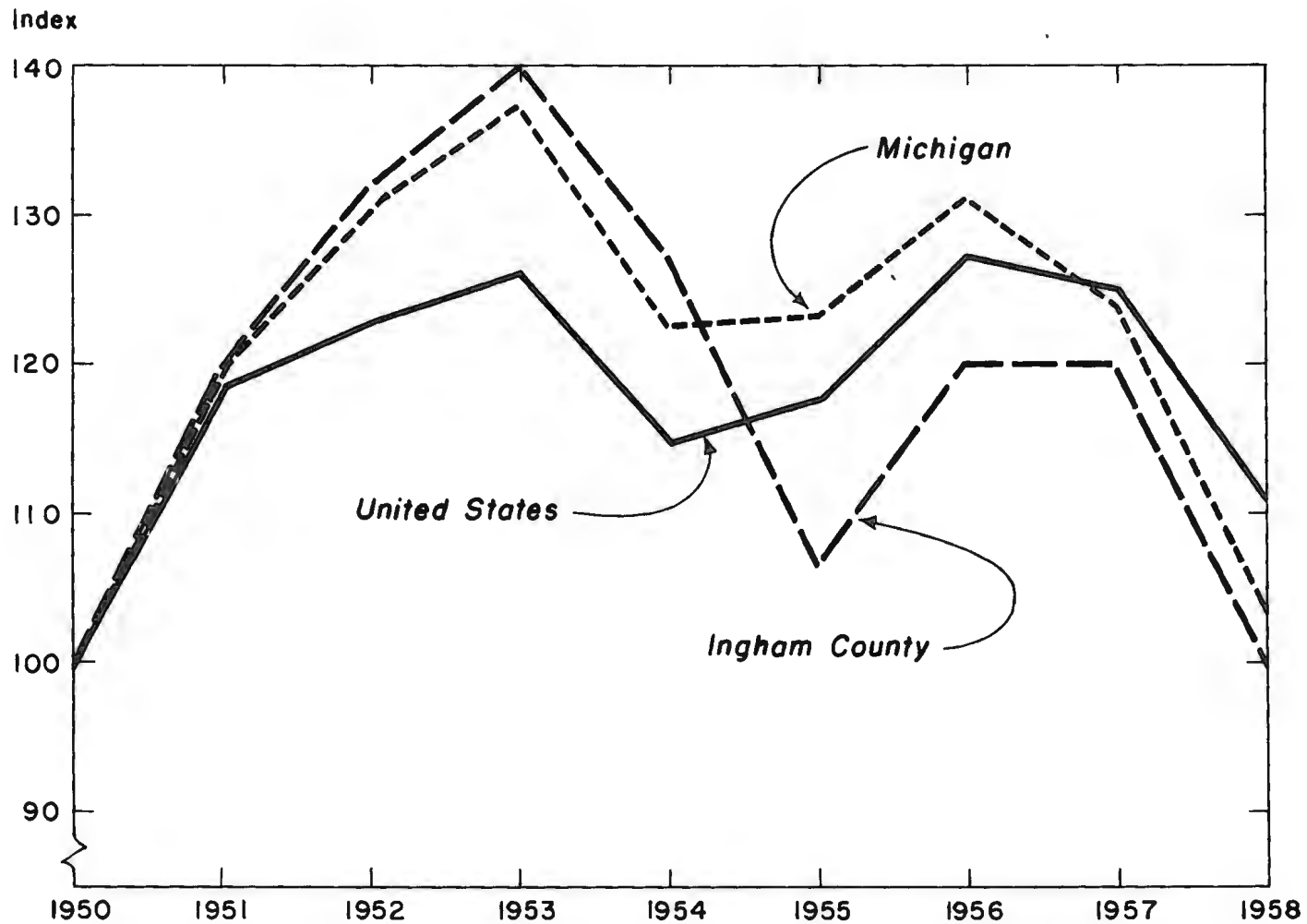
There are various other durable goods industries in the Tri-County Area which are of less importance. Among these are lumber and wood products, furniture and fixtures, stone and clay, and miscellaneous manufactures groups. Altogether they accounted for about 4.0 percent of the total manufacturing employment in 1958, with a share of approximately 3.3 percent of total manufacturing payroll.

Of these four industries, stone and clay manufacturing has recently shown a noteworthy change, with doubled employment between 1954 and 1958. During this period the number of establishments engaged in this kind of manufacturing also increased. Although there may not be a spectacular future advance, the group is a prospering one. Its future success, of course, will be dependent upon the state of local construction activities and the industry's capabilities of satisfying local needs.

#### The Nondurable Goods Industries

In 1958 the nondurable goods division had 39 percent of the establishments, 10 percent of the employment, and paid out about 10 percent of the wages in the manufacturing industries. Among the nondurables, the food and kindred products industry has a special importance in the Tri-County Area. The group comprises not only about 18 percent of all manufacturing establishments, but in addition about 5 percent of all manufacturing employment was in this area as well as 4.5 percent of payrolls. The importance of this group may be traced to the increasing population, a factor which is reflected in the increasing demand for food products, and to the agricultural nature of the area, which facilitates the local supply of raw materials. Moreover, the availability of relatively low priced labor in this category eases considerably the difficulties of founding new establishments. Almost most of the establishments in this group (41 out of 58 in 1954) employ 19 or less, there has been some tendency for an increase in size over the period 1954 to 1958, as indicated by the fact that their number has decreased while the total employment of the group has increased.

**Chart V**  
**Indexes of Non-Electrical Machinery Employment, in Ingham County, Michigan,**  
**and the United States, 1950-1958 (1950=100)**



Sources: Michigan Employment Security Commission and U.S. Bureau of Labor Statistics

The meat packing, bakery and beverage industries accounted for about one-third of all the employment in the foods and kindred products group in 1958, with more than half of the workers being employed by the dairy industry. These industries are characterized by small establishments, scattered among the three counties, with some larger companies (employing up to 100 persons) located principally in Ingham County. All local companies in the industries manufacturing food and kindred products face ever-increasing competition from larger distributors and processors having their headquarters outside the area. The problem of meeting the competition represented by the "captive" local establishments served by national chains which are well organized, efficient, and financially better equipped to handle large scale operations, has been forcing the locally-owned companies in these industries to improve their operations through consolidation, cooperative effort among independents to secure economies of scale by bulk buying and cooperative advertising, and substantial efforts to introduce modern equipment and eliminate unprofitable lines.

Printing and publishing is the second most important industry among those producing nondurables manufactures. As is the case with this industry on a national scale, the local companies have not only been gaining in importance but also represent great growth potential for the future. This growth and expansion is mainly a function of the increasing demands of Michigan State University and the state government. The future growth of the university will increase further the demand for the products of this industry, and the growth of the state government will also be a contributing factor. Most of the printing establishments scattered among the three counties are relatively small and employ less than 20 persons. Some larger firms are located in Ingham County, and these especially benefit from the strong demand generated by the university and the state capital. About half of all the employment in the printing industry in the Tri-County Area is associated directly with newspapers, with the other half dependent upon commercial printing.

The nondurable goods industries have been gaining importance locally both in terms of their increasing share of total payroll and employment. While this is to some extent due to the absolute growth of the industries, the changing relative position also reflects the declining role of the durable goods manufactures.

#### New Manufacturing Industries

There have been two new areas of growth in the manufacturing sector since World War II. One is in aluminum products and the other is in plastics. In both instances, local capital and enterprise led the way in establishing new firms and pioneers markets. In the case of aluminum extrusions one of the country's most progressive firms was established in the Tri-County Area and now ranks in sales among the top 10 percent of the 200 companies throughout the nation making aluminum extrusions.

Aluminum is one of the light metals of really spectacular growth, the use of which may well quadruple by 1975. Some estimators predict that eventually the building

industry alone may take as much aluminum as sufficed for all uses in 1957. Aluminum makers also hope to see an increasing number of auto parts, including engine blocks, made from aluminum. They point to the fact that in ten years since World War II the aluminum used by the auto industry rose from two to 45 pounds per car.

Output and employment of this industry in the Tri-County Area have risen steadily in the last ten years. Bar aluminum is imported from Canada by rail and converted into extruded shapes mainly for the furniture and refrigerator industries. The finished product is shipped by road to manufacturers in Michigan, Ohio, Illinois and other mid-western states. Management is confident that markets will continue to expand, but feels that most expansion in the future will tend to follow markets. This forecast is based upon the fact that aluminum extrusions are easily damaged in long transit and are frequently of awkward shape.

Experiments are also underway to explore the consumer product market. At present only one item is being marketed by the local industry but this is proving highly successful. It seems reasonable to suppose that this aspect of the industry also has a great future that could well be developed in this area.

There are three principal firms in the Tri-County Area engaged in the rapidly expanding and prospering plastics industry. The recent development of plastics used in tool and die model making has given rise to this new group. At present epoxy resins are being used for making tool and die models whereas previously wood was the primary material. There are also some half dozen small establishments which are about to engage in plastics manufacturing in the area.

Although epoxy resins are used extensively in the aircraft industry, they are scarcely used in the older and more conservative automotive group. A reason for not using plastics in the auto industry may be because of their comparatively short life. The life span of dies made of plastics is shorter than those of steel. However their flexibility, which allows alterations easily, more than offsets this shortcoming. In addition to this flexibility plastic dies are easier to work with; the desired shapes are obtained more easily than with any other material, with the lowest degree of tolerance. Furthermore they are less costly to produce. A very simple process using unskilled labor is required to make the resins. Thus producing epoxy resins would appear to be ideal for a small firm. According to the executives of present establishments it is conceivable that large manufacturers will not enter the picture for quite a while yet. Contingent upon the solution of the acute capital shortage and general acceptance of the product, this industry is believed to have a bright future. There is no reason why it should not prosper in the Tri-County Area.





## CHAPTER 5

### GOVERNMENT

Since Lansing is the seat of state government, it is the logical site for branch offices of many important federal agencies. In addition to the many state and federal government offices in Lansing the Tri-County Area also contains the usual apparatus of local government. Together these three layers of government constitute one of the most important economic sectors in the Tri-County economy, as demonstrated in the matrix. Government represents a significant market for several local manufacturers, especially those in the automotive industry, from whom the federal government purchased \$22 million worth of military vehicles.

It can be seen from the matrix that gross outlay of government totaled about \$251 million, or over 8 percent of gross Tri-County outlay from all sources. This \$251 million includes imports and exports by government, consumption of goods and services in the area, plus transfer payments. The largest single outlay consisted of direct and imputed payments to households amounting to 40 percent of total disbursements. \$57 million of this was paid out in wages and salaries to the 10,500 people employed by government. The second largest single disbursement was made for education, and totaled \$54.5 million. On the receipts side, households contributed \$130 million in various forms of taxes, fines and other payments for government services. The bulk of all other receipts, about \$119 million, was derived from taxes on business and industry. Governmental units exchanged \$14.8 million between themselves in the form of transfer payments of various kinds.

#### Different Accounting Concepts

It will be appreciated that statistical data can be presented in a variety of ways depending upon the type of questions which are being posed. The technical explanation of the inter-industry matrix points out that the matrix utilizes a special type of economic accounting distinct from conventional accounting systems. The end result is a set of figures classified so as to show the interrelationships of economic sectors comprising the Tri-County economic base.

The figures appearing in the two government sectors in the matrix were compiled or estimated from published sources and direct interviews with government agencies and firms transacting business with such agencies. However, the treatment

of these numbers for inclusion in the matrix precludes a direct comparison between some items as they appear in the matrix and as they are shown in government publications. All school expenditures, for example, are shown in published accounts as disbursements by school boards. In the matrix, on the other hand, school capital-expenditures are included in the state and local government sector. It is therefore important to realize that matrix totals differ, in some instances, from those shown in conventional financial reports. Such conceptual differences can be extremely misleading unless they are constantly borne in mind. In spite of such dangers it seems highly desirable to discuss the government sector in terms of conventional accounting. This approach facilitates the solution of different kinds of problems and brings together in one place important details about government finances that are not readily available anywhere else. Hence, throughout the remainder of this chapter, government will be discussed in terms of receipts and expenditures as reported by the various governmental agencies. This approach utilizes the definitions and accounting concepts used in governmental accounting. For example, school taxes collected by different agencies for the various school boards are not reported as receipts accruing to the collecting agencies, since these agencies are regarded simply as trustees of School Board funds. Statistics relating to education are dealt with in detail in the chapter on Education and Services, and only direct expenditures on education by state and federal government are included in this chapter.

If the relationships between matrix accounting and conventional accounting exemplified in the treatment of education are borne in mind it is easy to avoid drawing erroneous comparisons between the data presented in various parts of this report. These data are valuable as throwing light upon the Tri-County economy from different viewpoints.

### Townships and Municipalities

The standard township in Michigan consists of a 36-square-mile area; this is generally the case with the three counties with which we are dealing, excepting some of the townships within Ingham County. Although the areas may be relatively standard, the 1950 Census demonstrates that there is considerable variation when other factors are examined: For example, the population figures for the above-mentioned year show that the townships within the bounds of our study run from a rural area containing 737 persons to an urbanized area containing better than 17,600 persons.

Although the 48 townships do show a variety, they also exhibit a certain unity in their general powers and governing structure. Blawie and Blawie note in this connection that "in our day, the township may not act unless it is permitted to do so by the constitution or statutes of Michigan, or by an interpretation of the common law by the Supreme Court of Michigan" (p. 7).

Townships are governed by an elected township board, consisting of the super-

visor, treasurer, clerk and two trustees in most cases. The first three officers mentioned have two-year terms, while the trustees have staggered four-year terms. Larger townships may, however, elect to have two additional trustees. Under this system the township board is the legislative body for the township and the supervisor is generally the agent of the township for the conduct of all legal business.

Within the bounds of the 15-mill constitutional limitation on property taxes and other statutory limitations, the township may use money from this source for ordinary and emergency expenses. The townships also receive a share of the intangible personal property tax, sales taxes and Highway Fund collected by the state. Beyond the limited ordinary expenses the board is severely restricted. Other expenditures must be approved by the electorate, and the funds so raised must be earmarked for the special purposes involved.

Under the statutes giving the boards general ordinance-making powers, they are empowered to act regarding matters of health, fire, police, traffic, parking, and sidewalks. In some matters, such as health and police, the township can contract with county officials to have the functions handled. The townships also have powers to zone, engage in road construction, public works, planning, and, most important, the assessment of property for taxing purposes.

Even so limited a survey of their structure and operation makes it clear that the townships still are very important units in our structure of government under the constitution and laws of Michigan.

### Receipts

There are 75 cities, villages and townships in the Tri-County Area. Of the 27 cities and villages, ten are in Eaton County, nine in Clinton and eight in Ingham County. The three types of unit will be handled as a single entity, though in some instances they may be discussed separately in order to provide a better perspective.

These 75 units had a combined total income in fiscal 1958 exceeding \$15.2 million. In addition to this amount they also received \$15 to \$16 million in receipts from municipally-owned utilities. Income of utilities is discussed with services and is therefore ignored in this chapter.

Of this total of \$15.2 million, approximately 84 percent, or \$12.8 million, was received by units in Ingham County. Those in Eaton County accounted for another 10 percent, or \$1.5 million. The remaining 6 percent, or \$.9 million, was received by the cities, villages and townships in Clinton County.

Table 1 presents a breakdown of the dollar amounts and the percentages by types of unit by county. The category called Municipalities in this table includes both cities and villages--a classification that will be carried throughout the government sector unless otherwise noted.

TABLE 1

LOCAL GOVERNMENT RECEIPTS BY COUNTY AND UNIT FOR 1958

	<u>Municipalities</u>		<u>Townships</u>		<u>Total</u>	
	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>
Clinton	\$ 656,099	73.03	\$ 242,327	26.97	\$ 898,426	100
Eaton	1,263,886	83.58	248,225	16.42	1,512,111	100
Ingham	12,096,013	94.33	727,338	5.67	12,823,351	100
Tri-County	\$14,015,998	92.01	\$1,217,890	7.99	\$15,233,888	100

SOURCE: Michigan Municipal Finance Commission

This table clearly demonstrates the preponderant financial position that municipalities hold relative to the townships. Approximately 92 percent of all the money received by these units in the Tri-County Area is received by the municipalities. This amounts to approximately \$14 million of the total of \$15.2 million.

The 92 percent figure does not, however, reflect the variance that exists between the cities and villages and the townships. In Clinton County, for example, the townships receive 26.97 percent of the receipts and the municipalities 73.03 percent. In Eaton County the figures are 83.58 percent for municipalities and 16.42 percent for the townships. The municipalities in Ingham County receive in excess of 94 percent of the total receipts. This variation can be attributed in part to the population concentrations both within the individual counties and within the Tri-County Area.

Table 2 shows the division of receipts for all cities, villages and townships by source. A number of the categories are self-explanatory; a few warrant comment. The State Aid group includes receipts from sales tax diversion, the Motor Vehicle Highway Fund, liquor retailer licenses, intangibles tax and any other receipts from the state, excepting payments for trunk-line maintenance, which is listed separately. The Water-Sewage category includes revenues from those utilities not classified under the 1933 Revenue Bond Act. The Other category includes such widely varied items as parking meter receipts, local licenses and permits, fines and fees, receipts from the sale of property and a variety of other miscellaneous revenues.

The percentage figures for each of these sources show that for the Tri-County Area the single most important source of receipts is the Property Tax, which accounts for over 39 percent of the revenue. An additional 27 percent is accounted for by State Aid. This category is closely followed by miscellaneous other revenues, which accounts for approximately 25 percent of the receipts. The remaining 9 percent is accounted for

TABLE 2

TRI-COUNTY MUNICIPAL AND TOWNSHIP RECEIPTS BY SOURCE FOR 1958

<u>Source</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Property Tax	\$221,006	24.60	\$ 417,803	27.63	\$ 5,354,672	41.76	\$ 5,993,481	39.34
State Aid	398,273	44.33	540,021	35.71	3,169,812	24.72	4,108,106	26.97
Trunk-Line Maintenance	6,339	.71	22,301	1.47	133,840	1.04	162,480	1.07
Water-Sewage	135,441	15.07	252,191	16.68	823,940	6.43	1,211,572	7.95
Other	137,367	15.29	279,795	18.51	3,341,087	26.05	3,758,249	24.67
Total	\$898,426	100.00	\$1,512,111	100.00	\$12,823,351	100.00	\$15,233,888	100.00

SOURCE: Michigan Municipal Finance Commission

TABLE 3

TRI-COUNTY TOWNSHIP RECEIPTS BY SOURCE FOR 1958

<u>Source</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Property Tax	\$ 30,070	12.41	\$ 50,596	20.38	\$171,886	23.63	\$ 252,552	20.74
State Aid	197,189	81.37	178,936	72.09	472,894	65.02	849,019	69.71
Other	<u>15,068</u>	<u>6.22</u>	<u>18,693</u>	<u>7.53</u>	<u>82,558</u>	<u>11.35</u>	<u>116,319</u>	<u>9.55</u>
Total	\$242,327	100.00	\$248,225	100.00	\$727,338	100.00	\$1,217,890	100.00

SOURCE: Michigan Municipal Finance Commission

TABLE 4

## TRI-COUNTY MUNICIPAL RECEIPTS BY SOURCE FOR 1958

<u>Source</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Property Tax	\$190,936	29.10	\$ 367,207	29.05	\$ 5,182,786	42.85	\$ 5,740,929	40.96
State Aid	201,084	30.65	361,085	28.57	2,696,918	22.30	3,259,087	23.25
Trunk-Line	6,339	.97	22,301	1.77	133,840	1.11	162,480	1.16
Water-Sewage	135,441	20.64	252,191	19.95	823,940	6.81	1,211,572	8.64
Other	<u>122,299</u>	<u>18.64</u>	<u>261,102</u>	<u>20.66</u>	<u>3,258,529</u>	<u>26.93</u>	<u>3,641,930</u>	<u>25.99</u>
Total	\$656,099	100.00	\$1,263,886	100.00	\$12,096,013	100.00	\$14,015,998	100.00

SOURCE: Michigan Municipal Finance Commission

by the Trunk-Line Maintenance (1 percent) and the Water-Sewage categories (8 percent).

Variations are apparent in the individual counties. For example, in Ingham County the Property Tax accounts for approximately 42 percent of the total receipts. This category is followed by the figure of approximately 26 percent for Other Receipts, which is one percent above the figure for State Aid. In Clinton and Eaton Counties, however, State Aid ranks first, with approximately 44 percent and 36 percent respectively.

To distinguish among the varying patterns that exist in the municipalities and townships, the receipts for these two types of units are presented in dollar and percentage amounts by sources in Tables 3 and 4. There is a striking difference in the sources of receipts. For municipalities in the Tri-County Area the Property Tax is still the single most important source of revenue, providing almost 41 percent of the total receipts. In the case of townships this source supplies only 21 percent, whereas State Aid assumes the dominant position, with almost 70 percent.

The above two tables also show variation still exists among the counties even when municipalities and townships are treated separately.

#### Expenditures

Expenditures by the local governments in the Tri-County Area for fiscal 1958 were slightly higher than receipts, being approximately \$16 million as compared to the receipts figure of \$15.2 million. Of this \$16 million in expenditures, approximately 85 percent was spent by local governments in Ingham County. Of the remaining 15 percent, 9 percent was expended by the units in Eaton County and the remaining 6 percent by those in Clinton County.

TABLE 5

#### TOTAL EXPENDITURES FOR MUNICIPALITIES AND TOWNSHIPS FOR 1958

<u>Unit</u>	<u>Municipalities</u>		<u>Townships</u>		<u>Total</u>	
	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>
Clinton	\$ 625,625	71.8	\$ 246,009	28.2	\$ 871,634	100
Eaton	1,279,587	83.4	255,189	16.6	1,534,776	100
Ingham	12,834,378	94.6	735,537	5.4	13,569,915	100
Tri-County	\$14,739,590	92.3	\$1,236,735	7.7	\$15,976,325	100

SOURCE: Michigan Municipal Finance Commission



Table 5 lists a breakdown of expenditures by county and type of unit. It serves to confirm the fact that the cities and villages occupy the major position in our restricted local government complex.

Total expenditures, however, give only the broadest possible picture, and a functional breakdown is desirable. Such a breakdown is presented in Table 6.

The categories used in these tables correspond to those commonly used in discussing local government expenditures. For example, Police, Fire and Capital Outlay are standard and self-explanatory. General Government covers disbursements for the executive, legislative, and judicial branches. Highways and Streets includes expenditures by the townships for highway purposes, plus expenditures by municipalities for street maintenance, cleaning, and snow removal on slightly over 500 miles of streets.

It is evident from Table 6 that the largest single group is Other. While this categorization is open to question, it is forced upon us in part by the data available and the unusual nature of the governmental complex in the Tri-County Area. It includes expenses which are for the most part peculiar to individual municipalities and townships. A partial list of these items would include pension payments, contract relief, sewer maintenance and rental costs. In addition, as shall be shown at a later point, this category, as well as the total local government picture as we have defined it, is heavily dominated by the city of Lansing.

Returning to Table 6, and temporarily ignoring the category of Other expenditures, we find the largest single item in the Tri-County Area to be the 18.24 percent of Capital Outlay. It is also evident, however, that this grouping shows the considerable variation among the counties, ranging from slightly under .7 percent in Clinton County to over 21 percent in Ingham County. This is also true of Highways and Streets, which varies from 31 percent in Clinton County to 5 percent in Ingham County.

The next largest expenditure is for fire protection. This amounts to approximately 12 percent of the total expenditures by the local governments. Although it too shows some variation among the counties, ranging from 6 percent in Clinton to 13 percent in Ingham, it is less varied than Capital Outlay. Its sister category, Police, shows only a 3 percentage point variation between counties and accounts for over 9 percent of local government expenditures. This is the smallest category of expenditures, aside from the 6.64 percent for General Government.

To show what differences may exist between the expenditure patterns for municipalities and townships, Tables 7 and 8 are included. They reveal that, on the average, expenditures for General Government, Highway and Fire constitute a considerably larger proportion for townships than for municipalities. Police and Capital Outlay, on the other hand, are much larger for the latter. One qualification should

TABLE 6

## MUNICIPAL AND TOWNSHIP EXPENDITURES BY FUNCTIONAL CATEGORY FOR 1958

<u>Function</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
General Government	\$ 97,868	11.23	\$ 216,903	14.13	\$ 745,895	5.50	\$ 1,060,666	6.64
Police	63,880	7.33	103,863	6.77	1,321,208	9.74	1,488,951	9.32
Fire	54,583	6.26	102,507	6.68	1,806,296	13.31	1,963,386	12.29
Highways and Streets	272,824	31.30	314,054	20.47	737,892	5.44	1,324,770	8.29
Capital Outlay	5,878	.67	39,433	2.57	2,868,688	21.14	2,913,999	18.24
Other	<u>376,601</u>	<u>43.21</u>	<u>758,016</u>	<u>49.38</u>	<u>6,089,936</u>	<u>44.87</u>	<u>7,224,553</u>	<u>45.22</u>
Total	\$871,634	100.00	\$1,534,776	100.00	\$13,569,915	100.00	\$15,976,325	100.00

SOURCE: Municipal Finance Commission

TABLE 7

## MUNICIPAL EXPENDITURES BY FUNCTION FOR 1958

<u>Function</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
General Government	\$ 63,250	10.11	\$ 185,072	14.46	\$ 644,556	5.02	\$ 892,878	6.06
Police	56,632	9.05	103,409	8.08	1,281,220	9.98	1,441,261	9.78
Fire	33,051	5.28	74,607	5.83	1,632,262	12.72	1,739,920	11.80
Streets	165,536	26.46	234,596	18.33	654,911	5.10	1,055,043	7.16
Capital Outlay	5,879	.94	33,273	2.60	2,858,656	22.27	2,897,808	19.66
Other	<u>301,277</u>	<u>48.16</u>	<u>648,630</u>	<u>50.70</u>	<u>5,762,773</u>	<u>44.91</u>	<u>6,712,680</u>	<u>45.54</u>
Total	\$625,625	100.00	\$1,279,587	100.00	\$12,834,378	100.00	\$14,739,590	100.00

SOURCE: Michigan Municipal Finance Commission

TABLE 8

## TOWNSHIP EXPENDITURES BY FUNCTION FOR 1958

<u>Function</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
General Government	\$ 34,618	14.07	\$ 31,831	12.47	\$101,339	13.78	\$ 167,788	13.57
Police	7,248	2.95	454	.18	39,988	5.44	47,690	3.86
Fire	21,531	8.75	27,900	10.93	174,035	23.66	223,466	18.07
Highway	107,289	43.61	79,458	31.14	82,981	11.28	269,728	21.81
Capital Outlay	---	---	6,160	2.41	10,031	1.36	16,191	1.31
Other	<u>75,323</u>	<u>30.62</u>	<u>109,386</u>	<u>42.87</u>	<u>327,163</u>	<u>44.48</u>	<u>511,872</u>	<u>41.38</u>
Total	\$246,009	100.00	\$255,189	100.00	\$735,537	100.00	\$1,236,735	100.00

SOURCE: Michigan Municipal Finance Commission

be added: the Streets and Highway categories are not strictly comparable, the latter category apparently being somewhat broader in the case of the townships.

In concluding this section a few final remarks are in order. First, at no point has the question of debt or debt retirement expenditures been mentioned. Let us note that the local governments in the area are paying approximately \$841,000 a year on all forms of bonded indebtedness, excluding interest. The total current debt, the last of which is to be retired by 1992, amounts to \$19,362,000. Over \$17 million of this amount is attributable to the units in Ingham County. It should also be noted that over \$725,000 of the annual payment figure was included in the Other expenditure category.

Second, it has been pointed out that the cities of Lansing and East Lansing hold a dominant financial position in the area. Together these two units account for over 92 percent of the receipts and disbursements of local governments in Ingham County. Of all receipts and disbursements by local governments in the Tri-County Area these two account for approximately 78 percent. Of this amount Lansing accounts for 72 percent and East Lansing for the remaining 6 percent. These figures serve to emphasize that the listed totals which include these two cities are heavily weighted by virtue of the large amounts of money handled by them.

#### County

##### Receipts

In 1958 the total receipts accruing to the three county governments in the area amounted to approximately \$9 million. This excludes a wide variety of other receipts

of a trust and agency nature, in which the county acts merely as an agent in receiving and disbursing such income to or for some governmental unit other than the county or to or for some other individual or outside organization<sup>1</sup>. . .

Since our most accurate and comprehensive data cover the period from January, 1948, to December, 1957, a great proportion of the discussion will be concerned with this period. In 1957 the county governments of the area received \$8.5 million. This amount represented approximately 3 percent of the total revenue of \$247,040,600 received by all counties in the state. Wayne County received over a third of this amount, with a total income of \$91.9 million. Of the \$8.5 million received by counties in this area, approximately 70 percent, or \$5.9 million, was received by Ingham County. The remainder was split almost equally between the other two counties, with Eaton County receiving approximately 16 percent and Clinton County 14 percent of the total.

Table 9 shows the total revenue for the three counties in the area, the Tri-County total and that for all counties in Michigan from 1948 to 1957. With the exception of Eaton County, all revenues have more than doubled. However, it is also apparent that the total percentage increase for the Tri-County Area (103.5 percent) is considerably less than the increase in revenues for all counties in the state (135.3 percent). Of

the three counties in the area, Clinton and Ingham showed increases of comparable size, 104.5 percent and 111 percent respectively, whereas Eaton County was far behind with an increase of only 76.2 percent.

TABLE 9

TOTAL REVENUE FOR ALL COUNTIES IN MICHIGAN AND IN THE  
TRI-COUNTY AREA 1948-1957  
(\$000)

<u>Year</u>	<u>Michigan</u>	<u>Tri-County</u>	<u>Ingham</u>	<u>Eaton</u>	<u>Clinton</u>
1948	104,984.5	4,182.2	2,805.9	789.2	587.1
1949	121,539.7	4,875.7	3,262.9	935.5	677.3
1950	129,939.9	5,242.5	3,600.3	879.7	762.5
1951	141,914.5	5,382.7	3,462.4	1,021.2	899.1
1952	155,029.8	5,926.4	3,996.4	1,077.9	852.1
1953	169,960.3	5,998.2	3,965.0	1,103.1	930.1
1954	183,487.9	6,468.3	4,154.0	1,350.9	963.4
1955	199,329.0	7,049.2	4,835.8	1,240.6	972.8
1956	227,193.7	8,142.3	5,753.1	1,299.3	1,089.9
1957	247,040.6	8,510.3	5,919.4	1,390.5	1,200.4

SOURCE: Auditor General, State of Michigan

A breakdown of the total revenues reveals four general classes of receipts: Taxes, State Aid, Refunds and Reimbursements, and All Other Revenue. The first category includes only property taxes or payments in lieu of such taxes. State Aid includes state payments for highways, health, welfare and medical, plus some miscellaneous aid in the more recent years; however, the first two items dominate this category. The major portion of Refunds and Reimbursements comes from repayments by hospital and relief clients who have previously received assistance from the counties. All Other Revenue includes such items as receipts from fines, fees, permits, township appropriations to county road commissions, interest on investments and various other miscellaneous receipts. Figures for this fourfold classification of receipts for Michigan and the Tri-County Area are presented in Table 10.

Table 10 shows that local taxes constitute the largest single source of revenue for all counties in the state as well as those in the Tri -County Area. Next comes State Aid, followed by All Other Revenue, and Refunds and Reimbursements. This ranking has been maintained, with very little variation, throughout the period.

TABLE 10

TRI-COUNTY AND MICHIGAN GOVERNMENT REVENUES, 1948-1957  
(\$000)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Tri-County Total County Revenue	4,182.2	4,875.7	5,242.5	5,382.7	5,926.4	5,998.2	6,468.3	7,049.2	8,142.3	8,510.3
Taxes	1,947.1	2,256.6	2,781.2	2,711.1	2,721.7	2,807.0	2,763.7	3,193.7	3,875.3	3,949.9
Refunds and Reimbursements	352.4	350.1	395.6	228.9	251.9	280.2	329.9	394.5	403.7	405.3
All Other Revenue	372.5	554.1	460.6	545.1	836.6	627.9	944.2	850.2	798.0	801.9
State Aid	1,510.2	1,714.9	1,605.1	1,897.6	2,116.2	2,283.1	2,430.5	2,610.8	3,065.3	3,353.2
Highways	1,161.4	1,268.2	1,215.9	1,517.4	1,727.2	1,927.5	1,948.3	2,166.5	2,441.5	2,575.1
Health, Welfare, Medical	348.8	446.7	389.2	380.2	389.0	355.6	482.2	436.2	585.1	718.3
Other								8.1	38.7	59.8
Michigan Total County Revenue	104,984.5	121,539.7	129,939.9	141,914.5	155,029.8	169,960.3	183,487.9	199,329.0	227,193.7	247,040.6
Taxes	50,672.6	60,460.9	67,089.2	70,844.3	76,046.5	81,093.6	88,300.8	94,354.3	112,564.1	122,144.8
Refunds and Reimbursements	5,263.8	5,151.2	5,126.8	6,302.1	8,064.3	10,267.0	9,742.3	11,212.9	12,433.6	13,043.2
All Other Revenue	9,623.9	12,332.9	13,159.8	14,573.1	15,931.2	19,950.0	22,465.1	23,972.7	24,603.8	26,728.7
State Aid	39,424.2	43,594.7	44,564.1	50,195.4	54,987.8	58,649.7	62,979.7	69,789.1	77,592.2	85,123.9
Highways	31,060.3	32,255.7	32,109.1	40,581.9	44,758.0	49,737.0	50,863.5	57,319.4	64,169.5	67,882.6
Health, Welfare, Medical	8,363.9	11,339.0	12,455.0	9,613.5	10,229.8	8,912.7	12,116.2	12,315.7	12,850.1	16,189.3
Other								154.0	572.6	1,052.0
Ingham Total County Revenue	2,805.9	3,262.9	3,600.3	3,462.4	3,996.4	3,965.0	4,154.0	4,835.8	5,753.1	5,919.4
Taxes	1,363.7	1,592.8	1,981.3	1,856.3	1,885.0	1,974.1	1,962.4	2,417.5	2,979.2	2,973.4
Refunds and Reimbursements	281.0	312.4	346.8	190.3	207.1	242.2	284.6	356.6	355.6	358.5
All Other Revenue	226.8	249.6	242.8	237.7	576.3	341.4	376.8	462.3	486.6	443.7
State Aid	934.4	1,108.1	1,029.4	1,178.1	1,328.0	1,407.3	1,530.2	1,599.4	1,931.7	2,143.8
Highways	649.0	733.2	715.4	895.1	995.6	1,123.3	1,114.9	1,237.4	1,397.8	1,480.2
Health, Welfare, Medical	285.4	374.9	314.0	283.0	332.4	284.0	415.3	353.9	501.3	615.1
Other								8.1	32.6	48.5
Eaton Total County Revenue	789.2	935.5	879.7	1,021.2	1,077.9	1,103.1	1,350.9	1,240.6	1,299.3	1,390.5
Taxes	369.9	411.0	452.2	492.1	503.8	499.3	466.5	466.5	530.3	582.2
Refunds and Reimbursements	44.2	7.4	21.3	13.5	18.6	15.2	15.6	18.6	22.6	21.6
All Other Revenue	71.4	204.2	110.4	134.0	138.7	132.6	393.1	222.4	148.9	156.7
State Aid	303.7	312.9	295.8	381.6	416.8	456.0	475.7	533.1	597.5	630.0
Highways	263.9	276.4	260.1	326.9	388.6	420.5	434.6	482.3	541.9	567.5
Health, Welfare, Medical	39.8	36.5	35.7	54.7	28.2	35.5	41.1	50.8	52.2	57.0
Other								---	3.4	5.5
Clinton Total County Revenue	587.1	677.3	762.5	899.1	852.1	930.1	963.4	972.8	1,089.9	1,200.4
Taxes	213.5	252.8	347.7	362.7	332.9	333.6	334.8	309.7	365.8	394.3
Refunds and Reimbursements	27.2	30.3	27.5	25.1	26.2	22.8	29.7	19.3	25.5	25.2
All Other Revenue	74.3	100.3	107.4	173.4	121.6	153.9	174.3	165.5	162.5	201.5
State Aid	272.1	293.9	279.9	337.9	371.4	419.8	424.6	478.3	536.1	579.4
Highways	248.5	258.6	240.4	295.4	343.0	383.7	398.8	446.8	501.8	527.4
Health, Welfare, Medical	23.6	35.3	39.5	42.5	28.4	36.1	25.8	31.5	31.6	46.2
Other								---	2.7	5.8

SOURCE: Auditor General, State of Michigan

Although stability has been the keynote, some trends are discernible. First is the slight downward trend of State Aid to all counties as compared with its slight upward trend in the Tri-County Area. Second, Property Taxes have been almost a constant percentage of revenue throughout the state whereas they show a slightly decreasing trend in the Tri-County Area. Third, Refunds and Reimbursements tend to be decreasing in importance in the Tri-County Area but stable throughout the state. Last, All Other Revenue shows a small increase in both the Tri-County and the state.

Table 10 also presents the sources of revenues for the individual counties in the area. It shows that the same order of importance mentioned earlier tends to hold for Ingham County, excepting the years 1948 to 1950, when Refunds and Reimbursements exceeded the All Other category. In the cases of Eaton and Clinton Counties there is considerably more variation. For example, except for 1950 and 1951, the percentage of revenue received from State Aid exceeds the percentage from Taxes in Clinton County. In Eaton County this also occurred from 1954 through 1957. The rank order was constant, however, for the other two categories in these counties.

Since State Aid payments are made for two specific categories, Highways, and Health and Welfare, it is of interest to compare the proportion of State Aid going to each. For the Tri-County as a whole, payments for Highways varies between 74 and 84 percent of total State Aid disbursed. Comparable figures for the state are 72 and 85 percent. There is a much wider variation between individual counties in the Tri-County. For example, in any given year no more than 80 percent of Ingham's aid was for highways, whereas in the other two counties the figure was never less than 85 percent.

### County

#### Expenditures

In 1958 the three county governments in the Tri-County Area were spending an estimated \$9 million. A more precise figure is available for 1957, when \$8,549,300 was expended by Tri-County governments. Of this amount, \$8,104,300 was spent for county government functions, \$444,300 for capital outlay and the remaining \$700 went for interest on short-term debt. As of 1957, these counties did not have any outstanding long-term debts.

The \$8.5 million represented slightly over 3 percent of the total amount of \$250,645,600 expended by all counties in the state. Of this amount, \$222,666,300 was spent for county government functions, \$26,988,000 for capital outlay and \$991,300 for interest on debts.

Table 11 lists County Government Expenditures from 1948 to 1957. County



Government Functions and Total Expenditures, excluding debt payments, are shown separately. The difference between the two columns is the amount spent for capital outlay and interest on debts.

TABLE 11  
 COUNTY GOVERNMENT EXPENDITURES FOR THE TRI-COUNTY  
 AREA AND THE STATE 1948-1957 (\$000)

Year	<u>Tri-County</u>		<u>All Counties</u>	
	<u>Government Functions</u>	<u>Total Expenditures</u>	<u>Government Functions</u>	<u>Total Expenditures</u>
1948	4,030.7	4,278.2	101,403.3	108,804.0
1949	4,522.2	4,740.6	110,961.1	119,406.3
1950	4,724.3	5,049.6	120,059.8	129,265.7
1951	4,510.1	4,997.4	129,895.3	139,897.7
1952	5,048.9	5,651.7	146,404.9	159,079.6
1953	5,386.2	5,931.8	156,102.3	170,664.2
1954	5,885.1	6,528.5	168,787.3	184,384.3
1955	6,267.2	6,757.4	178,568.9	193,438.4
1956	7,354.8	8,309.5	206,490.4	227,400.4
1957	8,104.3	8,549.3	222,666.3	250,645.6

SOURCE: Auditor General, State of Michigan

An analysis of this table shows that since 1948 expenditures have increased more throughout the state than they have in the Tri-County Area. It is also apparent that there is a greater percentage difference between Total Expenditure increases for all counties and the Tri-County Area (130.4 percent to 99.8 percent) than there is between the two figures for expenditures on County Government Functions (119.6 percent to 101.1 percent). These differences indicate that the greatest disparity between all counties in the state and the Tri-County Area is the faster rate of increase of expenditures for capital outlay and interest payments in the former as compared to the latter.

Table 12 lists expenditures for county government functions and total expenditures by counties for Clinton, Eaton and Ingham Counties separately. As was the case with revenues, this table makes evident the dominance of Ingham.

In analyzing expenditures for government functions (Table 13), the following five categories are used: (1) Administrative and Operating Expenses (A & O); (2) Maintenance and Construction of Highways (M & CH); (3) Health, Medical and Welfare (HM & W); (4) Maintenance and Construction of Drains (M & CD); and (5) Miscellaneous

County Government Functions (Misc.). In addition to these categories, capital outlay and interest on debt are utilized, but are not considered as a part of expenditures for county government functions.

TABLE 12  
EXPENDITURES FOR COUNTY GOVERNMENT FUNCTIONS AND  
TOTAL EXPENDITURES FOR INDIVIDUAL COUNTIES, 1948-1957  
(\$000)

Year	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>	
	Government Functions	Total Expenditures	Government Functions	Total Expenditures	Government Functions	Total Expenditures
1948	620.0	672.9	681.1	727.8	2,729.6	2,878.3
1949	632.0	703.4	828.1	873.8	3,062.1	3,163.4
1950	719.3	836.2	820.9	856.1	3,184.1	3,357.3
1951	806.1	872.0	843.5	867.4	2,860.5	3,258.0
1952	795.2	851.4	907.1	984.3	3,346.6	3,816.0
1953	824.1	864.8	972.3	1,045.3	3,589.8	4,021.2
1954	881.3	903.5	975.5	1,316.9	4,028.3	4,308.1
1955	816.4	879.6	1,023.5	1,161.6	4,427.3	4,716.2
1956	1,014.4	1,083.8	1,197.7	1,271.1	5,142.7	5,954.6
1957	1,063.9	1,176.7	1,381.6	1,444.5	5,658.8	5,928.1

SOURCE: Auditor General, State of Michigan

Category 1, A & O, includes "the operational costs of the offices of county treasurer, county clerk, register of deeds, county abstractor, judge of probate, sheriff, prosecuting attorney, circuit court, school commissioner, board of county auditors, county controller, and board of supervisors" (Aud. Gen., 1952, p. 5). In addition, the costs of numerous other smaller agencies are included. Category 2, M & CH, is self-explanatory; however, it should be noted that debt retirement and capital outlay are not included in the amounts. Category 3 consists of all expenditures for public health activities, hospitalization, and all forms of public relief or assistance administered by the county. Category 4 requires no comment, and Category 5 is a residual grouping. Included here are such things as county airports, county parks and county libraries.

Table 13 lists the amounts spent on these functions by county governments in the Tri-County Area and in the state of Michigan. In all cases it is evident that since 1948 the expenditures have increased, and that the largest item of county expenditures

TABLE 13

EXPENDITURES BY FUNCTION FOR COUNTY GOVERNMENTS, 1948-1957  
(\$000)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>
<b>Administrative and Operating Expenses</b>										
Tri-County	705.1	741.8	774.8	839.3	929.9	1,001.0	1,134.2	1,200.3	1,390.0	1,580.9
State	22,277.3	23,301.0	26,716.5	28,755.2	31,102.6	33,484.1	36,618.5	39,177.2	43,346.5	48,148.8
<b>Maintenance and Construction of Highways</b>										
Tri-County	1,286.8	1,384.8	1,509.8	1,561.6	1,877.1	2,207.2	2,190.3	2,097.3	2,665.8	2,703.8
State	33,124.8	33,364.6	35,922.5	43,972.2	53,458.0	57,573.6	56,362.8	59,194.5	70,279.8	72,867.7
<b>Health, Medical and Welfare</b>										
Tri-County	1,685.9	1,944.2	1,903.1	1,653.7	1,771.0	1,776.4	2,185.4	2,375.3	2,735.3	3,203.9
State	38,025.2	44,856.1	48,718.1	47,409.2	51,729.3	53,568.0	61,141.9	65,804.3	72,375.2	82,851.4
<b>Maintenance and Construction of Drains</b>										
Tri-County	315.4	403.4	500.8	409.5	407.5	341.9	314.0	526.7	494.6	535.8
State	2,935.0	3,350.2	4,061.5	4,834.0	4,748.5	4,959.5	7,569.1	6,702.1	10,668.1	8,965.4
<b>Miscellaneous County Government Functions</b>										
Tri-County	37.8	47.8	36.0	46.0	63.3	59.8	61.3	68.0	69.0	80.0
State	5,041.1	6,089.3	4,641.3	4,924.7	5,366.6	6,517.1	7,095.0	7,690.8	9,820.7	9,833.1
<b>Total</b>										
Tri-County	4,030.7	4,522.2	4,724.3	4,510.1	5,048.9	5,386.2	5,885.1	6,267.2	7,354.8	8,104.3
State	101,403.3	110,961.1	120,059.8	129,895.3	146,404.9	156,102.3	168,787.3	178,568.9	206,490.4	222,666.3

SOURCE: Auditor General, State of Michigan



is \$3.2 million for Health, Medical and Welfare. Maintenance and Construction of Highways is second. Tri-County governments spent \$2.7 million for maintenance and construction on some 3,337 miles of county primary and local roads. Together categories 2 and 3 account for over 70 percent of expenditures. Administrative and operating expenses account for approximately 20 percent and the remainder is divided between Miscellaneous and Maintenance and Construction of Drains.

A comparison of all the counties and Tri-County figures shows that in the Tri-County Area a smaller percentage of the expenditures are allocated to the administrative and operating category, while slightly larger percentages are allocated to the health, medical and welfare and the highway category. The Tri-County Area spends a lesser percentage on miscellaneous functions and a slightly larger percentage on the maintenance and construction of drains. It is also apparent that, except for 1953, 11 categories are relatively stable percentages of the total in both the Tri-County Area and throughout the state.

### State

#### Receipts

Gross total receipts for all funds of the state government totaled approximately \$1,606.9 million in fiscal 1958. Of this total \$1,296.5 million represented total revenue and \$310.4 million was in the form of non-revenue receipts and adjustments. The net total for all funds was approximately \$400 million less, amounting to \$1,218.7 million. Of this latter total \$992.5 million was the net revenue of the operating funds combined. The \$226.2 million of net non-revenue receipts represent an accounting procedure total and will not be of concern in this report.

It is estimated that the Tri-County Area contributed approximately 3 percent, or \$30 million, of the \$992.5 million in net revenue received by the state. It should be pointed out, however, that this figure may range from approximately \$27 million to \$32 million, or from 2.7 percent to 3.2 percent.

As a general methodological point, it should be noted that estimates and ranges are required due to the nature of the data handled. State accounting records, tax levies and collection procedures are generally geared to state-wide recording--a quite natural procedure. Where official records are geared to a more restricted region, distortions may enter due to the nature of corporate geography. Thus, state records may show county collection figures for taxes on businesses or financial institutions, but the corporation makes all payments in the county of its central office, introducing a distortion insofar as this research is concerned. However, before any detailed discussion of the Tri-County Area is presented, let us briefly review the more general state revenue picture.

In Table 14 total state revenues are listed by source. The state has six general

TABLE 14

TOTAL STATE REVENUES BY SOURCE, 1948-1958<sup>1</sup>

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Taxes	341,642.5	362,161.8	375,958.7	435,265.9	484,182.9	562,207.8	596,031.4	624,660.4	735,732.0	748,712.9	770,104.3
Federal Aid	58,582.5	73,062.3	76,444.5	78,093.2	73,903.0	79,065.4	73,606.8	80,810.3	86,450.3	101,803.4	114,272.0
Inmates, etc. Charges	3,201.1	4,493.7	4,634.6	4,633.6	5,263.4	6,004.6	6,815.8	7,150.7	8,162.4	11,025.6	11,912.9
State Enterprises, Total	27,937.8	29,948.0	27,348.2	32,927.1	29,932.4	33,992.8	35,258.2	34,982.0	37,314.4	39,716.2	33,988.4
Liquor Merchandising	28,164.0	29,480.3	27,251.9	32,755.8	29,609.3	33,935.3	34,616.6	34,304.7	36,705.8	39,000.9	33,495.7
Regulatory Services	15,086.5	16,501.3	17,421.7	17,807.4	18,986.7	20,492.9	20,280.5	21,417.2	22,657.0	22,989.0	24,331.9
Miscellaneous	16,532.5	20,202.7	17,555.0	24,894.9	26,637.9	34,229.0	15,287.0	18,502.2	22,817.1	24,911.2	37,867.6
Total	462,982.9	506,369.8	519,362.7	593,622.2	638,906.3	735,992.5	747,279.7	787,522.9	913,133.3	949,158.2	992,477.0

<sup>1</sup>Fiscal years

SOURCE: Auditor General, State of Michigan

sources of revenue: Taxes, Federal Aid, Inmates, etc., Charges, State Enterprises, Regulatory Services and Miscellaneous. The first two categories are self-explanatory, however the other four require a few words of explanation.

Inmates, wards and patient charges consists mainly of revenue from individuals and/or counties for persons in state institutions, including mental hospitals, TB sanatoriums and training schools. In most years, State Enterprises receives all of its net revenue from the state's liquor merchandising monopoly. Regulatory Services consists of fees from liquor retailers' licenses, hunting, fishing and trapping licenses, drivers' licenses, motor vehicle title fees, and a variety of other receipts. Miscellaneous includes earnings on investments, oil and gas royalties, state agency office rentals, and local and other participation in highway, bridge and airport construction.

It should also be noted that a sub-category, Liquor Merchandising, is included in Table 14 under State Enterprises. This figure is the net profit from the liquor merchandising operation mentioned above. It is listed separately because of its dominance of State Enterprises.

As Table 14 shows, all categories of state receipts have increased substantially since 1948. The largest proportionate increase was for Inmates Charges (272 percent) while the smallest was for Liquor Merchandising (19 percent).

The most important contributors to state revenues in this period were Taxes and Federal Aid. In 1958 Taxes accounted for 78 percent and Federal Aid 12 percent of total receipts. With the exception of the years 1953 and 1958, State Enterprises ranked third, constituting from 3 to 6 percent of total receipts.

A refinement of total receipts from Taxes is contained in Table 15. In this table the receipts from individual taxes are listed. These figures show clearly the importance of the Retail Sales Tax and the Gasoline Tax. In 1958 these two taxes combined accounted for \$431.5 million, or 56 percent of total tax receipts. Since 1948, the Retail Sales Tax, although showing an increased dollar return, has decreased in relative importance as a source of revenue in relation to other tax receipts. The Gasoline Tax, in contrast, has increased in importance since 1948, moving from 11.85 percent in that year to 17.38 percent in 1958. Although some of the other taxes, the Corporation Franchise Tax and the Business Activities Tax in particular, show relatively consistent increases, none shows the variation displayed by the Retail Sales and Gasoline Taxes.

Table 16 is an itemized list of receipts collected by the state in the Tri-County Area. As in the case of Total State figures, the Sales and Use and Gasoline tax are the major sources of revenue. Combined, these two taxes supply 56 percent of the state receipts from the Tri-County Area, or \$16.8 million out of a total of \$30 million.

At this point a brief review of the system employed in arriving at these figures

TABLE 15  
STATE TAX RECEIPTS BY SOURCE  
1948-1958  
(in millions of dollars)

Year	Utility Property	Retail Sales	Gasoline	Motor Vehicle (Weight)	Corporation Franchise	Business Activity	Cigarette	Intangibles	Other	Total
1958	\$20.8*	\$297.7	\$133.8	\$63.1	\$51.3	\$60.7	\$43.3	\$24.2	\$75.2	\$770.1
1957	9.8*	308.5	133.4	66.1	47.1	64.3	27.2	23.7	68.6	748.7
1956	17.7	308.0	132.9	63.4	45.1	59.4	26.7	21.3	61.2	735.7
1955	15.9	285.5	92.4	56.4	40.8	30.0	25.5	18.8	59.3	624.7
1954	15.1	274.7	87.4	52.5	42.1	23.4	25.9	17.2	57.7	596.0
1953	15.2	261.0	81.3	49.6	64.9*	----	25.7	16.1	48.4	562.2
1952	15.0	237.5	77.8	46.4	25.7	----	24.1	12.9	44.8	484.2
1951	14.3	240.0	50.7	42.2	11.4	----	23.2	13.8	39.7	435.3
1950	13.1	198.9	45.8	37.5	10.7	----	22.6	11.3	36.1	376.0
1949	11.3	194.6	42.9	34.4	9.7	----	22.6	10.7	36.0	362.2
1948	10.7	183.4	40.5	33.6	8.5	----	19.3	8.7	36.9	341.6

\*Variation due to change in collection year

SOURCE: Michigan Department of Revenue, 17th Annual Report



is in order. In the case of those items marked "A" in the table the actual figures as reported by the appropriate agency are listed. For the Motor Vehicle Weight Tax the figures as reported by the Secretary of State's office were used. Since there did not appear to be any hidden factors affecting these figures no adjustments were believed to be necessary. This was also the case for the Hunting and Fishing Licenses figure as reported by the Conservation Department and the Inheritance figure as reported by the Department of Revenue.

The figure for Liquor Profits is taken from the annual report of the Michigan Liquor Control Commission. This is the gross profit as reported for the Lansing store which covers the major portion of the Tri-County Area. The Liquor License Fees total is also from the Commission and is the actual amount collected from dealers in the area.

TABLE 16

ESTIMATED STATE RECEIPTS FROM THE TRI-COUNTY AREA  
BY SOURCE FOR 1958  
(in millions of dollars)

	<u>Amount</u>	<u>Percent of Total</u>
Sales and Use	\$11.8	39.3
Motor Vehicle (Gas)	5.0	16.7
Business Activities	2.5	8.3
Motor Vehicle (Weight)	2.3 A	7.7
Cigarette	1.9	6.3
Corporate Franchise	1.9	6.3
Liquor Profits	.8 A	2.7
Intangibles	.5	1.7
Utility Property	.4	1.3
Inheritance	.3 A	1.0
Hunting and Fishing Licenses	.3 A	1.0
4% Excise on Liquor	.2	.7
Liquor License Fees	.1 A	.3
Other	<u>2.0</u>	<u>6.7</u>
Total	\$30.0	100.0

SOURCE: Assembled by Bureau of Business and Economic Research

TABLE 17

STATE SALES, MOTOR VEHICLE LICENSE, INTANGIBLES, AND INHERITANCE TAX COLLECTIONS IN MICHIGAN  
AND THE TRI-COUNTY AREA; FISCAL YEARS, 1948-1958  
(in thousands of dollars)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Tri-County											
Sales Tax	7,069.9	7,182.6	7,353.5	8,831.3	8,858.1	9,859.8	10,352.0	10,987.3	12,025.9	11,553.5	11,375.7
Motor Vehicle Tax	1,238.4	1,332.9	1,456.7	1,532.6	1,683.6	1,850.7	1,929.0	2,103.5	2,204.1	2,314.2	2,325.3
Intangibles Tax	225.8	246.8	278.0	323.7	343.4	418.3	559.7	557.3	615.8	675.8	725.6
Inheritance Tax	103.0	169.4	235.8	194.5	228.7	261.9	460.4	332.0	275.3	253.3	316.8
State of Michigan											
Sales Tax	184,637.1	194,841.7	199,442.8	240,861.6	239,180.1	261,811.8	275,420.1	286,232.1	308,682.7	309,205.6	298,347.1
Motor Vehicle Tax	32,161.9	34,502.5	38,436.1	41,381.9	46,356.2	50,737.9	52,758.6	57,511.2	59,741.3	62,875.8	62,732.0
Intangibles Tax	8,722.9	10,681.7	11,286.4	13,799.6	12,948.2	16,112.0	17,229.8	18,786.4	21,338.2	23,690.6	24,244.8
Inheritance Tax	10,675.1	8,526.6	7,934.3	8,695.2	9,913.7	8,212.9	10,635.9	10,484.9	8,523.9	10,980.8	10,538.6

SOURCE: Michigan Department of Revenue and Michigan Department of State

TABLE 18

INDICES OF STATE SALES, MOTOR VEHICLES LICENSE, INTANGIBLES AND INHERITANCE TAX COLLECTIONS  
IN MICHIGAN AND THE TRI-COUNTY AREA; FISCAL YEARS, 1948-1958  
(1948 = 100)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Tri-County											
Sales Tax	100.0	101.6	104.0	124.9	125.3	139.5	146.4	155.4	170.1	163.4	160.9
Motor Vehicle Tax	100.0	107.6	117.6	123.8	135.9	149.4	155.8	169.9	178.0	186.9	189.9
Intangibles Tax	100.0	109.3	123.2	143.4	152.1	185.3	247.9	246.9	272.8	299.3	321.4
Inheritance Tax	100.0	164.5	228.9	188.8	222.0	254.2	446.9	322.2	267.2	245.9	307.5
State of Michigan											
Sales Tax	100.0	105.5	108.0	130.5	129.5	141.8	149.2	155.0	167.2	167.5	161.6
Motor Vehicle Tax	100.0	107.3	119.5	128.7	144.1	157.8	164.0	178.8	185.8	195.5	195.1
Intangibles Tax	100.0	122.5	129.4	158.2	148.4	184.7	197.5	215.4	244.6	271.6	277.9
Inheritance Tax	100.0	79.9	74.3	81.5	92.9	76.9	99.6	98.2	79.8	102.9	98.7

SOURCE: Computed from Table 18

The \$11.8 million for Sales and Use receipts is derived by the methodology used in the Conlin report.<sup>1</sup> This amount is slightly more than \$400,000 above the figure of \$11.4 million of Sales Tax Receipts alone from the Tri-County Area as reported by the Department of Revenue. The maximum estimate for Sales and Use receipts was \$12.1 million based on actual Sales Tax receipts from the Tri-County plus 6.6 percent of this amount which is the proportion of State Use Tax collections to State Sales Tax collections. The \$11.8 million figure was used, since there was no reason to assume that Use Tax collections bear a direct relation to Sales Tax collections.

The \$5 million in Gas Tax collections was arrived at after a series of estimates. The maximum estimate in this case was \$5.7 million based upon an estimate of 100 million gallons delivered to the area. This figure was supplied by one of the major oil companies but made no allowance for those consumers exempt from gas tax. The formula used for the net figure was gallonage times 6 cents per gallon tax minus the refund rate of 5.4 percent yields net Gas Tax receipts of \$5.7 million. The Conlin methodology yielded an estimate of slightly less than \$4 million. A third estimate of \$5 million was based on the percentage of motor vehicle registrations in the Tri-County times net gas tax revenue for the state. A fourth figure of \$5.6 million resulted from multiplying per capita Gas Tax of \$18.64 supplied by the Department of Revenue times population. Of all these figures it was decided that the \$5 million amount probably represented a conservative estimate for the purposes of the study. In addition, later calculations showed this to be the average of the four estimates.

Based upon the figures in the matrix a high estimate of \$3 million liability under the Business Activities Tax for the Tri-County Area was computed. This estimate assumes that all sales are made in the state of Michigan. Assuming that no sales are made in the state a low estimate would be two-thirds of this amount of \$2 million. Since there was no technique available for estimating the amount of sales subject to this tax, the average of these two figures (\$2.5 million) was used.

The Cigarette Tax figure of \$1.9 million was based on two estimates: one using the Conlin methodology and the other employing per capita cigarette consumption supplied by the Department of Revenue times Tri-County population. The first technique resulted in a figure slightly over the \$1.9 million amount and the second figure slightly under this amount. Since there was little difference in the two figures it seems fair to assume that the estimate used is appropriate.

Once again employing the Conlin methodology, the Corporation Franchise Tax from the Tri-County Area was estimated to be \$1.9 million. Since no more direct method was available for checking this figure, a series of percentages for Tri-County industry was computed on the basis of the 1954 Census of Manufactures. This included such items as payroll, manhours, value added and capital expenditures. These percentages ranged from approximately 2 to 4 percent. Multiplying these percentages times total state receipts yielded amounts ranging from approximately \$1 to \$2 million, which seemed to offer some indication that the Conlin technique was reasonable.

The Intangibles Tax also required an estimate, since, as noted earlier, the actual figure of \$.7 million as reported by the Department of Revenue was inappropriate for this study. It was assumed that the estimated figure should be lower than the above amount and the Conlin approach yielded such a figure, providing an estimate of slightly over \$.5 million.

A completely different approach was employed in estimating the Utility Property Tax. To develop such an estimate, equalization studies done by the State Tax Commission in Clinton County in 1952, in Ingham County in 1956 and in Eaton County in 1958 were employed. Based on these studies the percentage of properties classified as utility was calculated. This percentage tended to overestimate the amount liable to taxation, since the classification used is broader than that which is included under this tax; however, no adjustment was made due to the lack of pertinent information and also because of the relatively small amount involved. Next, current state equalized valuation of the three counties was multiplied by these percentages. From the product a ratio was established to the value of the property liable in the state, which in turn was multiplied by total receipts from the tax, yielding the estimate of slightly over \$.4 million.

To estimate the \$.2 million in receipts from the 4 percent Excise on Liquor, the same technique supplied by the Liquor Control Commission for estimating federal tax on liquor was employed. It will be recalled that this consisted of calculating the percentage that the tax represented of the price of a popular brand and multiplying this by gross sales in the Lansing store.

The above estimate plus two other actual figures, \$21,800 from Watercraft registrations and \$37,000 from Drivers' Licenses, totaled less than \$28.1 million. However, this figure obviously excludes a variety of miscellaneous receipts. To estimate this amount in a very gross manner, the average of the various ratios that had been computed, including the percentages that the above figures represent of total state receipts from these sources, was utilized. This average, of slightly above 3 percent, was then multiplied by the various miscellaneous categories, yielding a total of approximately \$2 million in Other receipts, for a grand total of \$30 million in state receipts from the Tri-County Area in 1958.

Since it was not possible to compute such figures for previous years, no generalized trend material is included. However, receipts for individual taxes in the Tri-County Area are available and these are listed in Table 17 along with the comparable totals for the state. It should be remembered, however, that the use of the actual Intangibles figure for the Tri-County Area is not a completely accurate reflection of the liability of the area.

The indices for these four taxes, using 1948 as a base year of 100, are shown in Table 18. This shows that of these four taxes total state collections have increased

slightly more than Tri-County collections in the case of the Motor Vehicle weight category and the Sales category. In the case of the Intangibles and Inheritance Tax collections the Tri-County Area far exceeds the state. In all cases, collections have increased substantially since 1948.

Expenditures

In contrast to state receipts from the Tri-County Area of approximately \$30 million, gross state expenditures in the area were over three times that amount, \$96 million. This gross figure was approximately 9.1 percent of total state gross expenditures for the combined operating funds of \$1,055.3 million.

As a partial indication of the increase that has occurred in the past ten years, combined operating fund expenditures for the state for the years 1948 to 1958 are shown in Table 19. The index, also shown in this table, demonstrates that these expenditures have more than doubled since the 1948 total of \$471 million. Although there is not necessarily a one-to-one correspondence between the Tri-County Area and the state, it seems reasonable to assume that the \$96 million figure for the Tri-County Area in 1958 represents a substantial increase over the unknown total for 1948.

TABLE 19  
TOTAL MICHIGAN STATE GOVERNMENT EXPENDITURES AND INDEX  
1948-1958  
(in thousands of dollars)

<u>Year</u>	<u>Amount</u>	<u>Index</u> (1948 = 100)
1948	\$ 471,031.1	100.0
1949	529,958.0	112.5
1950	556,518.6	118.1
1951	601,432.1	127.7
1952	655,512.4	139.2
1953	710,865.6	150.9
1954	709,321.5	150.6
1955	757,845.5	160.9
1956	858,167.5	182.2
1957	1,020,666.4	216.7
1958	1,055,327.7	224.0

SOURCE: Auditor General, State of Michigan and Bureau of Business and Economic Research

Table 21 shows the distribution of gross state expenditures in the Tri-County Area. As the table indicates, 5 percent (\$4.8 million) of the total constituted federal funds, leaving a net total of slightly over \$91 million. If the \$.9 million held by the state for Teachers Retirement is also deducted, the state impact in the area still exceeds \$90 million. Approximately half of the \$90 million total is expended directly by the state, while the remaining half represents aid or transfer payments to educational institutions, other governmental units and private organizations.

TABLE 20  
STATE EXPENDITURES BY CATEGORIES FOR  
COMBINED OPERATING FUNDS  
(in millions of dollars)

	<u>Amount</u>		<u>Percent of Total</u>	
	<u>1948</u>	<u>1958</u>	<u>1948</u>	<u>1958</u>
Operating Costs of Departments	94.1	230.5	20.0	21.8
Capital Improvements and Equipment	56.1	101.1	11.9	9.6
Distributions and Payments to or for Local Units	270.6	567.7	57.4	53.8
Other Direct Grants and Aid	43.2	106.2	9.2	10.1
Grants to Bond Retirement and Trust Funds	<u>7.0</u>	<u>49.8</u>	<u>1.5</u>	<u>4.7</u>
Total	471.0	1,055.3	100.0	100.0

SOURCE: Auditor General's Report -- Part I

#### Social Capital and Projected Developments

The estimated value of the state's buildings and utilities in the Tri-County is approximately \$50 million. This figure includes structures such as the Capitol, the Mason and Cass Buildings, the Boys' Vocational School, the School for the Blind, Health Department buildings, police posts and the liquor warehouse. The state also owns a considerable amount of land valued at approximately \$15 million, making a grand total of some \$65 million, excluding the value of state-owned equipment. Another \$40 million, representing a conservative estimate of the value of state highways in the area, raises this total to \$105 million.

There are plans for construction of a Supreme Court building and another state office building. It is estimated that the former will cost approximately \$3 million and the

latter in the neighborhood of \$10 million. Both of these buildings are to go on land behind the Capitol building, most of which already is owned by the state. In addition, it has been determined that approximately five blocks would be needed for surface parking to service the proposed office building. Based on current costs, this will require an additional \$2.5 million.

TABLE 21

ESTIMATED STATE EXPENDITURES IN THE  
TRI-COUNTY AREA FOR 1958  
(in millions of dollars)

	<u>Amount</u>	<u>Percent of Total</u>
Salaries and Wages	\$35.0	36.5
MSU	29.0	30.2
Aid to Schools	11.4	11.9
Purchases	5.5	5.8
Aid to Local Governments	4.1	4.3
Aid to Counties	3.5	3.6
Public Assistance	3.5	3.6
Highways	1.5	1.6
Teachers Retirement	.9	.9
Aid to Hospitals	.6	.6
Airport Construction	.5	.5
Office Rents	.4	.4
Miscellaneous	<u>.1</u>	<u>.1</u>
Total	\$96.0	100.0
Deduct Federal Aid	<u>4.8</u>	5.0
Net Total	\$91.2	

SOURCE: Bureau of Business and Economic Research

In the more distant future, there are several other projects that have been considered. One involves the construction of service centers, or offices, in outlying areas where costs are somewhat lower. It is believed that such shifts will require the construction of facilities costing approximately \$2.5 million. If, however, it becomes necessary to retain these operations in the central city, it is likely that the costs for new facilities will rise to between \$6 and \$7.5 million.

Within ten to fifteen years, a new liquor warehouse will probably be needed in the Tri-County Area. Such a building was recently constructed in the Detroit area at a cost of \$3 to \$3.5 million. There should be a thorough renovation of the Capitol building within ten years. This work would logically follow the construction of a new state office building and Supreme Court building, converting the Capitol to Executive-Legislative use. The total cost for the renovation is estimated at approximately \$2.5 million.

The State Department of Health will also require some new facilities within the next ten years. At a minimum these additions are likely to cost in the neighborhood of \$1 million. However, if major break-throughs in medical research are achieved, the amount required could run considerably higher. For this same period the School for the Blind estimates a need for over \$1 million of new facilities.

In addition to the above eight projects requiring approximately \$26 million of state money, the state will also share in the cost of expanding the Capitol City Airport. Current plans include the lengthening of at least one runway, the construction of several hangars and a new field maintenance building. These developments will require approximately \$2 million, with roughly one-quarter being contributed by the state, another quarter by the city of Lansing and the remaining half by the federal government.

The state also plans to let contracts on approximately ten highway projects in the Tri-County Area by 1962. These contracts include major construction projects on routes US 16, US 27, M-78 and work on several other major routes. Although construction costs are subject to drastic change, the estimated cost of these improvements is approximately \$35 million.

Aside from the above capital investments, it is also probable that the Tri-County Area can expect additional state expenditures in the form of an increased state payroll. In July 1958 the Civil Service Commission estimated that there were approximately 32,800 people employed by the state of Michigan; approximately 6,800, or 21 percent, were employed in the Tri-County Area. For the state as a whole, this works out to roughly 4 employees per thousand population. If this ratio is applied to the low and high population projections for the state in 1970 (9.3 and 10.5 million persons), the estimate of total state employment ranges from 37,000 to 42,000 persons. Assuming the Tri-County Area percentage remains constant, the estimates for this area for 1970 range from 7,800 to 8,800 employees. This increase of one to two thousand employees means that the state payroll in the Tri-County Area will increase by \$5 to \$10 million in 1970 based on the current total of \$35 million.

However, such an estimate may be extravagant in view of another factor. From 1942 to 1958, the percentage of state employees in the Tri-County has decreased from approximately 24 percent to the current 21 percent. Assuming a decline of another 2 percent by 1970 yields conservative estimates of \$36 to \$41 million for the state payroll



in the Tri-County Area.

Of course, none of the above figures, whether related to construction or payroll, makes any allowance for increases in wage rates or construction costs. In addition, other state increases may occur through the need for additional revenue or the changing of state distribution formulas for schools, local governments or counties.

#### Federal Government

##### Receipts

The federal government is by far the largest single unit collector of receipts in the Tri-County Area. Based upon available figures and the many prepared estimates, total federal government collections in the Tri-County Area for 1958 were estimated to be in the neighborhood of \$182 million.

Estimates of federal receipts and expenditures in the Tri-County Area are especially difficult to obtain because of the manner in which federal agencies account for their finances. As a result, figures in this section must be interpreted with great care. They are better regarded as general indicators than precise measurements. This is particularly true when an attempt is made to break down totals into their constituent parts.

Table 22 shows the total federal government receipts in the Tri-County Area by source. As was noted earlier, \$182 million is used as the estimated figure. Other estimates on this total ranged from \$177 million to \$198 million. The total figure used is a composite of these estimates and consists of estimates and/or actual figures for the individual items.

A few comments on methodology are in order at this point. The maximum estimate of total receipts is based in part upon the proportion of money income to income after federal taxes, as shown in the Conlin Committee Staff Report.<sup>1</sup> This proportion was multiplied by estimated money income in the Tri-County Area in 1958. To this product estimates for Social Security taxes and postal receipts were added for a total of \$198 million.

The minimum figure of \$177 million is based upon a series of estimates employing a variety of methods depending upon the item being estimated. Estimates ranged from the use of national per capita figures to the use of estimates of gallonage of beer consumed times taxes per gallon.

One method employed here and in the section on State government deserves special comment. For shorthand purposes it is called the Conlin methodology and is an adaptation of a technique employed in the above mentioned staff report. Briefly, this technique consisted of adjusting 1950 census figures on income distribution to the 1958 total income figures. Based on the income brackets derived in the above manner,

percentages developed in the Conlin Report were then utilized to obtain estimates for individual taxes. The procedure often followed was first to estimate the state collection for a given tax and multiply this figure by the proportion of the federal rate to the state rate. Thus in the case of the cigarette excise tax an estimate was obtained for the state, which has a tax rate of 5 cents per package. This estimate was then multiplied by the ratio of the federal rate of 8 cents per package to the state rate of 5 cents.

As Table 22 shows, over half the total receipts collected in the Tri-County Area were in the form of personal income tax payments and Social Security taxes. The largest portion, however, came from personal income taxes. The estimates show that of the \$96 million in this category, approximately \$78 million or 80 percent came from the income tax. The remainder, approximately \$18 million, was contributed by employers and employees in the form of Social Security taxes.

Manufacturers' Excise Taxes includes a number of items. The estimates included a range from slightly over \$100,000 for taxes on lubricating oils and related items to estimates of \$2.5 million for the gasoline tax and \$4.9 million for taxes on automobiles and accessories.

Alcohol and Cigarette Taxes are split about equally between the two general sources. As was noted above, the Conlin technique employed yielded an estimate of approximately \$3 million. Federal alcohol taxes were estimated in two parts. The tax on liquor was based on a method supplied by the Michigan Liquor Control Commission. Briefly, this consisted of multiplying the percentage that the federal tax represents of the popular price for a bottle of liquor times gross sales for the Lansing store. In addition approximations of other alcohol taxes were derived from previous consumer spending studies.

Postal Receipts consists of charges for stamps, money orders and other postal services collected by the Post Office Department. Figures were available for two major post offices in the Tri-County Area and these were adjusted to allow for the unaccounted collections.

The last two categories consist of a variety of individual items. Transportation and telephone and wire excise taxes account for well over \$3 million of Miscellaneous Excise Taxes, while All Other Taxes consist mostly of estate and gift taxes, and retailers' excise taxes.

### Expenditures

It is noteworthy that while the state of Michigan spends three dollars in the Tri-County Area for every dollar of revenue, the federal Government collects \$2.60 in receipts for every dollar spent in the area. In spite of this fact, in the government sector federal expenditures are second only to state expenditures. Table 23 summarizes federal expenditures in the area as reported by the various governmental agencies.

TABLE 22

ESTIMATED FEDERAL GOVERNMENT REVENUES FROM THE TRI-COUNTY AREA  
FOR 1958  
(in millions of dollars)

	<u>Amount</u>	<u>Percent of Total</u>
Personal Income Tax and Social Security	\$96	52.7
Corporation Income and Profits	60	33.0
Manufacturers Excise Taxes	9	4.9
Alcohol and Cigarette Taxes	5	2.8
Post Office Receipts	5	2.8
Miscellaneous Excise Taxes	4	2.2
All Other Taxes	<u>3</u>	<u>1.6</u>
Total	\$182	100.0

SOURCE: Bureau of Business and Economic Research

It is evident that purchases constitute the largest single category of disbursements. About \$14 million of the total \$25.4 million shown in Table 23 consisted of defense expenditures reported by the Secretary of Defense. The balance was estimated on the basis of direct interviews with governmental agencies and the larger suppliers.

TABLE 23

ESTIMATED FEDERAL GOVERNMENT DISBURSEMENTS IN THE TRI-COUNTY AREA  
FOR 1958  
(in millions of dollars)

	<u>Amount</u>	<u>Percent of Total</u>
Purchases	\$25.4	36.0
Public Assistance and Social Security	15.1	21.4
Payments to Veterans, All Programs	8.5	12.1
Payrolls	8.4	11.9
Aid to Education	4.5	6.4
Payments to Agriculture	3.3	4.7
All Other	<u>5.3</u>	<u>7.5</u>
Total	\$70.5	100.0

SOURCE: Bureau of Business and Economic Research

The \$15.1 million figure for public assistance and Social Security payments was derived from information received from local offices. Figures from the Michigan Department of Social Welfare show that the federal government contributed \$1.7 million in benefits plus \$300,000 in surplus food. The Social Security Administration reported that there were \$1,179,716 in monthly benefit payments in force as of December 31, 1958 and \$1,004,606 as of December 31, 1957. With these two figures as guides, it was estimated that \$13.1 million was disbursed in Social Security benefits in the Tri-County Area during 1958.

There are approximately 2,500 veterans receiving education benefits at Michigan State University. On the basis of this estimate, it seems reasonable to state that veterans in the area received well over \$3 million in educational benefits during 1958. To compute total veterans' benefits, it is necessary to take into account pensions, disability and other payments. This was accomplished by allocating all other payments to veterans on the basis of population in the Tri-County as a percentage of the United States population.

The estimate for federal payrolls is based upon employment figures as well as on information received from the Post Office Department and Reserve and R. O. T. C. units in the area. All federal employees, military and civilian, part-time and full-time, are included in this estimate.

Payments to education and agriculture were estimated from government reports. The Agricultural Stabilization and Conservation office in East Lansing maintains accurate account of all agricultural programs. However, many of the reports cover crop years, while actual payment may take place in a subsequent calendar or fiscal year. Estimates are therefore somewhat arbitrary.

Aid to education was estimated from reports and financial statements issued by the public school system, Michigan State University and Olivet College. Besides direct and indirect payments, the \$4.5 million total aid to education includes the value of surplus foods to schools.

Most of the items under All Other are Federal payments to the state for special programs. Nearly \$900,000 was disbursed in highway and airport construction and over \$600,000 was given for hospital construction under the Hill-Burton Act. The bulk of the remainder is for salaries to state agencies such as the Michigan Employment Security Commission.

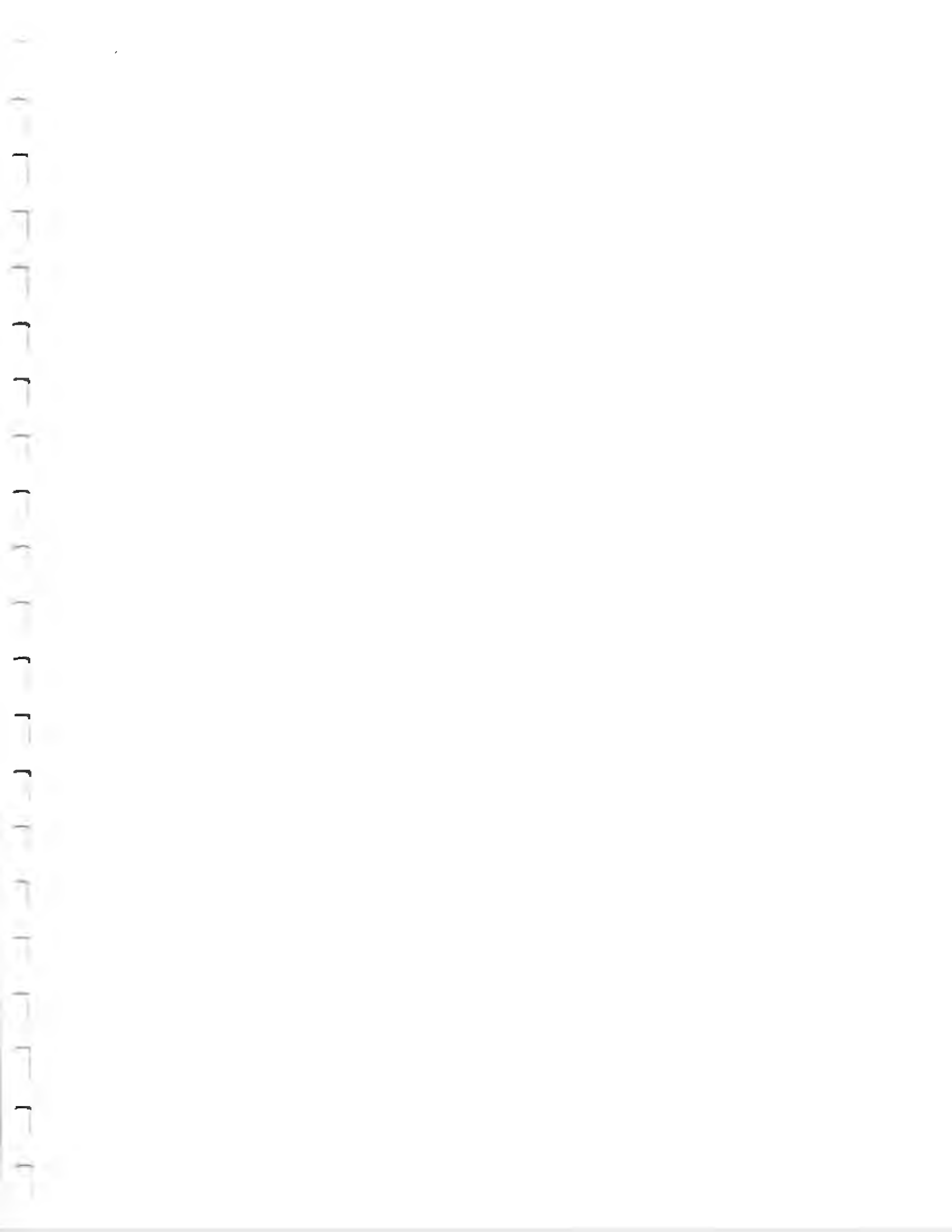
All the above estimates produce a grand total of \$70.5 million, but still exclude a number of small items such as payments made to retired civil servants and postal employees. These are extremely difficult to estimate without an inordinate expenditure of time and money. The figure of \$70.5 million may therefore be regarded as a conservative estimate of total expenditures.

## FOOTNOTES

<sup>1</sup>Financial Report of Michigan County Government prepared by the Auditor General's Office. Examples of the type of revenue excluded are court fines collected and distributed to other units for support of libraries, distribution to the schools of primary state school aid funds received from the state, and receipts from loans or from the sale of bonds.

<sup>2</sup>Michigan Tax Study, Staff Papers, State of Michigan, 1958

<sup>3</sup>Michigan Tax Study, Staff Papers, State of Michigan, 1958



## CHAPTER 6

### SERVICES AND EDUCATION

The present chapter brings together the most recently published data on the numerous establishments in the Tri-County Area which perform professional, personal or business services. The overall significance of enterprises of these types is discussed in Section I, while the structures and importance of primary, secondary, and higher education are treated in Sections II and III.

#### Section I

#### SERVICES

It is sometimes stated that the service industry performs merely an ancillary function and that the dollar value of this sector is insignificant in the economy. However, as is also true in the national economy, the service industry in the Tri-County Area is a major segment of the area's total employment and receives a sizeable proportion of total wage and salary payments. In the three counties this sector has approximately 19,886 full-time employees who receive \$81.7 million in wages and salaries, accounting for 22 percent of total employment and 20 percent of total wage and salary payments.

The service industry as here defined is composed of fourteen major divisions: hotels, rooming houses and camps; personal services; miscellaneous business services; automotive repair, automotive services and garages; miscellaneous repair services; motion pictures; other amusement and recreation services; medical and other health services; legal services; educational services; museums and art galleries; nonprofit membership organizations; private households; and miscellaneous services. The most important segments of the Tri-County service industry are the professional and related services (including all education) employing a total of 14,279 persons. Next in importance are personal services composed chiefly of laundries and laundry services, beauty shops and barber shops. About equal in importance are the business services, automobile services and entertainment and recreation.

### Selected Service Trades

At this point a distinction should be made between the two categories of the service industry discussed in this section, the total service industry and the selected service trades. The service industry was defined previously as consisting of fourteen major divisions; it should be noted that the educational services are included here even though they are discussed in the following sections which deal specifically with the various levels of education. Selected Service Trades is a designation used by the Government in compiling the Census of Business, which is the only source of detailed trend information for the Tri-County Area.

The selected service trades as a group are composed of personal services; miscellaneous business services; automobile repair services and garages; miscellaneous repair services; amusement and recreation; and hotels, rooming houses, camps and motels. From 1948 to 1954 the total number of selected service establishments in the Tri-County Area increased 32 percent (Table 1). The biggest percentage increases for such establishments were in total receipts and total payroll. Total receipts rose from \$12.7 million in 1948 to \$25.3 million in 1954, an increase of 99 percent; total payroll rose 91 percent, from \$3.8 million to \$7.3 million for the same period. During this period the number of full-time employees increased by 821. Establishments rendering personal services had a modest rise of 10 percent, with a 55 percent increase in receipts. The number of auto repair establishments and garages maintained the 1948 level although receipts increased by over 30 percent. The largest percentage rise occurred in the category Other Selected Services, where the number of establishments rose 96 percent, from 208 in 1948 to 408 in 1954, as receipts increased from \$4.3 million to \$12.9 million. There is reason to believe that the number of establishments in the personal services and auto repair services has reached a level of stability in the Tri-County Area. The initial growth associated with the postwar expansion has subsided and any future growth will be determined by the population and income levels. In personal services the number of barber shops and beauty shops has actually declined, but the slack has been taken up by the rapid increase in laundry and laundry services and dry cleaning establishments.

The picture is vastly different in the individual counties. The number of establishments in Clinton County increased 29 percent in the 1948-1954 period. Total receipts rose 92 percent while the actual number of employees declined 9 percent. Personal service and auto repair establishments did not increase materially but all other selected services establishments rose 62 percent, from 29 to 47. Receipts of all selected services also showed an increase.

Eaton County alone showed a decline in the selected service trades. The total number of establishments fell from 182 in 1948 to 152 in 1954 and the number of employees dropped from 191 to 169. The number of personal services and auto repair service establishments fell by a total of 37, but at the same time all other selected



TABLE 1

## SELECTED SERVICE TRADES IN THE TRI-COUNTY AREA FOR SELECTED YEARS

	All Services					Personal Services		Auto Repair Services, Garages		All Other Selected Services	
	Estab- lishments	Receipts (\$000)	Payroll (\$000)	Employees	Pro- prietors	Estab- lishments	Receipts (\$000)	Estab- lishments	Receipts (\$000)	Estab- lishments	Receipts (\$000)
Clinton County											
1939	97	209	22	41	113	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
1948	87	644	122	107	87	44	319	14	128	29	197
1954	112	1,234	188	98	124	46	427	19	218	47	589
1958	118	1,539	256	132	137	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
Eaton County											
1939	150	419	58	79	154	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
1948	182	1,522	234	191	188	82	583	44	433	56	506
1954	152	1,954	316	169	156	62	675	27	425	63	854
1958	196	2,275	374	163	213	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
Ingham County											
1939	519	2,943	911	899	515	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
1948	495	10,523	3,444	2,031	494	301	5,310	71	1,571	123	3,642
1954	743	22,100	6,751	2,651	730	361	8,496	84	2,133	298	11,471
1958	972	27,383	8,780	3,054	973	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
Tri-County											
1939	766	3,571	991	1,049	782	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
1948	764	12,689	3,800	2,097	768	427	6,212	129	2,132	208	4,345
1954	1,007	25,288	7,255	2,913	1,010	469	9,598	130	2,776	408	12,914
1958	1,286	31,197	9,410	3,349	1,323	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.

n. a. - not available

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business, 1939, 1948, 1954 and 1958

services, consisting mainly of laundries and dry cleaning plants, showed an increase of seven establishments.

Ingham County, as would be expected, showed the largest increases. Total number of establishments increased from 495 to 743, an increase of 50 percent. Total receipts rose from \$10.5 million in 1948 to \$22.1 million in 1954. The number of employees rose 31 percent, the largest percentage increase in the three counties, jumping from 2,031 employees in 1948 to 2,651 in 1954. All of the selected service trades showed an increase in Ingham County. Personal services establishments rose from 301 to 361, auto repair services from 71 to 84. Other selected services registered an increase of 142 percent resulting from a rise of 173 in total establishments.

It is evident that almost the entire growth of the Tri-County selected service trades between these years has been centered in Ingham County. Clinton County has had an insignificant increase while Eaton County has shown a marked decline. The dominance of Ingham County in this respect is to be expected in view of the population distribution of the Tri-County Area and Ingham County's manufacturing importance. Michigan State University has, of course, played an important role in the growth of the service industry in Ingham County; the University had an enrollment increase of 11,000 during the 1945-1947 period. The college business community as a matter of course lagged behind this rapid enrollment increase and it is probable that the service establishments were no exception to this tardiness.

#### Total Service Industry Employment, 1949-1958

In 1949 the total service industry employment in the Tri-County Area was estimated to be 16,380 (Table 2). At that time the state of Michigan showed a total service industry employment of 264,500. During the period from 1950 to 1953 those employed by the service industry in the Tri-County Area increased by 15 percent, in contrast to the state-wide employment increase of 22 percent. However, since this period, the Tri-County employment has steadily narrowed this percentage differential so that in 1958 the total increase over 1949 was 21 percent as compared to the state total of 24 percent. This reduction chiefly occurred in the recession year of 1958 when the Tri-County Service industry employment showed a small percentage drop of only .5 percent as compared to the drop in the total state's service industry employment of 1.5 percent.

#### The 1958 Estimates

The total service industry employment in the Tri-County Area was estimated to be 19,886 in 1958 (Table 3). Professional and related services as a group employed approximately 70 percent of this figure, with educational services alone accounting for 50 percent of the total. Education's large share in this category is an indication of the importance of Michigan State University in the Tri-County economy. It is also significant that this educational sector's 50 percent of the total Tri-County service industry employment received approximately 62 percent of the industry's total wages and salaries,

TABLE 2  
TOTAL SERVICE INDUSTRY EMPLOYMENT IN THE TRI-COUNTY AREA  
1949-1958

<u>Year</u>	<u>Tri-County</u>		<u>Michigan</u>	
	<u>Total Employed</u>	<u>Percentage Increase Over 1949</u>	<u>Total Employed</u>	<u>Percentage Increase Over 1949</u>
1949	16,380		264,500	
1950	16,478	.6	271,000	2.5
1951	16,921	3.3	285,500	7.9
1952	17,674	7.9	299,400	13.2
1953	18,607	13.6	315,166	19.2
1954	18,886	15.3	321,583	21.6
1955	19,115	16.7	318,250	20.3
1956	19,770	20.7	325,417	23.0
1957	19,967	21.9	331,583	25.4
1958	19,886	21.4	327,833	23.9

SOURCE: Michigan Employment Security Commission and Bureau of  
Business and Economic Research

or \$50.6 million in 1958. As a group, the professional and related services received \$65.4 million in wages and salaries, or approximately 80 percent of the total. The remaining sectors of the service industry received a smaller proportionate share of wages and salaries in comparison to their employment. Personal services employed 3,230 people, or 16 percent of the total, but received only 10 percent of total wages and salaries. In this group the greatest difference between employment and wage and salary payments was in private households. In 1958 private households employed 1,400 people, or 7 percent of the total, but this group received in wages and salaries \$3.1 million, only 4 percent of the total. The remaining three major groups of the service industry, business services, auto repair services and entertainment and recreation had relatively equal employment ranging from 4.6 percent to 2.8 percent of the total.

#### The Future

It is clear that the service industry is one of the segments of the Tri-County economy facing a period of expansion in the years to come. This statement is based on the great probability that Michigan State University and the state government will provide more and more of the economic base of the Tri-County Area in the future. Michigan State University predicts that its enrollment will increase by 75 percent to a figure of 35,000 by 1970. State government employment in the Lansing area will continue to increase as the role of government in Michigan becomes more demanding. These additions to the normal population increase in the Tri-County Area will help to

TABLE 3

## TRI-COUNTY SERVICE INDUSTRY EMPLOYMENT, 1958

	<u>Estimated Employment</u>		<u>Estimated Wages and Salaries</u>	
	<u>Number Employed</u>	<u>Percent of Total</u>	<u>(\$000)</u>	<u>Percent of Total</u>
<b>Personal Services</b>	3,230	16.2	8,501	10.4
Private households	1,400	7.0	3,131	3.8
Hotels and lodging places	600		1,384	
Laundry, cleaning and dyeing	623		1,655	
Dressmaking shops	50		192	
Shoe repair shops	57		219	
Miscellaneous personal	500		1,920	
<b>Business Services</b>	909	4.6	3,540	4.3
Advertising	130		657	
Accounting and auditing	150		647	
Miscellaneous business	629		2,236	
<b>Automobile Repair Services and Garages</b>	706	3.6	2,276	2.8
<b>Miscellaneous Repair Services</b>	200	1.0	972	1.2
<b>Entertainment and Recreation</b>	562	2.8	1,010	1.2
Theaters and motion pictures	145		303	
Bowling alleys, billiard and pool parlors	191		191	
Miscellaneous entertainment and recreation	226		516	
<b>Professional and Related Services</b>	14,279	72.0	65,421	80.0
Medical and other health	1,300		3,588	
Hospitals	1,200		2,598	
Legal	247		988	
Educational, government	9,900	49.8	50,640	62.0
Educational, private	670		3,000	
Welfare and religious	270		996	
Nonprofit membership organizations	430		1,587	
Engineering and architectural	280		2,024	
<b>Total</b>	<u>19,886</u>		<u>81,720</u>	

SOURCE: Michigan Employment Security Commission and Bureau of Business and Economic Research

insure a period of growth for the service industry.

The growth in service employment will probably continue to be centered in Ingham County, which has a much higher per capita income figure than either Clinton or Eaton Counties, and is the center of manufacturing and population as well. Aside from the probable normal increases, the service industry in Clinton and Eaton Counties will likely have its greatest growth along the periphery of Ingham County, as suburban sprawl continues and overflows into these areas. East Lansing, in Ingham County, should show an increase in the number of service establishments and in service employment as the University enrollment continues to grow.

## Section II

### ELEMENTARY AND SECONDARY EDUCATION

The state of Michigan maintains several classes of school districts, stratified according to population and area requirements:

- First Class: school districts serving over 500,000 population
- Second Class: school districts with 125,000 to 500,000 population
- Third Class: school districts with 10,000 to 125,000 population
- Fourth Class: school districts with 10,000 population
- Primary: districts organized by a township board; no area or population requirement

In addition to these local or community school districts, a state statute was passed in 1935 which established each county as a separate school district, but these are of very limited importance. The typical school district of a county is governed by a five member County Board of Education elected by representatives of the local boards of education established within the county. In no sense does a county board have jurisdiction over one of the local school boards.

Counts of the number of school districts in the state are not very indicative of the size of the various units due to the high rate of consolidation. The State Department of Public Instruction estimated in 1958 that consolidation was going on at the rate of about one school district per day. The peak number of school districts in Michigan was reached in 1912, when there were 7,862 districts. Since that time the number has declined steadily; there were 6,671 in 1938, and 2,615 as of April 1, 1958. For the Tri-County Area, the annual Department of Public Instruction report for 1957-58 records 175 districts. Within this area there are 333 public school buildings, with 92 in Clinton County, and 94 and 147 in Eaton and Ingham Counties respectively. In addition there are 13 parochial schools in the three counties. Categorizing the various schools by type, in 1958 there were 298 elementary schools, 8 junior high schools, 21 junior-senior high schools and 6 senior high schools.

These buildings represent a large investment by the community, and one that has shown a considerable gain in recent years. In fiscal 1958, for example, 11 new buildings were completed, with 10 additions to already existing plants.

In terms of dollars the elementary and secondary school system in the Tri-County Area has an estimated value of about \$69 million. Of this, approximately \$61 million is in buildings, another \$3 million in sites and the remaining \$5 million in equipment. The new buildings, additions and equipment in fiscal 1958 cost a little over \$5 million. In view of the expected increase in population discussed in an earlier chapter it is doubtful if there can be any expected decline in either school construction or the current operating costs of education in the three counties. As with most communities, the Tri-County Area will need additional facilities and personnel to serve this expanding population. Prior to a discussion of the role and function of the primary and secondary school districts within the Tri-County Area, it will prove helpful to have some understanding of the state school system and the interrelations between state and local finance.

Although the state contributes a major share of current operating funds to most school districts, nearly 100 percent of the cost of providing plant facilities is borne by the local property owners. Between 1951 and 1957, for example, more than \$680 million was spent on capital outlay in the state, 92 percent of this sum being provided by revenue from local property taxes, the remaining 8 percent coming from state school aid and federal grants.

There are three general state sources of revenue for schools: the Primary School Interest Fund, Sales Tax Funds and two specific taxes under the School Aid Funds.

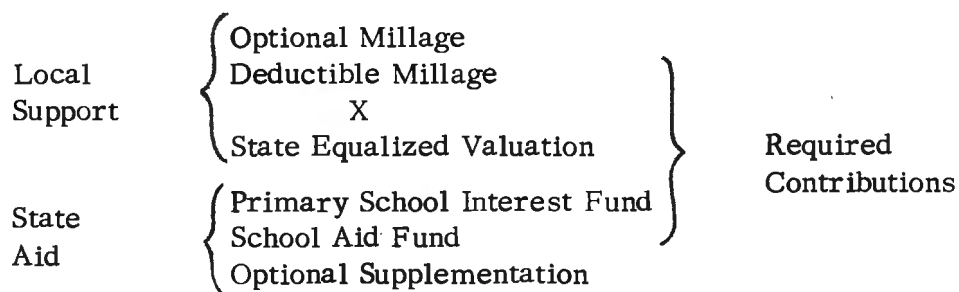
The Primary School Interest Fund was originally based on income received from the sale of public lands. Its sources are now much more extensive and consist of funds from inheritance taxes, corporation organization fees, a tax on out-of-state insurance companies doing business in the state, and a state property tax on public utilities and car loading companies. The Primary School Fund is distributed annually to various school districts on the basis of the school census; the basis for distribution is the number of children in the district between the ages of 5 and 19. There is no other criterion and no consideration is given to local financial need or the ability of the school district to pay its own way.

Sales tax funds for school aid are somewhat diverse in origin. In a constitutional amendment originally passed in 1946 and modified in 1954, a provision was made for the diversion of sales tax revenues to local school districts. The 1954 amendment required that two-thirds of the net state sales tax receipts be distributed to school districts throughout the state. These receipts are supplemented by revenue from a 2-cent-per-package state cigarette tax and a 4 percent excise tax on liquor sales. A

basic principle involved in the distribution of these receipts in the form of the School Aid Fund is the concept of self-help. In 1958 and 1959, school aid legislation required that each school district levy a minimum of seven mills on its state equalized valuation, in order to receive full aid. Another key factor in the distribution of the School Aid Fund is the allowance per pupil in attendance, and in 1958 this figure was \$190 per pupil.

The general outline of the distribution formula for the School Aid Fund is as follows: gross statutory allowance (\$190) times the number of pupils in average daily attendance; from this amount, the funds received by the school district from the Primary School Interest Fund are deducted, as well as an amount to cover a 2-3/4 mill levy on the state equalized valuation of the district. In this way the School Aid Fund is used as an equalization factor among the districts. The various funds may be supplemented by the state legislature from other sources so as to bring them in line with the gross statutory allowance.

The following chart pictures the distribution of State Aid.



The main source of local revenue for school districts is the general property tax. School districts share in the 15 mill property tax limitation, with the share being determined by the various county tax allocation boards. In addition, of course, voters in a particular school district may approve specific levies for primary and secondary education. The school districts may also receive funds from miscellaneous sources such as tuition and fees.

#### School Districts in the Tri-County Area

As noted earlier, a 1958 count of the school districts in the state showed 175 in the three counties of Ingham, Eaton and Clinton. Of this number 76 were in Clinton County and 58 and 41 respectively in Eaton and Ingham Counties. Of the 41 districts in Ingham County, 19 were primary, 20 were fourth-class, and 2 were third-class districts. Neither Clinton nor Eaton County had a third-class district; Clinton County had 61 primary and 15 fourth-class districts and Eaton County 47 primary and 11 fourth-class districts (see Table 4).

TABLE 4

NUMBER AND TYPE OF SCHOOL DISTRICTS IN THE  
TRI-COUNTY AREA, 1958

<u>County</u>	<u>Third-Class</u>	<u>Fourth-Class</u>	<u>Primary</u>	<u>Total</u>
Clinton	---	15	61	76
Eaton	---	11	47	58
Ingham	<u>2</u>	<u>20</u>	<u>19</u>	<u>41</u>
Tri-County	2	46	127	175

SOURCE: State of Michigan, Department of Public Instruction

In the last ten years, consolidation of school districts in the Tri-County Area has made a considerable change in the data. The 175 school districts that Table 4 shows for 1958 are in great contrast to 1948's total of 339. Table 5 records the number of school districts year by year for the decade, clearly demonstrating the reduction that has taken place within the Tri-County Area. Although useful, the raw figures afford very little in the way of accurate comparisons because of the wide range of the data; accordingly, percentage changes are also shown in Table 5.

Ingham County has shown the highest degree of consolidation, whereas Clinton County has shown the least. Eaton County, with 51 percent, closely approximates the Tri-County index of 52 percent. Comparing this latter Tri-County figure with a state index (48 percent) it appears that the state has had a slightly higher degree (3 percent) of consolidation than has the local area.

It might be appropriate to note at this point that the decline in the number of school districts is the inverse of the trend in potential school population as well as membership. Table 6 shows that the census of school population (children between 5 and 19 years of age) increased in the Tri-County Area from 53,809 in 1948 to 78,006 in 1958, a gain of approximately 45 percent. Table 6 also shows the percentage increase for the three counties separately, in addition to the percentage gains for the Tri-County Area.

Although the above figures demonstrate a substantial increase in school age population for the period 1948-1958, an analysis of school membership (those in school) reveals an even greater increase for this period because the participation rate of school age children has increased. Table 7 shows that school membership in the Tri-County Area increased approximately 51 percent between 1948 and 1958 compared to the 45 percent increase in school-age population. The table shows, however, that this increase was approximately 3 percent less than the increase in the state for this period.



TABLE 5

## NUMBER OF SCHOOL DISTRICTS IN THE TRI-COUNTY AREA, 1948-1958

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Clinton County	111	111	112	112	111	111	111	110	97	78	76
Eaton County	113	113	113	112	112	109	104	82	78	66	58
Ingham County	115	110	109	109	108	93	90	82	73	61	41
Tri-County	339	334	334	333	331	313	305	274	248	205	175

INDICES OF SCHOOL DISTRICTS IN THE TRI-COUNTY AREA, 1948-1958  
(1948=100)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Clinton County	100	100	101	101	100	100	100	99	87	70	69
Eaton County	100	100	100	99	99	97	92	73	69	58	51
Ingham County	100	96	95	95	94	81	78	71	64	53	36
Tri-County	100	99	99	98	98	92	90	81	73	61	52

SOURCE: State of Michigan, Department of Public Instruction

TABLE 6

CENSUS OF SCHOOL POPULATION FOR THE TRI-COUNTY AREA, CHILDREN 5-19 YEARS  
1948-1958

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Clinton County	8,948	9,129	9,191	9,366	9,748	10,060	10,389	10,623	10,861	11,000	11,205
Eaton County	9,994	10,355	10,686	10,831	11,221	11,742	12,307	12,641	13,411	14,347	15,172
Ingham County	34,867	35,329	35,991	37,152	38,923	42,105	44,256	45,966	48,352	49,821	51,629
Tri-County	53,809	54,813	55,868	57,349	59,892	63,907	66,952	69,230	72,624	75,168	78,006

INDICES OF TRI-COUNTY SCHOOL POPULATION, 1948-1958  
(1948=100)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Clinton County	100	102	102	104	108	112	116	118	121	122	125
Eaton County	100	103	106	108	112	117	123	126	134	143	151
Ingham County	100	101	103	106	111	120	126	131	138	142	148
Tri-County	100	101	103	106	111	118	124	128	134	139	145

SOURCE: State of Michigan, Department of Public Instruction

TABLE 7

## SCHOOL MEMBERSHIP IN THE TRI-COUNTY AREA FOR SELECTED YEARS

		<u>1948</u>	<u>1954</u>	<u>1958</u>
Clinton	Membership	6,054	6,909	7,868
	Index	100	114	130
Eaton	Membership	8,514	10,991	13,074
	Index	100	129	154
Ingham	Membership	26,890	35,008	41,701
	Index	100	130	155
Tri-County	Membership	41,458	52,908	62,643
	Index	100	128	151
State	Membership	984,571	1,253,602	1,518,121
	Index	100	127	154

SOURCE: State of Michigan, Department of Public Instruction

In concluding this subsection it can be noted that there do not appear to be any atypical changes in the Tri-County Area insofar as school district consolidation and school membership increase are concerned, since there are no large contrasts between the changes at the state and Tri-County levels. It appears that the present level of consolidation of school districts has been brought about by such factors as the demand for better educational facilities and opportunities as well as by financial pressures, state legislation and technological advance. Insofar as school membership increase is concerned, it is a corollary to the general population growth that has occurred in the last decade.

#### Receipts of the School Districts

The number of tax dollars available to the school districts in the Tri-County Area represents a substantial input of income in the economy. In fiscal 1958, for example, the three counties received well over \$30 million in school receipts; of this amount approximately 67 percent was received by school districts in Ingham County, 22 percent by districts in Eaton County and 11 percent by those in Clinton County. Excluding the Tri-County Area, all other districts in the state received approximately \$782 million in 1958, the amount for all school districts being \$813 million.

Table 8 shows the amount of school receipts for the years 1947-48 to 1957-58. It is evident that the Tri-County Area as a unit and Eaton and Ingham Counties individually have had a greater percentage increase than has the state.

TABLE 8

## SCHOOL RECEIPTS FOR SELECTED YEARS

	<u>1948</u>	<u>1954</u>	<u>1958</u>
Clinton	\$ 1,079,030	\$ 2,639,535	\$ 3,191,504
Eaton	1,683,885	3,455,596	7,265,342
Ingham	5,556,582	14,057,270	20,017,689
Tri-County	8,319,497	20,152,401	30,474,535
State	228,428,796	537,062,590	812,943,297

SOURCE: State of Michigan, Department of Public Instruction

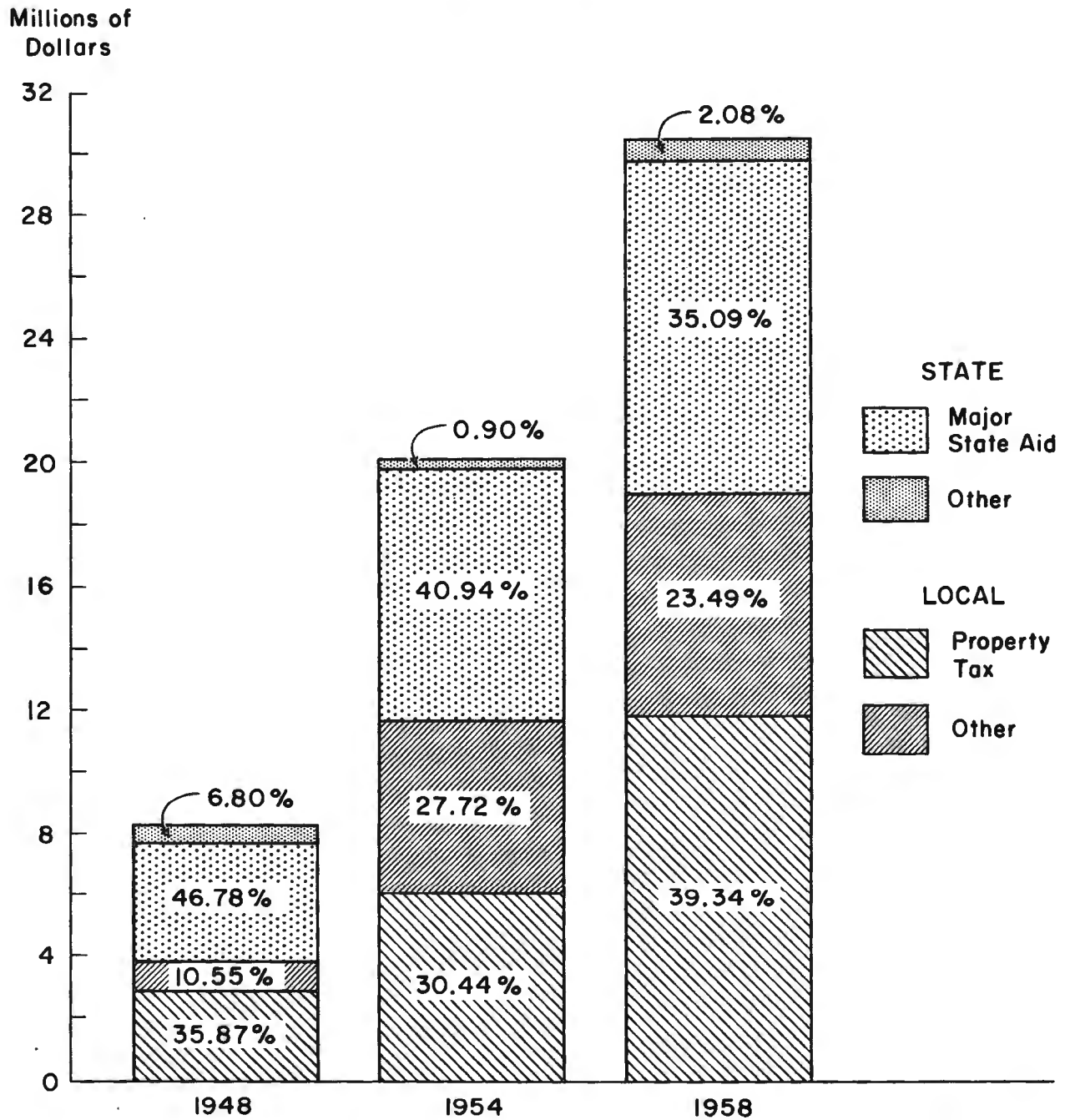
For the purpose of analyzing the receipts of school districts in the Tri-County Area, recourse is had to four categories: two state categories, Major State Aid and Miscellaneous State Aid; and two local categories, General Property Tax and Miscellaneous Local Receipts. In establishing these categories, it is necessary to combine three funds that are carried separately in school accounting procedure: the General Fund, the Building and Site Fund, and the Debt Retirement Fund.

Revenues under Miscellaneous Local Receipts come from an extremely wide variety of sources. The General Fund supplies fines collected by the library system; tuition payments and proceeds from the sale of land are also included. The Building and Site Fund provides funds from such diverse items as insurance settlements and the sale of district bonds, while the Debt Retirement Fund supplies interest on investments and other revenue and non-revenue receipts.

The Major State Aid category includes the School Aid Fund, the Primary School Interest Fund and sales tax receipts. The Miscellaneous State Aid category is a bit more varied than Major State Aid, and in recent years has included such grants as vocational education and aid to hardship districts.

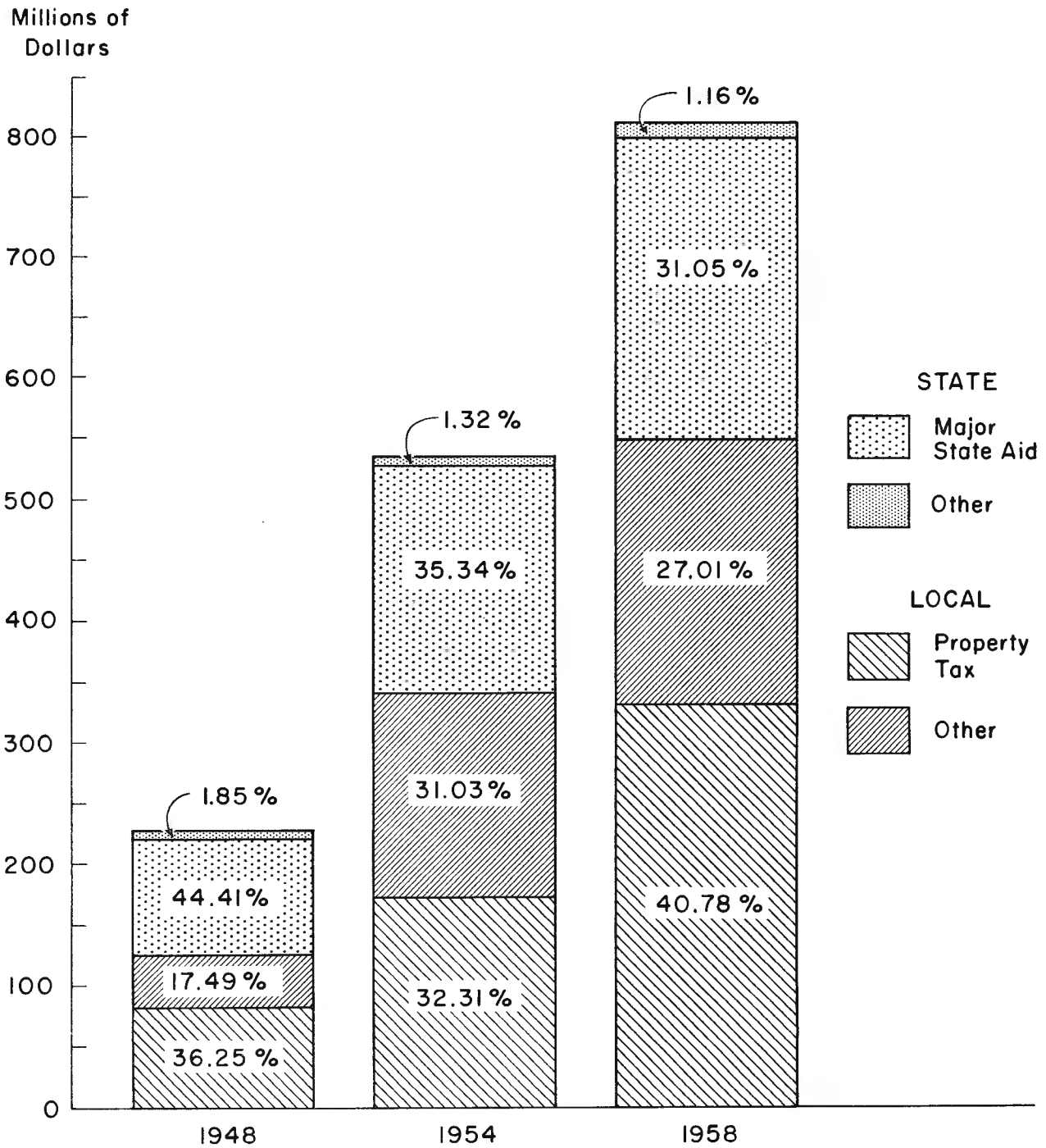
Charts I and II show the percentage that each of the above four categories contributed to school receipts in the Tri-County Area and the state of Michigan, respectively. It is evident that the percentage of total state aid shows a decrease of approximately 13 points between 1948 and 1958 for all school districts in the state and a 12 point drop for the Tri-County Area. For this period school districts in the Tri-County Area received between 5 and 7 percent more in the form of state aid than did the rest of the state. There is, of course, some variation among the three counties with respect to state aid. For example, in 1958 Clinton County received approximately 47 percent of its total receipts from state aid, while Eaton County had 35 percent and Ingham 36 percent of their revenue from this source.

**CHART I**  
**SOURCES OF SCHOOL RECEIPTS IN THE TRI-COUNTY AREA**  
**1947-1948 TO 1957-1958**



Sources: State of Michigan, Department of Public Instruction; Bureau of Business and Economic Research

**CHART II**  
**SOURCES OF SCHOOL RECEIPTS IN THE STATE OF MICHIGAN**  
**1947-1948 TO 1957-1958**



Source: State of Michigan, Department of Public Instruction

The reverse of the above process is reflected in the percentage of school receipts coming from local sources. In 1948 local sources supplied approximately 47 percent of all receipts for the schools in the Tri-County Area, whereas by 1958 this had increased to almost 63 percent. At the state level this percentage increased approximately 14 percentage points, from about 54 percent in 1948 to 68 percent by 1958.

Examining the increased percentage of receipts coming from local sources it appears that better than half are accounted for by Miscellaneous Local Receipts. In the state as a whole approximately 9 out of the 14 percentage points gain in local aid is accounted for by this category, while in the Tri-County Area about 13 points out of a 17 percentage point increase came in this way. Table 9 shows the corresponding gains for the various sources of school funds for both the Tri-County Area and the state of Michigan.

TABLE 9  
SCHOOL RECEIPTS FOR THE TRI-COUNTY AREA AND  
THE STATE OF MICHIGAN, BY MAJOR CATEGORY FOR SELECTED YEARS

	<u>State Receipts</u>		<u>Local Receipts</u>	
	<u>Major State Aid</u>	<u>Miscellaneous State Aid</u>	<u>General Property Tax</u>	<u>Miscellaneous Local Receipts</u>
1948 Tri-County	\$ 3,891,717	\$ 565,796	\$ 2,984,563	\$ 877,421
State	101,445,940	4,232,320	82,808,520	39,942,016
1954 Tri-County	8,249,822	221,992	6,133,924	5,587,111
State	189,792,884	7,098,268	173,535,467	166,635,971
1958 Tri-County	10,694,870	632,311	11,987,744	7,159,610
State	252,428,742	9,420,941	331,529,137	219,564,477

SOURCE: State of Michigan, Department of Public Instruction

Except for Miscellaneous State Aid, it is evident that in the Tri-County Area the percentage gains in the various types of receipts have exceeded the gains in comparable categories at the state level, with the most pronounced differences occurring in Miscellaneous State Aid and Miscellaneous Local Receipts. In the latter case, the Tri-County figure exceeds that of the state figure by well over 200 percent. For the two principle and relatively homogeneous categories, Major State Aid and General Property Tax, there is less discrepancy between the pattern for the Tri-County Area

and that of the state. For the former category the Tri-County Area shows a much faster and more consistent increase than do all school districts in the state, and in 1958 the increase in the Tri-County Area exceeded that of the state by 26 percent. Since 1948, Miscellaneous Local Receipts increased, both consistently and relatively, at both the Tri-County and state level.

To give some perspective to the significance of the general property tax with respect to school aid, attention is called to Table 10, which shows that in 1953 the average taxpayer in the Tri-County Area was contributing less than 50 cents out of each property tax dollar to the school districts. Four years later, in 1957, the same person in the Tri-County Area was spending about 55 cents of this tax dollar for schools, whereas the overall state figure was still below the 50 cent level.

TABLE 10

SCHOOL PROPERTY TAXES LEVIED AS A PERCENTAGE OF  
TOTAL PROPERTY TAX LEVIES, 1953 and 1957

	<u>1953 Levy</u>	<u>1957 Levy</u>
Clinton	43	60
Eaton	49	59
Ingham	47	54
Tri-County	47	55
State	42	48

SOURCE: State Tax Commission Biennial Report and Bureau of  
Business and Economic Research

As the above table suggests, there has been a marked increase in receipts for school districts in the Tri-County Area, even though the percentage of state aid has decreased. A partial explanation for this trend lies in the fact that funds devoted exclusively to the capital expansion of school facilities have grown faster than have funds earmarked for general purposes. This can be shown by the percentage which the general fund represented of total receipts for all school districts in the area. For example, in 1948 the general fund represented approximately 93 percent of total school receipts in the Tri-County Area, while by 1958 it had declined to approximately 71 percent.

Although the preceding analysis of the decline of state aid to local education generally holds true, there has been some variation in general fund receipts as is indicated in Table 11. While state aid declined relatively between 1954 and 1958, there was no significant difference between 1948 and 1958, and in both years it repre-



TABLE 11

SOURCE OF GENERAL FUND RECEIPTS BY PERCENT  
FOR SELECTED YEARS FOR THE TRI-COUNTY AREA

<u>Year</u>	<u>General Property Tax</u>	<u>Miscellaneous Local Receipts</u>	<u>Major State Aid</u>	<u>Miscellaneous State Aid</u>
1948	33.84	7.32	50.38	8.46
1954	26.22	13.21	59.26	1.31
1958	35.16	12.23	49.67	2.94

SOURCE: State of Michigan, Department of Public Instruction; Bureau of Business and Economic Research

TABLE 12

SCHOOL DISTRICT RECEIPTS PER PUPIL FOR THE TRI-COUNTY AREA  
(in current dollars)

	<u>General Fund Total</u>	<u>General Fund Property Tax</u>	<u>Major State Aid</u>	<u>Total Receipts</u>
1948				
Clinton	152	32	95	178
Eaton	186	41	101	198
Ingham	194	77	91	207
Tri-County	186	63	94	201
State of Michigan	207	67	103	232
1954				
Clinton	242	35	171	382
Eaton	276	43	169	314
Ingham	263	84	149	401
Tri-County	263	69	156	381
State of Michigan	284	92	114	428
1958				
Clinton	310	82	183	406
Eaton	307	66	190	556
Ingham	362	145	162	480
Tri-County	344	121	171	486
State of Michigan	374	157	166	535

SOURCE: State of Michigan, Department of Public Instruction; Bureau of Business and Economic Research

sented about 50 percent. Major State Aid declined less than 1 percent, the General Property Tax category increased approximately 1 percent, and the other two categories traded an approximate 5 percentage point change.

Table 12 ties together the information in the increase in school membership and changing school receipts. It is evident that since 1948 per-pupil receipts have shown a steady and substantial increase in the Tri-County Area. In that year they amounted to \$201 per pupil; in 1954, \$381 per pupil, and by 1958 the figure had jumped to \$486 per pupil. Per-pupil figures for all school districts in the state also show a substantial increase, with the figure for 1958 higher than the Tri-County figure by some \$49.

#### Expenditures of School Districts in the Tri-County Area

An analysis of the expenditures by the school districts in the Tri-County Area since 1948 shows that there has been a consistent gain. In 1948 the amount spent was \$7 million; in 1954 it had risen to \$17 million and in 1958 the school districts in the area were spending approximately \$30 million. For all school districts in the state the comparable figures are \$219 million, \$503 million and \$811 million, respectively. The ten-year trend represents a 304 percent increase in the Tri-County Area as compared to about a 270 percent increase for all school districts in the state.

Of the \$30 million spent on elementary and secondary education in 1958 in the Tri-County Area, approximately half, or about \$15 million, went in the form of wages and salaries, with the largest item in this category representing \$12 million for teachers' salaries. Expenditures for instruction were divided among 2,399 teaching positions for an average annual salary of \$4,794, the number of teachers representing about 4.3 percent of all teachers in school districts throughout the state. The average salary for all teachers in the state was \$5,340; the range of the latter was large, with a low of \$3,539 for teachers in some fourth-class school districts and a high of \$6,809 for teachers in the city of Detroit.

Table 13 lists the major functional categories of expenditures by school districts in the three counties, as well as each category's percentage of total expenditures. From the table it is evident that the largest item of expenditures (47 percent) was Instruction. It is interesting to note that the range for this category was minimal for the three counties in the area, the low being 47 percent in Ingham County, and the high 51 in Eaton County.

The second largest item was Capital Improvements, this amounted to approximately \$6 million in 1958, or 19 percent of the total disbursements, an increase of about 13 points over what it had been in 1948.

TABLE 13  
EXPENDITURES BY MAJOR FUNCTIONAL CATEGORIES FOR  
TRI-COUNTY SCHOOL DISTRICTS IN FISCAL 1958

	Dollars (thousands)	Percentage
Administration	\$ 840	3
Instruction	14,408	47
Operation of Plant	2,309	8
Maintenance	824	3
Auxiliary Services and Fixed Charges	1,321	4
Capital Outlay	5,615	19
Debt Retirement	1,665	6
Miscellaneous	<u>2,908</u>	<u>10</u>
Total	\$29,890	100

SOURCE: State of Michigan, Department of Public Instruction

### Section III HIGHER EDUCATION

In recent years the prospect of rising enrollments in institutions of higher learning in the United States has become a major problem of social and economic planning. Parents with children who will be ready to enter college in the 1960's and 1970's are concerned that there will not be adequate classroom space. The administrative heads of academic institutions have made serious statements about the burden that increased enrollments will place upon existing facilities which even now are inadequate. The prospect of a serious teacher shortage is the subject of daily editorializing.

So far as the Tri-County Area is concerned, however, this prospective increase, a nightmare for many other groups in the country, turns out to be a blessing. The anticipated enrollments will require not only the enlargement of facilities in East Lansing, Lansing and Olivet, but in addition there will also be the many corollaries which naturally accompany the growth of any major economic unit. In the next decade, the economic base of a large section of the densely populated areas of the Tri-County Area will become more dependent upon the growth of Michigan State University. It is estimated, for example, that by 1965 and 1970 the number of students attending institutions of higher learning in Michigan will increase by 43 percent and 79 percent respectively (see Table 14).

There are four institutions of higher learning in the Tri-County Area. Two of these, Lansing Community College and Lansing Business University, have very small enrollments and therefore play a relatively insignificant role. On the other hand, Olivet College, which is located in the southwestern section of Eaton County, while small compared to the University at East Lansing, nevertheless is an important economic unit in the southern portion of the Tri-County Area and performs an important function in the local cultural, social and economic life. While the other educational institutions perform an ever-increasing function in the Tri-County Area in supplying a better trained labor force, Michigan State University is important nationally as an institution of higher learning, and together with the economic activity guaranteed by the state government's location in Lansing, will play an ever more important role in the daily lives of those living in the Tri-County Area.

TABLE 14  
ENROLLMENT IN MICHIGAN'S COLLEGES AND UNIVERSITIES  
1957-1970

<u>Institutional Group</u>	Actual	Estimated	Estimated	Percent Increase	
	Fall Term 1957	Fall Term 1965	Fall Term 1970	over 1957 1965	1970
State-supported					
Institutions	90,950	130,025	160,175	40	73
Private Institutions	28,902	45,150	55,450	56	93
Community Colleges	19,079	26,674	36,347	40	90
Total	140,931	201,849	251,972	43	79
Totals as Projected* by Survey Staff in the Preliminary Report	138,805**	217,075	289,979	56	109

\* Preliminary Report to the Michigan Legislative Study on Higher Education, March, 1957.

\*\* This is the figure projected in the Preliminary Report, issued in March, 1957, for the 1957 fall term enrollments. The estimate was too low, as the data of the table indicate, but this estimate, rather than the actual enrollment, is used in the computation so as to reflect properly the percentage of increase in the projection of total state-wide enrollment for 1965 and 1970.

SOURCE: John Dale Russell, Staff Study No. 11, The Survey of Higher Education in Michigan, Institutional Planning for Higher Education in Michigan (Lansing: 1958)

Aware of the rapid expansion that will occur in college populations, in 1955 Michigan State University projected the number of students expected by 1970; as Chart III indicates, its enrollment is expected to be about 35,000 by that time. As the chart shows, there is an indication that actual enrollments have already exceeded those expected on the basis of the projection. This in itself is evidence that the projected enrollment for Michigan State University is conservative. At the same time, the Russell report suggests that while Michigan State University's share of enrollment in state-supported institutions shows a slight increase, its percentage share of all Michigan enrollment may decline slightly between 1957 and 1970. However, enrollments since 1957 do not bear out the suggestion that private institutions of higher learning may grow at a slightly higher rate than those operated by the state.

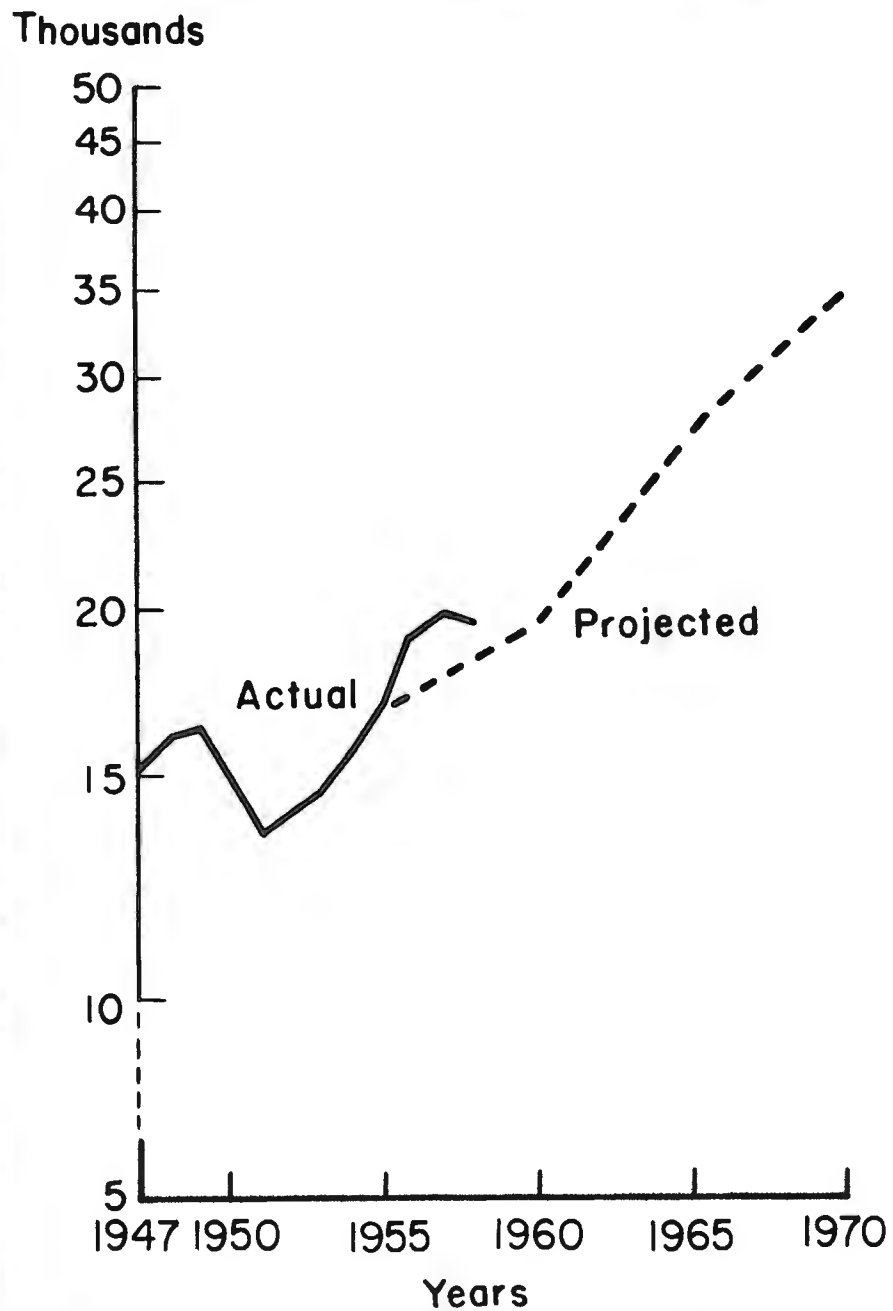
Considering the increase in enrollment expected, Michigan State University should be provided with funds to carry out a systematic building program now in order to avoid the inefficiency of a crash effort. Space allocation is essential to meet the future demands that the substantial additional enrollment in the next decade will require. It is currently estimated that space allocation per student is 200 sq. ft., with each square foot at a cost of approximately \$20. Such costs mean that for each additional student \$4,000 would be required for building construction and other incidental costs. In other words, to accommodate the additional 15,000 students by 1970 would require \$60 million in new facilities. It is this type of expansion which will be of major importance to the economic life of the Tri-County Area.

#### Michigan State University

The University has been one of the fastest growing income sources in the Tri-County Area. In a ten-year period its direct expenditures have more than doubled, increasing from approximately \$24 million in 1948 to \$56 million in 1957. At the same time, students from the Tri-County Area have increased their share of total attendance from 15 percent in 1950 to 19 percent in 1958. The state of Michigan as a whole contributes over three-quarters of total enrollment, while the enrollment from other states has been running close to 20 percent; about 400 students from foreign countries are in attendance currently. Table 15 reveals the changes in enrollment at Michigan State University for the period 1947-1948 to 1958-1959.

The increase in enrollment which has occurred during this period has had its impact upon the size of the state appropriation and student fees as well. It is also significant in terms of the income which these students bring to the community. In this latter respect, for example, it is estimated that single students have an annual expenditure of approximately \$1,300 (Table 16), which means a total expenditure of about \$26 million for the 20,000 enrolled in 1957-1958. Of this amount about \$225 per capita is spent on goods and services within the local business communities, a total of about \$4.5 million. In addition expenditures for room and board for those

CHART III  
MICHIGAN STATE UNIVERSITY  
ENROLLMENT, 1947-1959 WITH  
PROJECTIONS TO 1970



Source: Office of the Registrar, Michigan State University

TABLE 15  
MICHIGAN STATE UNIVERSITY ENROLLMENT  
1947-1959

1947-1948	15,208
1948-1949	16,010
1949-1950	16,243
1950-1951	14,993
1951-1952	13,593
1952-1953	14,085
1953-1954	14,609
1954-1955	15,525
1955-1956	17,176
1956-1957	19,125
1957-1958	19,785
1958-1959	19,516

SOURCE: Michigan State University

students who do not live in university housing also constitute a part of the community's income flow. Student expenditures for books in large part benefit the private sector of the East Lansing business community since the University Book Store is only one of half a dozen in the immediate area.

TABLE 16  
ESTIMATED ANNUAL EXPENSES BY UNMARRIED STUDENTS  
1958-1959

<u>Basic Expenses</u>	<u>Course Fees</u>	<u>Board and Room Residence Halls</u>	<u>Books (Est. Avg.)</u>	<u>Incidentals (Laundry, etc.)</u>	<u>Total</u>
Fall Term	\$ 85.00	\$255.00	\$45.00	\$ 75.00	\$ 460.00
Winter Term	85.00	255.00	25.00	75.00	440.00
Spring Term	85.00	255.00	25.00	75.00	440.00
Year Total	\$255.00	\$765.00	\$95.00	\$225.00	\$1,340.00

SOURCE: Michigan State University

As shown in Table 17, the number of married students has increased from 3,161 in 1954 to over 6,000 in 1958, as the percentage of married students to the total enroll-

TABLE 17

## MICHIGAN STATE UNIVERSITY

DISTRIBUTION OF ENROLLMENT: UNDERGRADUATE, GRADUATE, AND  
MARITAL STATUS OF STUDENTS, 1954 AND 1958

	<u>1958</u>			<u>1954</u>		
	<u>Men</u>	<u>Women</u>	<u>Total</u>	<u>Men</u>	<u>Women</u>	<u>Total</u>
Total - Resident Credit	13,139	6,377	19,516	10,316	5,209	15,525
Undergraduate	10,387	5,491	15,878	8,993	4,897	13,890
Married Students	2,855	877	3,732	1,757	370	2,127
Graduate	2,752	886	3,638	1,323	312	1,635
Married Students	1,807	491	2,298	897	137	1,034
Total Married Students	4,662	1,368	6,030	2,654	507	3,161

## GEOGRAPHIC DISTRIBUTION OF STUDENTS

	<u>1958</u>			<u>1954</u>		
	<u>Men</u>	<u>Women</u>	<u>Total</u>	<u>Men</u>	<u>Women</u>	<u>Total</u>
Total - Resident Credit	13,139	6,377	19,516	10,316	5,209	15,525
Total - Michigan	10,047	5,313	15,360	7,943	4,353	12,296
Total - Other States	2,724	988	3,712	2,069	793	2,862
Total - U. S. Possessions and Foreign	368	76	444	304	63	367
Tri-County Area						
Clinton	127	72	199	67	38	105
Eaton	174	105	279	146	61	207
Ingham	2,086	1,178	3,264	1,306	812	2,118
Total Tri-County	<u>2,387</u>	<u>1,355</u>	<u>3,742</u>	<u>1,519</u>	<u>911</u>	<u>2,430</u>

SOURCE: Michigan State University, Office of the Registrar - Enrollment Report



ment increased from 20 percent to 31 percent. The percentage of undergraduate students has declined from about 90 percent in 1954 to 81 percent in 1958, reflecting an increased emphasis upon research and graduate training. During the 1954-1958 period, the percentage share of married students in the undergraduate division increased from 15 percent in 1954 to 24 percent in 1958. In the same period, the percentage of married students in the graduate school remained the same: 63 percent of total graduate enrollment. Obviously the increase in the marriage rate among students at the University has an economic impact, as a higher proportion of married students means a higher proportion of household units, which have greater expenditures than single students living in university dormitories. Even with the University supplying relatively low cost housing to married students, the business community profits through the extra income spent upon food, clothing and baby carriages.

#### Operating Expenditures

So far as the community is concerned, it is the total expenditure of Michigan State University which has the greatest economic impact. As already noted, this expenditure amounted to \$56 million in 1957-1958, more than double the amount spent ten years earlier (see Table 18). The general university operating expenses constituted about one-half of this sum and covered such things as instruction, general research, student services, general administration, business operations and plant maintenance. Other expenses in order of importance were auxiliary activities for dormitories, food service, union building, bookstore, creamery and the athletic departments; research and extension, including the Agricultural Experiment Station, Cooperative Extension, the Highway Traffic Safety Center, and the Labor and Industrial Relations Center, as well as state and federal grants to individual research projects; departmental activities connected with University departments which sell to the general public, e. g. books; expendable gifts and grants made by individuals and enterprises that are used for scholarships, fellowships, and student aid, as well as specially designated grants; University administered agency funds of student organizations and other types of activity for which the University serves as a banking agent.

With the exception of agency funds, all of the various types of expenditures have either doubled or more than doubled during the past decade. The increase in these funds is partly attributable to the rising costs of operations, but mostly to the expansion in the University's activity.

To meet these rising costs, the University has had to depend more and more upon state appropriations, which, as Table 19 indicates, have increased more than three-fold since 1947-1948. The second major source of University revenue has been, and continues to be, student fees, even though they have declined from 35 percent of revenue in 1947-1948 to 20 percent in 1957-1958. Federal grants and income from grants made under the Morrill Act have remained relatively constant, and percentage-wise they are of little significance to the University's operation. As Table 19 suggests, revenue

TABLE 18

OPERATING EXPENSES OF MICHIGAN STATE UNIVERSITY  
1947-1958  
(in thousands of dollars)

<u>Year</u>	<u>General University Operating</u>	<u>Research and Extension</u>	<u>Auxiliary Activities</u>	<u>Departmental Activities</u>	<u>Expendable Gifts</u>	<u>Agency</u>	<u>Total</u>
1947-1948	12,958	2,517	5,604	2,332	15	470	23,896
1951-1952	14,158	4,026	8,609	1,336	81	-0-	28,212
1952-1953	14,905	4,363	8,875	1,750	97	1,112	31,105
1953-1954	16,201	5,104	9,406	2,020	88	1,179	34,001
1954-1955	17,687	6,148	10,321	2,032	338	1,326	37,854
1955-1956	21,052	7,850	11,571	2,518	535	1,319	44,848
1956-1957	24,102	9,327	12,037	2,621	447	968	49,534
1957-1958	28,158	10,992	12,345	2,885	570	883	55,835

SOURCE: Michigan State University, Annual Reports

TABLE 19

REVENUE SOURCES OF MICHIGAN STATE UNIVERSITY, 1947-1958  
(in thousands of dollars)

<u>Year</u>	<u>State Appropriation</u>	<u>Federal Land Grant Interest</u>	<u>Federal Grants</u>	<u>Student Fees</u>	<u>Dept. Sales and Misc.</u>	<u>Total</u>
1947-1948	6,492	74	1,103	4,578 *	830	13,077
1948-1949	8,064	74	1,231	4,669 *	776	14,814
1949-1950	7,619	74	129	4,455 *	379	12,656
1950-1951	9,080	74	129	3,360 *	448	13,091
1951-1952	10,005	74	133	2,836	530	13,578
1952-1953	11,334	74	133	2,901	580	15,022
1953-1954	12,432	74	133	2,914	565	16,118
1954-1955	13,879	74	133	3,261	586	17,933
1955-1956	16,280	74	133	4,004	748	21,239
1956-1957	18,789	74	133	4,371	709	24,076
1957-1958	21,132	74	133	5,444	1,067	27,850

## PERCENTAGE DISTRIBUTION OF SOURCES OF REVENUE

1947-1948	49.6	.6	8.4	35.0	6.3	100.0
1948-1949	54.5	.5	8.3	31.5	5.2	100.0
1949-1950	60.2	.6	1.0	35.2	3.0	100.0
1950-1951	69.3	.6	1.0	25.7	3.4	100.0
1951-1952	73.7	.5	1.0	20.9	3.9	100.0
1952-1953	75.4	.5	.9	19.3	3.9	100.0
1953-1954	77.1	.5	.8	18.1	3.5	100.0
1954-1955	77.4	.4	.7	18.2	3.3	100.0
1955-1956	76.7	.3	.6	18.9	3.5	100.0
1956-1957	78.0	.3	.6	18.2	2.9	100.0
1957-1958	75.9	.3	.5	19.5	3.8	100.0

\* Tuition fees were inflated during these years by federal payments for veterans.

SOURCE: Michigan State University, Financial Reports

sources associated with sales from individual University departments which sell to the general public have not kept abreast of the two major sources of revenue (appropriations and student fees), with the result that they too have fallen in their percentage contribution to University funds.

#### Construction on Campus

In the past six years the University has expended over \$61 million for construction. Nearly three-quarters of the amount spent between 1954 and 1959 came from borrowed funds; almost 3 percent came from gifts, and the remaining was financed with state appropriations. Although several projects were completed in the last few years, there is yet an acute space problem and about 25 percent of the classes meet in temporary classroom buildings.

TABLE 20  
MICHIGAN STATE UNIVERSITY CONSTRUCTION EXPENDITURES\*  
State

<u>Year</u>	<u>Borrowed Funds</u>	<u>Appropriation</u>	<u>Other Funds</u>	<u>Total</u>
1953-1954	\$ 3,423,313	\$ -0-	\$ -0-	\$ 3,423,313
1954-1955	14,718,000	8,120,000	-0-	22,838,000
1955-1956	2,420,000	-0-	80,000	2,500,000
1956-1957	10,220,000	400,000	224,000	10,844,000
1957-1958	10,125,000	4,000,000	-0-	14,125,000
1958-1959	<u>4,000,000</u>	<u>1,900,000</u>	<u>1,500,000</u>	<u>7,400,000</u>
Total	\$44,906,313	\$14,420,000	\$1,804,000	\$61,130,313

\*Cost of projects completed in the fiscal years indicated

SOURCE: Michigan State University, Business Office

Table 20 shows construction expenditures in the fiscal years in which the projects were completed. To serve the increasing number of married students over 300 housing units were completed in 1954, costing over \$3.4 million. These units were financed totally with borrowed funds.

During the year 1955 several projects were completed, and over \$14.7 million of borrowed funds were expended for the following buildings: Brody Dormitory group for students, costing \$13.1 million; Cherry Lane Apartments for students, costing over \$1.6 million. The state appropriation fund for that year ran over \$8 million, of which \$4 million were allocated for a library building, and the remaining \$4 million for Anthony Hall, to provide facilities for the animal husbandry, poultry and dairy departments.

In 1956 additions were made to the Health Center, Stadium and Music Building. The addition to the Health Center has helped to double the bed capacity and to provide medical facilities for an expanded student body. The cost for the project was \$1,650,000. The latter, together with the \$400,000 Stadium addition and the Music Building addition, were all financed with borrowed funds.

In 1957 nearly \$11 million were expended mostly from borrowed funds. Among the major projects were the Spartan Village married housing apartments, a \$5.2 million step in the long-range housing program of the University. The Student Services Building was completed at a cost of \$2.5 million, providing facilities for student government offices and student publications, high school cooperation, Alumni offices, Michigan State University Development Fund, Placement, Counseling Center, Housing, Advisor to Foreign Students, Dean of Students' offices, and Scholarships. The stadium upper deck addition was made in 1957 and added 16,000 seats, increasing the capacity to 76,000. This addition cost the University slightly over \$2 million and is expected to be financed out of future athletic income. Van Hoosen Hall, built in 1957, contains 32 apartments, each designed to accommodate six single women. The project cost \$570,000. Food Technology cost \$225,000, two-thirds from other funds and one-third from state appropriation. With the completion of the new library, renovation of the old library for use as a museum was made possible. For this latter work, the state appropriated \$325,000.

In 1958 over \$14 million were spent, \$4 million of which was state appropriated with the remainder coming from borrowed funds. The new building for the College of Education, as well as 800 new housing units, costing \$7.5 million, and a \$2,650,000 addition to the women's gymnasium, were all added in 1958.

Of the total expenditure of \$7.4 million in 1959, \$4 million came from borrowed funds, \$1.9 million from state appropriation and \$1.5 million other funds. The Men's Intramural Building, costing \$4 million, was financed with borrowed funds. This building provides space for intramural physical education and athletics. A new 6,000 KW turbine generator was installed in the utility plant, thus enabling the University to generate its own electric power. A state appropriation of \$1.9 million financed this addition.

In addition, Kresge Art Center, which was started during last year, is now completed. This project cost approximately \$1.5 million and is being financed by a gift from the Kresge Foundation. The building is used for classrooms, studios and faculty offices, as well as for galleries for the display of paintings and art objects.

Also in the spring of 1959 a new wing of the Kellogg Center was completed. This addition has office space and conference rooms to meet the increasing number of conferences being held at the Center. The cost of this project amounted to \$.5 million, half

of which was a gift of the W. K. Kellogg Foundation and the balance paid from the earnings of the Kellogg Center.

Other Income-Generating Sources of Michigan State University

Resident credit enrollment is not the only source of income generated by Michigan State University in the Tri-County Area. Athletics, especially football and basketball, are some of the major activities which attract people from outside. Fifty percent of all season football tickets are sold in the immediate area, and the remaining 50 percent sold outside the Tri-County Area. Ticket sales for these two major activities were about \$1.5 million for the 1958-1959 season. The seating capacity of the stadium is 76,000; when even partially filled it represents a sizeable source of funds for Lansing-East Lansing restaurants, motels and amusement centers.

In addition, the Continuing Education program attracts over 50,000 participants to the numerous adult education conferences, thus serving the needs of Michigan citizens, communities and organizations. Expenditure for this type of activity for the year 1957-1958 amounted to \$1.3 million, only about half of which came from University funds, with a large percentage of the costs for such conferences being borne by the participants.

The University's Kellogg Center accommodates the majority of the people attending the conferences associated with Continuing Education. Although facilities are made available on the campus for these conferences, many of the participants room in local motels or downtown hotels, and about 25 percent of the participants residing in the Kellogg Center have their dinner in downtown hotels or restaurants.

Olivet College

Olivet College is located in Eaton County, about 35 miles south of Lansing, and has a long history as an outstanding small liberal arts college, with fourteen permanent buildings. Though the village of Olivet was recently incorporated as a city, the area remains a rural one, and the city numbers about 800 people. Olivet College enrolled 370 students in the academic year 1958-59, with most of these students coming from outside the immediate area. The college attracts its students from all over the state, and 1958-59 enrollment figures indicate that the number of students has increased threefold since the 1950-51 enrollment. At this rate of increase and with the college-age population rapidly rising, it is estimated that by 1970 Olivet College will have 800 students (see Table 21).

With the increase in enrollment which has occurred to date, current expenses have more than doubled--an increase from \$279,000 in 1954-1955 to \$590,000 in 1958-1959 (see Table 22). Over 70 percent of the current expenses are in the operating account, the remaining 30 percent being auxiliary activities and other expenses.

TABLE 21

## OLIVET COLLEGE ENROLLMENT 1950-1959, WITH PROJECTIONS TO 1970

	<u>Year</u>	<u>Number of Students</u>
	1950-1951	142
	1951-1952	142
	1952-1953	149
	1953-1954	180
	1954-1955	198
	1955-1956	266
	1956-1957	290
	1957-1958	310
	1958-1959	370
Projection	1959-1960	400
	1970	800

SOURCE: Olivet College, Registrar's Office

TABLE 22

## CURRENT EXPENSES OF OLIVET COLLEGE

<u>Year</u>	<u>Operating Expenses</u>	<u>Auxiliary Activities</u>	<u>Other</u>	<u>Total</u>
1954	n. a.	n. a.	n. a.	\$278,850
1955	n. a.	n. a.	n. a.	291,702
1956	\$239,727	\$106,560	\$11,151	357,438
1957	305,910	115,689	-0-	421,599
1958	350,719	135,210	-0-	485,929
1959	411,205	161,427	8,123	580,755

n. a. - not available

SOURCE: Olivet College, Current Fund Income and Expenses Report

Current expenses of over half a million dollars are financed by a number of sources with almost 70 percent coming from student fees, which now run to \$1,237 in tuition, room and board per year. Although contributions show a declining share of total revenue, they represent a fourth of all income. Half of these contributions are made by churches and church members of the Congregational faith.

TABLE 23

REVENUE SOURCES OF OLIVET COLLEGE, 1954-1959

<u>June 30</u>	<u>Income from Students</u>	<u>Contributions</u>	<u>Other Income</u>	<u>Total</u>
1954	\$174,682	\$ 87,768	\$19,351	\$281,801
1955	195,211	77,781	21,700	294,692
1956	251,346	134,268	27,076	412,690
1957	276,986	106,817	39,107	422,910
1958	331,982	145,501	23,666	501,149
1959	412,014	156,811	29,091	597,916

SOURCE: Olivet College, Current Fund Income and Expenses Report

Building Program

To meet the expected increase in enrollment over the next decade, Olivet College has begun a \$4 million expansion in plant and facilities. A \$40,000 stop-gap project was completed in time for fall classes in 1959, and this met the critical classroom shortage brought about in part by a May, 1959 fire in one of the largest buildings on campus. The long-range building program will get under way with a \$1 million edifice, devoted to classes and faculty offices.

Lansing Community College

This institution has a two-year college curriculum in business training and in liberal arts. In addition, the college also offers a joint program in practical training in a specific skilled trade, and the related academic training provided at the college. The program is not trade training alone, since there are numerous supplements to on-the-job experience. The applicant must be employed as an apprentice before attending classes. At present a sizable group of students is enrolled, sponsored by one of the larger manufacturing firms in the area.

Lansing Community College also conducts courses in three fields of technology: electronics, civil, and mechanical engineering. In the field of civil technology the



student is trained to become a qualified topographical draftsman, construction inspector, and materials tester. In Electronics Technology, the technician is trained to prepare blueprints and to assist in the construction of electrical and electronic apparatus. Moreover the graduate will be able to supervise the work of others and to describe with technical accuracy the functions of the machines he controls. The technician becomes an indispensable part of such fields as automation, radio, television, digital and analog computers, electronic motor control, welding control, and telemetry. With automated machinery and household equipment, additional persons in selling and servicing will be made available because of Lansing Community College's training.

Lansing Community College was established in the fall of 1957, and at the time of its opening had slightly over 200 students. By 1959 the number had almost tripled. Such an increase in two years is an indication of the need for this type of training. In response to community demand the program has been enlarged, both in terms of fields and in additional courses in the existing fields. Lansing Community College projections show that by 1970 it will have close to 2,000 students.

Revenues for this institution come from several sources. State aid constitutes about 50 percent of the total operating expenses of over \$160,000. Over one-third of revenue comes from a tuition charge of \$200 per student. The balance of the revenue (15 percent) is derived from Federal Vocational Funds.

#### Lansing Business University

This institution has served Lansing and Central Michigan in the field of business education since 1867. Its program varies from 36 to 120 weeks of instruction, depending on the nature of the course. There are eight different departments each of which offers opportunities for advancement in the competitive business world. For example, clerk-typist and stenographic courses are designed to provide minimum skills necessary for satisfactory performance on the job. The Business Administration course is designed for those who are seeking a broader understanding in order to enable them to deal intelligently with business problems.

The University conducts day and night courses for about 250 students each quarter. Day students pay a tuition of \$150 for a twelve-week term, night students pay \$75 for sixteen weeks. The University is self-supporting, covering its operating expenses with tuition.

In 1951 a state-wide expansion program was inaugurated. This program involved the merger of several Michigan business schools into the Davenport Business Schools. It now enjoys the status of a non-profit educational organization, chartered by the state as a Class A College.

In response to the community demand for its services, the Lansing Business University has started a \$.5 million building for use by September 1960. The cost of construction is provided mainly by borrowed funds and partly from past earnings. The University's goal for 1970 is 1,000 students.

#### Summary

It may be noted that in the institutions mentioned above there is considerable activity in planning for future developments. The planning is at different stages in the various institutions. In most cases, however, there is a clear realization of the necessity for meeting the challenge that will be presented in the rapid increase in enrollments in the next 15 or 20 years. Many Michigan institutions expect to accept their share of the increase.

## CHAPTER 7

### AGRICULTURE

The agricultural sector of the economy of the Tri-County Area is composed mostly of small farming units, and is responsible for only 2 percent of the output produced by all economic sectors. Accordingly, the agricultural sector represents an insignificant portion of the area's economic base even though about 86 percent of the land is devoted to it. As a matter of fact, the Tri-County Area imports a greater proportion of agricultural items than it exports.

Measuring the economic significance of any economic sector is dependent upon collecting data derived from market phenomena; goods must be sold before their contribution to the community's income can be estimated. In the case of agriculture, a sizeable portion of the sector's output is consumed directly, with the result that a portion never reaches the market. In evaluating the significance of agriculture and its contribution to the economic base of the Tri-County Area, it should be borne in mind that there are serious limitations on gathering data for this economic sector.

For the purpose of this study, the area's agricultural output has been classed under two broad categories, livestock-dairy-poultry products and crops-vegetables-fruits-nuts. In 1958 the former category had a net import deficit of about \$15 million, while the latter had a net export surplus of about \$10 million, the area's 1958 net deficit for agriculture running to approximately \$5 million. The common statement that the Lansing area is an agricultural one must be considerably qualified in the light of these facts.

#### Types of Farms and Production in the Tri-County Area

The type of farming in any community is largely determined by such factors as the physical environment, alternative economic opportunities open to farm workers, and potential markets for farm crops. Accordingly, the crop and livestock production of the Tri-County Area is typical of the Michigan and Great Lakes agricultural region. Table 1 shows a breakdown of these crop and livestock outputs for the period 1945-1958. As the table suggests, corn led the production for all crops in these years, followed by wheat and oats. This is due to the fact that the local area is a part of Michigan's Corn Belt; in 1958 the state was the ninth largest producer of corn in the nation. In 1958, Michigan's output of winter wheat was tenth nationally and the state ranked eighth in the production of oats. Michigan's most important crop, dry beans, is of minor importance in the Tri-County Area, and

over the 14 year period 1945-1958 there has been a decline in the output of this crop, even though there was some increase between 1955 and 1958.

TABLE 1  
CROP AND LIVESTOCK PRODUCTION  
IN THE TRI-COUNTY AREA, 1945-1958  
(in thousands)

Crop <sup>1</sup>	<u>1945</u>	<u>1950</u>	<u>1955</u>	<u>1958</u>
Corn	5,843	5,119	9,442	10,240
Winter Wheat	2,827	9,332	2,754	3,681
Oats	5,606	4,729	5,005	4,501
Potatoes	348	136	115	n. a.
Dry Beans	299	268	115	166
Barley	150	99	183	308
Soy Beans	48	46	130	247
Sugar Beets (tons)	40	57	37	25
Hay (tons)	204	208	192	230
 Livestock				
Cattle and Calves	113	117	128	121
Milch Cows	63	67	61	54
Stock Sheep	75	53	40	38
Hens and Pullets	683	644	630	560
Sows	18	23	25	21

n. a. not available

<sup>1</sup>bushels, unless otherwise indicated

SOURCE: Michigan Department of Agriculture

In addition to these more common crops, the Tri-County Area also raises some specialty items. For example, the three counties are among the leaders in the production of spearmint and peppermint. Dry onion production is very important, and Ingham and Eaton are among the top 45 producing counties in the United States. Specialty items such as these grow in the muck soils, which result from the drying-up of glacially-impounded lakes.

TABLE 2

## VALUE OF FARM PRODUCTS SOLD IN THE TRI-COUNTY AREA

1949 - 1958

(in thousands of dollars)

	<u>1949</u>		<u>1954</u>		<u>1958</u>	
	<u>Value of Products</u>	<u>Percentage Distribution</u>	<u>Value of Products</u>	<u>Percentage Distribution</u>	<u>Value of Products</u>	<u>Percentage Distribution</u>
Crops	\$ 8,871	30.9	\$13,264	37.4	\$15,395	40.4
Field Crops, other than vegetables, fruits and nuts	7,961	27.7	12,024	33.9	13,750	36.1
Vegetables, fruits and nuts	598	2.1	889	2.5	1,245	3.3
Horticultural specialties	312	1.1	351	1.0	400	1.0
Livestock and Livestock Products	19,735	68.6	22,009	62.1	22,500	59.1
Dairy products	9,450	32.9	11,137	31.4	11,000	28.9
Poultry and poultry products	2,179	7.5	2,548	7.2	2,500	6.6
Livestock and livestock products	8,106	28.2	8,324	23.5	9,000	23.6
Forest Products	143	0.5	179	0.5	200	0.5
All Farm Products	28,749	100.0	35,452	100.0	38,095	100.0

SOURCE: U. S. Census of Agriculture; Bureau of Business and Economic Research

### Farm Income

As shown in Table 2, gross farm income in the Tri-County Area received from products sold (exclusive of government payments) amounted to over \$38 million in 1958. This sum represented an increase of 33 percent over the gross income received in 1949. Table 2 also shows the percentage distribution of the various farm products sold. Although receipts in 1958 had an absolute increase over receipts in 1949, the percentage distribution of the items has varied. For example, income from livestock and livestock products declined from 69 percent in 1949 to 59 percent in 1958; crop receipts rose from 30 percent to 40 percent of all agricultural income. Nevertheless, income from livestock and livestock products still represents the greatest source of agricultural sales.

Field crops (other than vegetables and fruits and nuts) had by far the largest share of the crop market, and the percentage increase in crop income is primarily due to this item. In the livestock category, dairy products and livestock represented most of the income from the sale of farm items. Poultry and poultry products accounted for only 7 percent of all farm products (see Chart I).

In addition to cash farm receipts, government payments in the Tri-County Area amounted to \$2 million in 1957, the latest year for which figures are available. Of this total about two-thirds went as incentives to wool producers and to beneficiaries of the soil bank; the remaining one-third represented loans and financial assistance to farmers.

### Employment and Population

In 1954 the agricultural labor force in the Tri-County Area numbered over 12,000. Nearly 7,000, about 54 percent of the work force, were either farm operators, working one or more hours per week on their own land, or workers related to them. About 3,000, 27 percent of the farm working force, were unpaid family workers, and

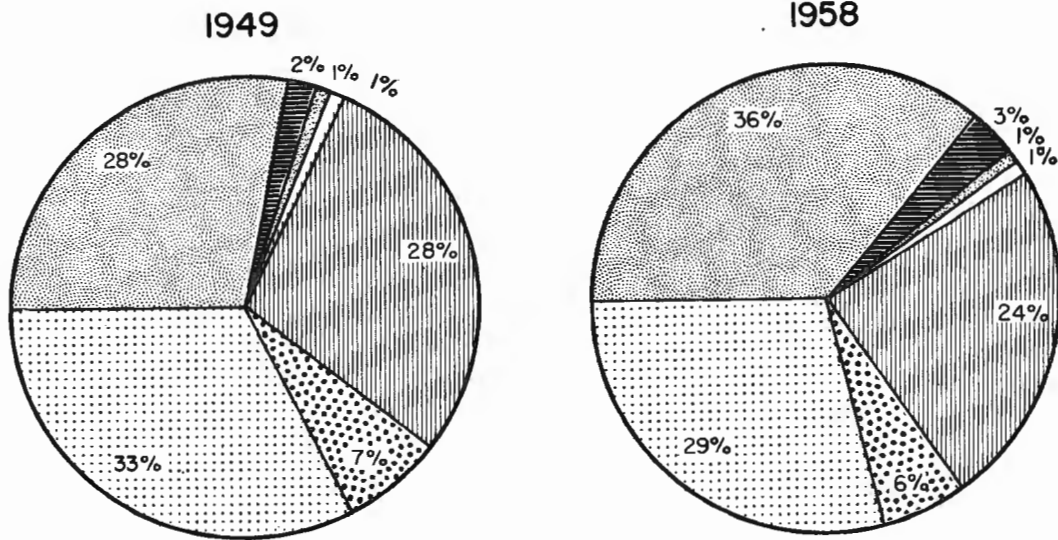
TABLE 3








#### AGRICULTURAL LABOR FORCE IN THE TRI-COUNTY AREA, 1954

	<u>Number Employed</u>	<u>Percentage Distribution</u>
Operators working one or more hours	6,743	54
Unpaid family members	3,395	27
Hired workers working less than 150 days	1,671	14
Hired workers working 150 or more days	598	5
Total	<u>12,407</u>	<u>100.0</u>

SOURCE: U. S. Census of Agriculture; Bureau of Business and Economic Research

CHART I  
 PERCENTAGE DISTRIBUTION OF RECEIPTS  
 IN THE TRI-COUNTY AREA, 1949 AND 1958



- |   |   |  |
|---|---|--|
|  FIELD CROPS, OTHER THAN VEGETABLES, FRUITS AND NUTS |  HORTICULTURAL SPECIALTIES                         |  POULTRY AND PRODUCTS |
|  VEGETABLES, FRUITS AND NUTS                         |  FOREST PRODUCTS                                   |  DAIRY PRODUCTS       |
|   |  LIVESTOCK AND LIVESTOCK PRODUCTS OTHER THAN DAIRY |  |

SOURCE: U.S. CENSUS OF AGRICULTURE

the remaining 19 percent were hired hands. Of this hired farm work force, about three-fourths were occupied less than 150 days during the year, while the remaining one-fourth labored for 150 days or more (see Table 3).

Many farm owners were not full-time operators, since they received a part of their income from sources other than the sale of farm products. About one-fourth of all operators had income in excess of the value of the farm products they sold. The large amount of nonfarm employment is explained, of course, by the availability of manufacturing employment in metropolitan Lansing, as well as neighboring communities.

As a result of increased mechanization, agricultural employment in the Tri-County Area has declined steadily and is expected to continue to drop as the drive for greater productive efficiency produces a farm economy characterized by larger farms cultivated by more machines and fewer men. Farm employment made up only 8 percent of the Tri-County total in 1958.

As agricultural employment has declined, population has shifted away from farms. There is convincing statistical evidence to document this shift up until 1950. From 1940 to 1950, for example, the Tri-County population resident on farms fell by 684 while urban population was increasing by 31,159 and rural nonfarm population increased by 22,273. An accurate appraisal of the present situation must wait for the 1960 census returns, but all available evidence indicates that since 1950 the farm population has continued to decline, while the urban population and rural nonfarm population continue to grow, with the growth rate being most rapid in the latter category. These population shifts are discussed in more detail in Chapter 2.

#### Number and Size of Farms

Although the Tri-County Area utilizes a higher proportion of its land for agriculture than does the state, it is obvious from Table 4 that there has been a decline in the amount of land under cultivation since 1935. In contrast to over one million acres (92 percent of all land) under cultivation in 1935 there were 939,000 acres in such use in 1954 (87 percent of all land). Most of this decline occurred between 1945 and 1954; in a single decade there were 50,000 acres taken out of use.

Parallel with the decline in the amount of farm land under cultivation, Table 4 also shows that the number of farms decreased from 10,100 in 1935 to 7,700 in 1954. At the same time the acreage per farm increased. The decline in the number of farms, together with increased average acreage, has been a nation-wide trend, not peculiar to Michigan or the Tri-County Area.

The overall effect of the changes in agricultural productivity has meant a reduction in both the number of farms and of farm workers, together with an increase



TABLE 4

NUMBER OF FARMS, AMOUNT AND PERCENT OF LAND IN FARMS  
AVERAGE SIZE, AND AVERAGE VALUE PER FARM, LAND AND BUILDING,  
FOR THE TRI-COUNTY AREA, 1935-1954

<u>Year</u>	<u>Number of Farms</u>	<u>Acres in Farms</u>	<u>Percent of Land in Farms</u>	<u>Average Size of Farm in Acres</u>	<u>Average Value Per Farm, Land and Building</u>
1935	10,085	1,001,682	92	99	\$ 5,334
1940	9,494	982,694	91	104	6,005
1945	9,176	990,861	91	108	8,796
1950	8,344	952,464	88	114	12,501
1954	7,720	939,399	87	122	19,714

SOURCE: U. S. Census of Agriculture; Bureau of Business and Economic Research

in the value of physical assets per person engaged in farming. There are several reasons for this development. For example, new scientific methods and advanced technology in machinery and equipment mean that farms must become larger before they can become profitable. Existing farms are becoming larger because of the acquisition of additional land, thus accelerating the decline in the number of farms. Moreover, land previously put to agricultural use is now being utilized for other purposes. Some land is being kept in the soil bank; urban areas are expanding. At the same time the heavy concentration of manufacturing and the opportunities for employment in government in the Tri-County Area have drawn many farmers into other activities. During the ten year interval 1945 to 1954 the average size per farm rose from 108 acres to 122 acres (see Table 4). As a result of the growth of farms, and the increased number of buildings to accommodate equipment, the average value of land and building per farm quadrupled between 1935 and 1954.

In concluding the discussion of farm size, it must be pointed out that the increase in the acreage does not apply to all farms, simply to farm groups of certain sizes. Table 5 shows the number of various sized farms, as well as their percentage distribution. Between 1950 and 1954, for farms of less than ten acres, there was an increase in the number of farms and acreage. During the same period, the number of farms with 10 - 180 acres declined; farms in excess of 180 acres showed an increase. About 50 percent of the farms in the area in 1954 had less than 100 acres; there were 49 percent with over 100 acres; about 1 percent of the farms had more than 500 acres.

TABLE 5

## FARMS IN THE TRI-COUNTY AREA, BY SIZED GROUPS

1950 - 1954

Type of Farming Area	<u>1950</u>		<u>1954</u>		<u>1950</u>		<u>1954</u>	
	Number of Farms	Percentage Distribution	Number of Acres	Percentage Distribution	Number of Farms	Percentage Distribution	Number of Acres	Percentage Distribution
Under 10 Acres	395	4.7	1,920	0.2	445	5.8	2,087	0.2
10 - 29 Acres	789	9.5	14,102	1.5	682	8.8	12,452	1.3
30 - 49 Acres	1,030	12.3	40,345	4.2	897	11.6	34,774	3.7
50 - 69 Acres	630	7.6	36,787	3.9	578	7.5	33,833	3.6
70 - 99 Acres	1,560	18.7	127,708	13.4	1,347	17.4	110,424	11.8
100 - 139 Acres	1,389	16.6	161,617	17.0	1,204	15.6	140,340	14.9
140 - 179 Acres	1,045	12.5	163,638	17.3	832	10.8	130,319	13.9
180 - 219 Acres	610	7.3	119,304	12.5	630	8.2	123,560	13.2
220 - 259 Acres	351	4.2	83,047	8.7	410	5.3	96,351	10.3
260 - 499 Acres	490	5.9	162,264	17.0	631	8.2	206,932	22.0
500 - 999 Acres	49	0.6	30,817	3.2	56	0.7	35,066	3.7
1,000 and over	6	0.1	10,925	1.1	8	0.1	13,261	1.4
Total	<u>8,344</u>	<u>100.0</u>	<u>952,464</u>	<u>100.0</u>	<u>7,720</u>	<u>100.0</u>	<u>939,399</u>	<u>100.0</u>

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SOURCE: U. S. Census of Agriculture; Bureau of Business and Economic Research

## Farm Tenancy

Table 6 shows that between 1950 and 1954 farm tenancy declined both in number of farms and in total acreage. With the exception of part owners, all other types of operators have shown losses with respect to their share of farms and acreage. The increase in part ownership is attributable to a number of causes such as farm mechanization and increased productivity. The gains in agricultural productivity are largely attributable to scientific developments such as pasture control, the widespread application of chemistry to fertilization, pest and disease control, improvements in livestock breeding and seeding, and increased mechanization. Rising farm income has also enabled tenants to buy a part interest in the farms they previously rented or managed. Full owners working outside the farm sold interest in their farms, primarily because they could not work on the farm as much as was needed.

TABLE 6  
FARM TENANCY IN THE TRI-COUNTY AREA,  
1950 AND 1954

	<u>Farms</u>		<u>Acres</u>	
	<u>Number</u>	<u>Percent of All Farm Operators</u>	<u>Number</u>	<u>Percent</u>
All Farm Operators				
1954	7,720	100.0	939,399	100.0
1950	8,344	100.0	952,464	100.0
Full Owners				
1954	5,192	67.3	472,738	50.3
1950	5,737	68.8	511,788	53.7
Part Owners				
1954	1,779	23.0	329,187	35.0
1950	1,621	19.4	283,832	29.8
Managers				
1954	22	0.3	12,907	1.4
1950	25	0.3	12,367	1.3
All Tenants				
1954	727	9.4	124,567	13.3
1950	961	11.5	144,477	15.2

SOURCE: U. S. Census of Agriculture; Bureau of Business and Economic Research

### Farms by Economic Class

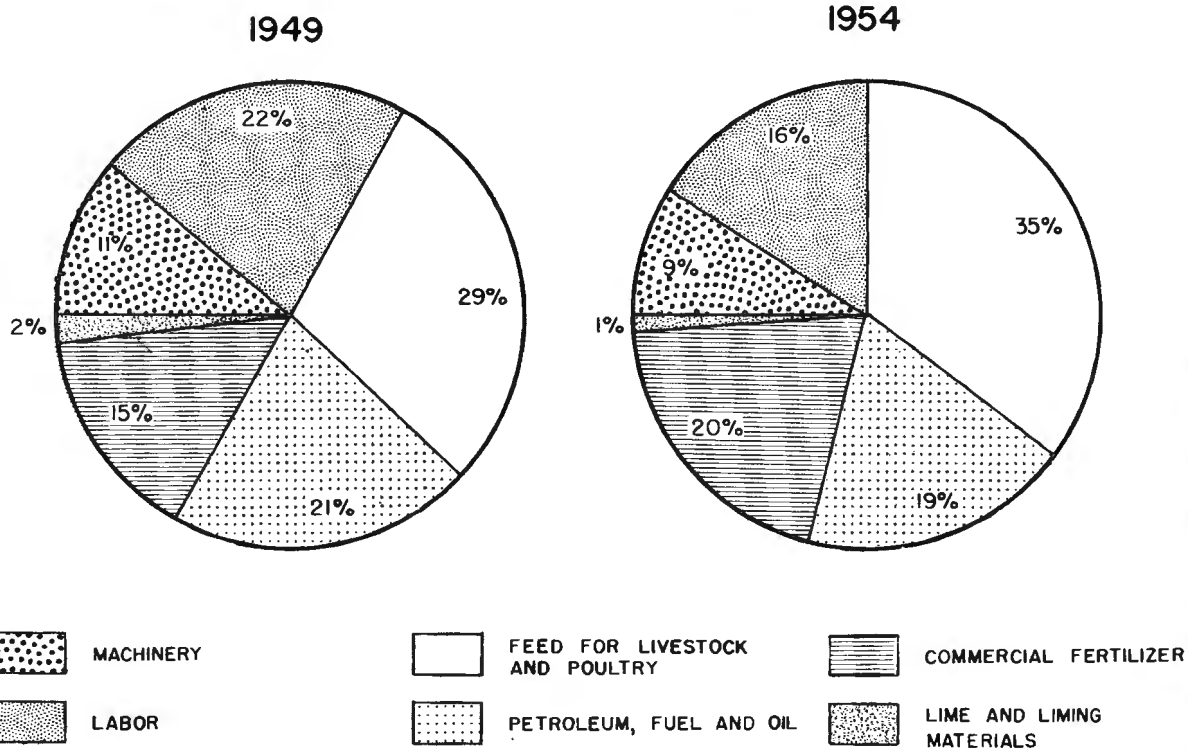
It has been pointed out that between 1950 and 1954 there was a decline in the number of farms in the Tri-County Area. At the same time, there was a slight shift in the distribution of farm income between commercial farming and other types of agricultural operations (see Chart II). In 1950, 74 percent of farm income went to commercial farms, with 15 percent and 11 percent, respectively, to part-time and residential farmers. In 1954, the percentage distribution was 77 percent, 13 percent and 10 percent to each of these operations respectively. The major cause of the shift is the changing status of those farms whose sales ranged between \$10,000 and \$25,000. Farms with sales in excess of \$10,000 represented 4 percent of all farm income in 1950, while this group had 13 percent of farm income in 1954. This shift is indicative of the substantial increase in farm income between 1950 and 1954.

### Farm Expenditures

In 1954 the Census of Agriculture showed farm expenditures in the Tri-County Area amounting to a little over \$12 million, an increase of 32 percent over what they had been in 1949. Most of the increase was attributable to increased cost of feed for livestock and poultry. This expenditure accounted for 35 percent of total costs in 1954, while commercial fertilizer accounted for 20 percent (see Chart III). Expenditures for machinery declined between 1949 and 1954, and in both years was the smallest expenditure of farmers in the Tri-County Area. Hired labor expenditures between 1949 and 1954 showed a drop, both in absolute amount and as a percentage share of total expenditures of all farms. Fuel and oil costs showed a slight percentage decline between 1949 and 1954.

The reduction in farm employment in the Tri-County Area is in large part attributable to economic forces internal to the agricultural community. The decline in farm employment suggests the great importance of the scientific developments and labor-saving techniques which have become available to farmers for relatively small capital outlays. The accelerated decline in farm employment, concomitant with a sharp and steady rise in farm output, indicates an intensification in the number and impact of labor-saving techniques.

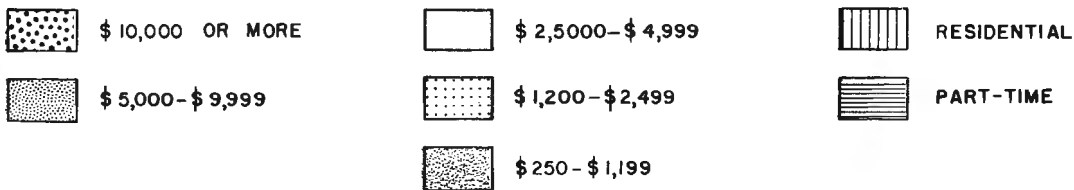
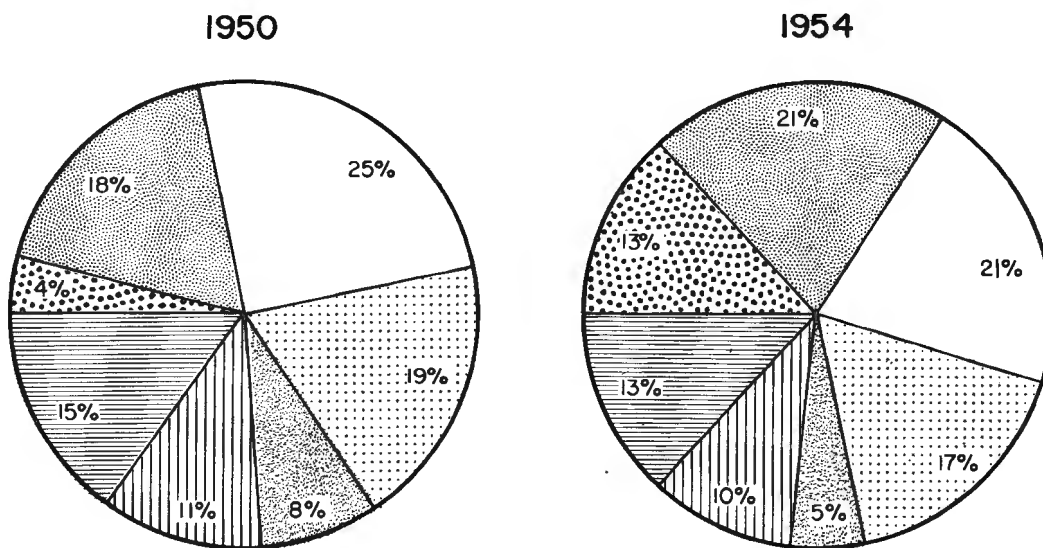
CHART II  
 PERCENTAGE DISTRIBUTION OF FARM EXPENDITURES  
 IN THE TRI-COUNTY AREA, 1949 AND 1954



SOURCE: U.S. CENSUS OF AGRICULTURE

CHART III

VALUE OF FARM PRODUCTS IN THE TRI-COUNTY AREA,  
BY ECONOMIC CLASS, 1950 AND 1954



SOURCE: U.S. CENSUS OF AGRICULTURE

## CHAPTER 8

### RETAIL AND WHOLESALE TRADE

Statistics collected by the Census Bureau in 1958 indicate that in that year the Tri-County Area had 2,880 business establishments engaged in retail and wholesale trade. These firms had sales of \$645,803,000 for the year. The industry disbursed \$53,084,000 in payrolls to its 16,255 full and part-time paid employees. It also provided livelihood for 2,867 self-employed proprietors heading unincorporated businesses.

Tables 1 and 2 present these figures along with comparable data back to the date of the nation's first census of business in 1929. They give some idea of the importance of trade to the area. About 18 percent of area employment is in trade. It is likely that these figures understate the importance of trade somewhat, as the trade function is often carried on by establishments not classified as trading firms. Some manufacturing concerns, for example, maintain retail outlets at the factory, and some farmers sell produce at roadside stands. Hotels and motels are classified as service establishments, and not as retailers, although they are partly engaged in selling food and drink at retail. In a functional sense, these activities are trade, but the census does not count them as such because it focuses on primary activities. In view of these omissions, it seems likely that the trade function accounts for about a fifth of Tri-County employment. This is somewhat higher than comparable figures for the state of Michigan or the United States.

#### The Size of Retail Stores

Retailing has traditionally been dominated by relatively small business units, and by unincorporated firms. Table 1 shows that the average size of stores has increased substantially during the past thirty years, with sales and employment both rising much faster than the number of establishments. Table 3 shows the average size of retail firms for each of the census years in terms of sales, and the average size in terms of employees in 1958. There is a marked trend toward larger stores in the group as a whole, and for every type of store. Although some of the increase in sales can be attributed to price inflation, it appears that sales per store increased substantially in real terms. The overall price level doubled between 1939 and 1958, but dividing 1958 sales per store by two still leaves them well ahead of 1939 sales in every category.

It is not possible to construct a continuous series on employees per store for each type of store. For retailing as a whole, however, the number of employees per store was 3.4 in 1939, so that a substantial increase in the average store size can be documented

TABLE 1

## RETAIL TRADE IN THE TRI-COUNTY AREA, 1929-1958

<u>Year</u>	<u>Number of Establishments</u>	<u>Sales (thousands of dollars)</u>	<u>Number of active Proprietors</u>	<u>Number of Employees</u>	<u>Payrolls (thousands of dollars)</u>
1929	2,038	81,181	1,911	5,930	n. a.
1935	1,602	49,167	1,959	6,492	n. a.
1939	2,375	69,024	2,164	8,078	7,900
1948	2,397	228,977	2,410	12,419	26,078
1954	2,356	313,124	2,509	13,083	34,742
1958	2,491	330,507	2,676	12,762	35,496

SOURCE: Bureau of the Census, Censuses of Business for the various years. Employment data for 1929 and 1935 are not comparable with those for later years, since they include only full-time employees while the later years include both full-time and part-time employees.

TABLE 2

## WHOLESALE TRADE IN THE TRI-COUNTY AREA, 1939-1958

<u>Year</u>	<u>Number of Establishments</u>	<u>Sales (thousands of dollars)</u>	<u>Number of active Proprietors</u>	<u>Number of Employees</u>	<u>Payrolls (thousands of dollars)</u>
1939	256	45,083	175	1,733	2,489
1948	285	168,156	149	2,439	8,147
1954	366	270,896	204	3,996	15,921
1958	389	325,296	191	3,493	17,588

SOURCE: Bureau of the Census, Censuses of Business for the various years



without any reference at all to dollar amounts. This increase in the average size of retail establishments is the most important development in Tri-County retailing during recent years. It is not clear whether the stability in average store size between 1954 and 1958 is indicative of a levelling out of the long-term trend, or an aberration attributable to the severity of the 1958 recession.

As Table 3 shows, there is a wide divergence in store size among the various types of store. The general merchandise stores (which include the metropolitan department stores) and the automotive group are the giants, with the average firm doing an annual business of more than \$400,000. In four of the other classifications, this figure is less than \$100,000. The averages, of course, also conceal size differences within the groups.

TABLE 3

AVERAGE SIZE OF RETAIL STORES  
IN THE TRI-COUNTY AREA, 1929-1958

<u>Type of Establishment</u>	<u>Sales per Store</u> (thousands of dollars)						<u>Employees</u> <u>per store</u>
	<u>1929</u>	<u>1935</u>	<u>1939</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>	<u>1958</u>
Food Stores	32.3	22.2	25.0	101.3	149.6	208.6	4.8
Eating and Drinking Places	20.3	12.8	12.6	37.0	46.0	47.2	5.3
General Merchandise	83.2	105.6	105.9	342.9	410.3	451.2	27.2
Apparel and Accessories	38.1	33.7	31.9	94.3	105.1	109.5	5.5
Furniture, Home Furnishings and Appliances	55.6	43.9	34.0	78.5	86.8	89.1	3.4
Automotive	184.6	67.5	82.2	265.1	464.8	401.9	8.0
Gasoline Service Stations	15.6	12.4	11.7	38.7	72.1	75.6	2.3
Lumber, Building Materials, Hardware and Farm Equipment	53.2	34.8	47.6	108.6	153.2	110.9	3.5
Drug Stores	28.2	24.5	30.3	80.2	101.5	122.7	7.6
Other Retail Stores	18.5	28.3	24.5	67.9	89.1	71.1	2.6
All Retailing	39.8	30.7	29.1	95.5	132.9	132.7	5.1

SOURCE: Computed from data in the various Censuses of Business

The "average" Tri-County retailer (who is, of course, a statistical fiction) is still a small businessman, with an annual business of \$132,700 and slightly more than five employees. But he is not such a small businessman as he used to be in prewar days, and it is likely that he will grow even bigger in the future.

Table 4 reinforces the mental picture of the typical retailer as a small businessman. About 56 percent of the Tri-County firms had three or fewer employees in 1956, 79 percent had fewer than eight employees, and only seven percent had 20 paid workers or more.

#### Distribution of Retail Trade Within the Three Counties

Ingham County dominates the aggregate Tri-County retailing statistics. This would be expected on the basis of its population, but Ingham County's sales are high even when adjusted for population. In 1958 Ingham County had 71 percent of the area population, 68 percent of the retail establishments, 80 percent of the total sales, and 83 percent of the employment.

Table 5 shows Ingham County's consistent lead in sales per capita. To some extent these figures are a reflection of higher incomes in Ingham County. Income differentials, however, are nowhere near as large as this. It is reasonable to conclude that residents of Eaton and Clinton Counties are more likely to make retail purchases outside their counties, while Ingham County retailers are more likely to pull in business from outside the county limits. This conclusion is reinforced by the observable fact that the average size of retail outlets is much larger in Ingham County than in Eaton or Clinton. This is true for every type of retail store, and the average 1958 sales of \$132,700 per store shown in Table 3 can be broken down into average sales of about \$156,000 for Ingham County stores and about \$82,000 each for stores in Clinton and Eaton Counties. These figures on store size may be compared to a state-wide average of \$125,500 per store. Ingham County retailers are well above the state average in size; the Tri-County total is somewhat higher than the Michigan state figure; and Eaton and Clinton County retailers are considerably smaller.

#### Trends in Wholesaling

In large measure, these same trends in the size of firms and the distribution of firms among the counties hold true for wholesale as well as retail trade. Table 2 shows a sharp increase in the size of wholesaling establishments since 1939; sales per firm increased from \$176,000 to \$837,000 between 1939 and 1958, and employees per firm increased from 6.8 to 9.0. In the latter year, Ingham County, with 71 percent of the area population, had 80 percent of the wholesaling establishments, 82 percent of the employees, and 91 percent of sales.

TABLE 4

## SIZE OF RETAILING ESTABLISHMENTS IN THE TRI-COUNTY AREA, 1956

Size class of establishment, by number of employees	Number of retailing establishments			
	Clinton County	Eaton County	Ingham County	Tri-County Total
Zero to 3 employees	145	196	607	948
4 to 7 employees	42	71	276	389
8 to 19 employees	32	34	179	245
20 to 49 employees	3	5	68	76
50 to 99 employees	0	1	24	25
100 to 249 employees	0	0	14	14
250 to 499 employees	0	0	1	1
500 employees or more	0	0	2	2
Total	222	307	1,171	1,700

SOURCE: County Business Patterns, Department of Commerce and Department of Health, Education and Welfare

TABLE 5

## TRI-COUNTY RETAIL SALES PER CAPITA, 1929-1958

Year	Retail Sales in Dollars per Capita			
	Ingham County	Eaton County	Clinton County	Tri-County Total
1929	572	297	295	481
1935	327	154	147	270
1939	427	238	217	364
1948	1120	716	562	980
1954	1295	810	780	1152
1958	1224	768	721	1088

SOURCE: Computed from retail sales totals in the various Censuses of Business and population estimates by the Bureau of Business and Economic Research.

Available statistics indicate that wholesale trade in the Tri-County Area is underdeveloped by comparison with retail trade. The proportion of the area labor force engaged in retailing is larger than the state-wide ratio, while wholesaling is a less important source of employment opportunities in the Tri-County Area than in Michigan as a whole. As already mentioned, the average Tri-County retail outlet is somewhat larger than the average Michigan establishment. In wholesaling, this picture is reversed. The average Tri-County wholesaler is smaller than the average Michigan wholesaler, whether size is measured by sales or by employment.

Table 6 shows a size distribution of Tri-County wholesaling establishments based on 1956 employment data. It shows that wholesaling, like retailing, is dominated by small firms. There is only one wholesale firm in the Tri-County Area which employs more than 500 workers, and 84 percent of the establishments hire fewer than 20.

TABLE 6

SIZE OF WHOLESALING ESTABLISHMENTS  
IN THE TRI-COUNTY AREA, 1956

Size class of establishment, by number of employees	Number of Wholesaling establishments			
	Clinton County	Eaton County	Ingham County	Tri-County Total
Zero to 3 employees	12	12	126	150
4 to 7 employees	9	10	61	80
8 to 19 employees	5	7	69	81
20 to 49 employees	3	5	41	49
50 to 99 employees	0	0	10	10
100 to 499 employees	0	0	0	0
500 employees or more	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	29	34	308	371

SOURCE: County Business Patterns, Department of Commerce and Department of Health, Education and Welfare

## Types of Establishments

### Retail

In Table 3, retail trade was divided into ten types of stores, following the standard industrial classification. A number of generalizations can be made concerning the relative importance of these ten retailing groups, and the changes in their importance that have taken place in recent years. Table 7 gives a percentage distribution of sales by type of store for the six census years. The changes over time can be attributed partly to changes in family consumption patterns and partly to changes in functions performed by the various types of stores. In many cases, these relationships become quite complicated, and it is impossible to disentangle them by statistical techniques.

Food stores, one of the most important retailing groups, are a case in point. Table 7 shows that the group has become considerably more important during the past thirty years. Several cross-currents are involved. It is well-established that as incomes rise, the proportion of income devoted to food declines. Since Tri-County incomes have increased during the past thirty years, the share of the retailing dollar going to food stores should have decreased because of this influence. Over the past thirty years, retail food prices have increased somewhat less than the general price level. Again, this should have caused the share to fall. But powerful forces have been operating at the same time in the opposite direction. Pre-packaged and processed foods have replaced the simpler and cheaper foods of earlier years. Food stores have added new lines of non-food products, from phonograph records to cosmetics. These influences have tended to increase the share of retail sales going to food stores, and have apparently more than offset the influences mentioned earlier.

Some reservations of this sort should be kept in mind in the evaluation of Table 7. Notwithstanding these qualifications, several changes in consumption patterns are revealed, and a few differences can be noted between these patterns in the Tri-County Area and in the state and nation. The proportion of retail sales in the area going to food stores is about the same as the national average, but slightly less than the average for Michigan. The share of expenditures in eating and drinking establishments in the three counties is substantially less than the national and state-wide average of eight percent. Automobiles absorb a significantly higher proportion of the retail sales dollar in the Tri-County Area than in the United States or Michigan.

Table 8 gives more detailed information about the relative importance of the various types of retail establishments. It reveals a number of trends in retailing for the individual counties that are concealed by the aggregate statistics in Table 7, and compares changes in sales with changes in the number of stores.

TABLE 7

RETAIL SALES IN THE TRI-COUNTY AREA,  
BY TYPE OF STORE, 1929-1958

<u>Type of Establishment</u>	Percent of Total Retail Sales					
	<u>1929</u>	<u>1935</u>	<u>1939</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>
Food Stores	19.9	18.7	21.4	24.5	22.0	24.2
Eating and Drinking Places	3.4	3.8	4.2	6.2	5.9	5.9
General Merchandise	12.7	14.8	13.0	11.1	11.7	12.7
Apparel and Accessories	8.5	7.0	7.1	6.4	5.5	5.0
Furniture, Home Furnishings, and Appliances	3.8	3.8	4.1	4.2	3.9	4.7
Automotive	15.7	16.0	15.8	19.9	22.3	19.8
Gasoline Service Stations	8.2	5.3	8.2	6.0	7.3	8.2
Lumber, Building Materials, Hardware and Farm Equipment	10.1	7.8	9.9	10.9	10.0	7.7
Drug Stores	4.6	3.7	4.3	3.3	3.2	3.6
Other Retail Stores	<u>13.1</u>	<u>19.1</u>	<u>12.0</u>	<u>7.5</u>	<u>8.2</u>	<u>8.1</u>
	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Computed from sales data in the Censuses of Business. Detail may not add to total because of rounding.

TABLE 8

RETAIL SALES AND NUMBER OF ESTABLISHMENTS BY COUNTIES  
(Sales in thousands of dollars)

Food Stores

Date	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>
1929	57	1,446	95	2,237	349	12,476	501	16,159
1935	42	945	74	1,414	347	7,925	463	10,284
1939	60	1,228	116	2,183	417	11,391	593	14,802
1948	72	4,023	111	7,377	370	44,606	553	56,006
1954	57	6,021	96	9,945	307	52,852	460	68,818
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	384	80,113

Eating and Drinking Places

1929	12	166	33	272	91	2,318	136	2,756
1935	22	190	24	166	115	1,712	161	2,068
1939	44	396	61	442	230	3,384	335	4,222
1948	49	1,048	84	1,651	251	11,491	384	14,190
1954	50	1,306	76	1,960	278	15,319	404	18,585
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	417	19,662

General Merchandise

1929	28	613	36	1,183	60	8,525	124	10,321
1935	19	335	24	445	34	7,353	77	8,133
1939	20	428	19	382	46	8,192	85	9,002
1948	16	897	17	867	41	23,613	74	25,377
1954	12	1,081	28	1,701	49	33,734	89	36,516
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	93	41,964

TABLE 8 (Continued)

## RETAIL SALES AND NUMBER OF ESTABLISHMENTS BY COUNTIES

(Sales in thousands of dollars)

Apparel and Accessories

Date	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)
1929	15	187	31	426	136	6,323	182	6,936
1935	9	89	16	194	89	3,564	114	3,847
1939	12	132	24	350	118	4,438	154	4,920
1948	13	603	24	1,221	118	12,799	155	14,623
1954	15	742	20	1,036	128	15,355	163	17,133
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	151	16,538

Furniture, Home Furnishings, and Appliances

1929	9	98	7	212	39	2,748	55	3,058
1935	3	59	10	174	34	1,829	47	2,062
1939	13	163	15	315	55	2,656	83	2,819
1948	16	708	28	1,548	78	7,320	122	9,576
1954	15	831	33	1,985	91	9,252	139	12,068
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	174	15,498

Automotive

1929	24	1,557	21	2,185	24	8,992	69	12,734
1935	33	949	33	929	64	6,896	130	8,774
1939	23	1,158	35	1,550	75	8,230	133	10,938
1948	27	3,660	33	5,117	112	36,821	172	45,598
1954	26	6,391	25	8,768	99	54,556	150	69,715
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	163	65,515



TABLE 8 (Continued)

RETAIL SALES AND NUMBER OF ESTABLISHMENTS BY COUNTIES  
(Sales in thousands of dollars)

Gasoline Service Stations

Date	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)	Establish- ments	Sales (thousands of dollars)
1929	62	691	99	1,065	266	4,918	427	6,674
1935	34	380	53	515	149	2,040	236	2,935
1939	95	855	108	993	283	3,837	486	5,685
1948	54	1,466	77	2,301	223	9,943	354	13,710
1954	46	2,667	63	3,277	207	16,840	316	22,784
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	359	27,134

Lumber, Building Materials, Hardware and Farm Equipment

1929	29	156	42	1,565	83	6,474	154	8,195
1935	18	395	30	757	75	3,125	123	4,277
1939	24	923	36	1,093	84	4,844	144	6,860
1948	41	3,701	56	4,390	133	16,891	230	24,982
1954	39	4,881	48	4,494	117	21,878	204	31,253
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	231	25,614

Drug Stores

1929	15	294	16	306	101	3,129	132	3,729
1935	11	173	12	169	59	1,667	82	2,009
1939	10	247	18	342	70	2,381	98	2,970
1948	10	376	18	1,011	65	6,075	93	7,462
1954	8	554	17	1,256	75	8,341	100	10,151
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	96	11,776

TABLE 8 (Continued)

RETAIL SALES AND NUMBER OF ESTABLISHMENTS BY COUNTIES  
(Sales in thousands of dollars)

Other Retail Stores

<u>Date</u>	<u>Clinton</u>		<u>Eaton</u>		<u>Ingham</u>		<u>Tri-County</u>	
	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>	<u>Establish- ments</u>	<u>Sales (thousands of dollars)</u>
1929	30	696	31	316	197	3,772	258	4,784
1935	15	220	25	301	129	4,257	169	4,778
1939	25	210	41	392	198	5,877	264	6,479
1948	19	544	47	2,327	191	14,582	257	17,453
1954	20	978	31	1,562	196	19,466	247	22,006
1958	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	293	20,824

Non-Store Retailers

1954	4,095
1958	5,869

n. a. Not Available

SOURCE: Censuses of Business, U. S. Bureau of the Census

### Wholesale

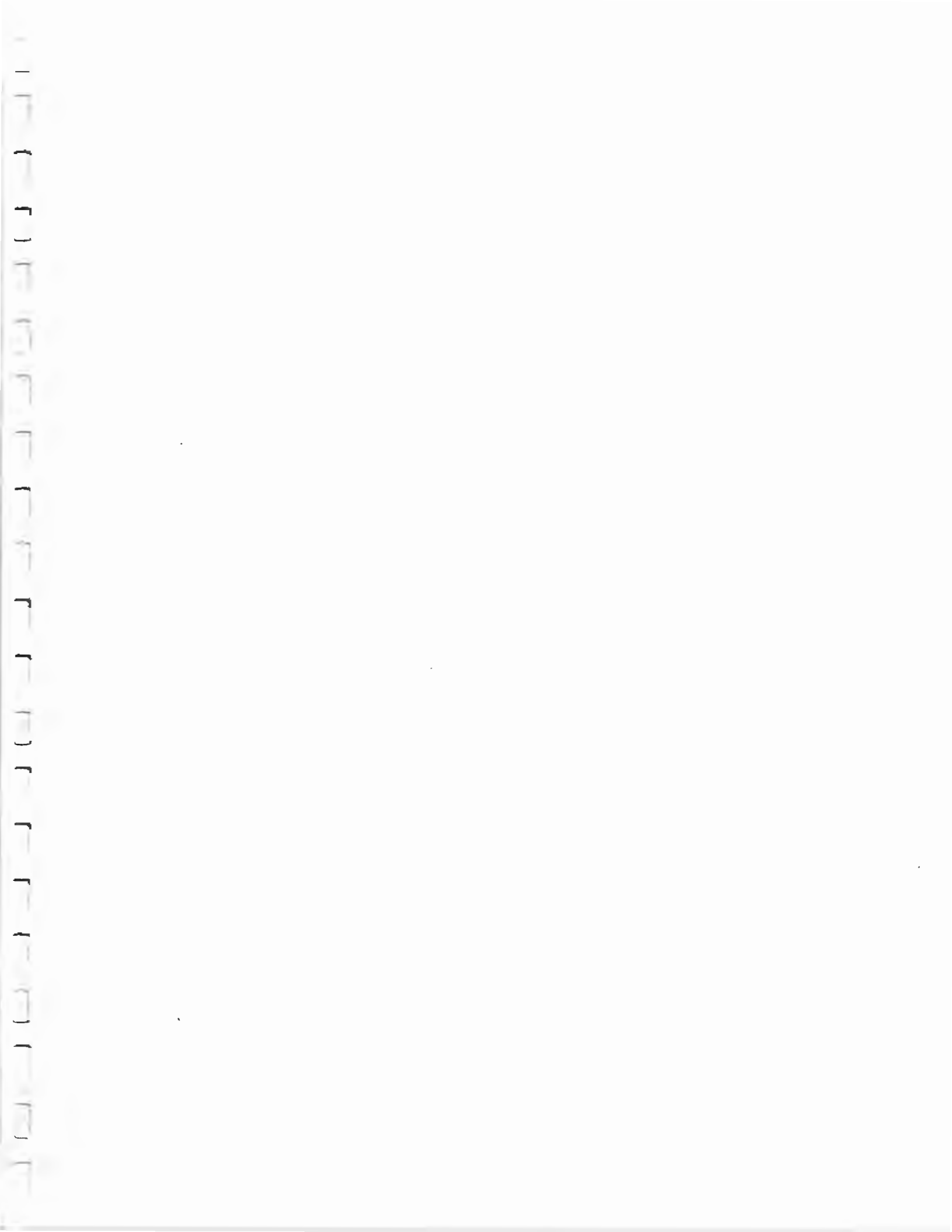
Comprehensive statistics covering the types of wholesaling establishments in the Tri-County Area are not available. The Ingham County firms can be broken down by type of product handled, but even this classification cannot be made in complete detail, as in some categories the number of firms is so small that the Census Bureau withholds information to avoid disclosing financial data for individual firms. The best available information for Ingham County is given in Table 9. It can be taken as fairly representative of the current situation in the Tri-County Area.

TABLE 9

#### TYPES OF WHOLESALING FIRMS, INGHAM COUNTY, 1956

<u>Type of Firm</u>	<u>Number of Establishments</u>	<u>Number of Employees</u>
Merchant Wholesalers	204	2,510
Machinery, equipment and supplies	45	531
Groceries and food specialties	26	125
Motor vehicles and automotive equipment	23	217
Lumber and construction materials	20	292
Electrical goods	16	158
Beer and wine	10	92
Waste materials	7	212
Other merchant wholesalers	<u>57</u>	<u>883</u>
Total	204	2,510
Sales Branches of Manufacturing and Mining Concerns	54	556
Agents and Brokers of Merchandise	18	36
Petroleum Bulk Stations	22	303
Assemblers of Farm Products	<u>10</u>	<u>69</u>
Total	308	3,474

SOURCE: County Business Patterns, Department of Commerce and Department of Health, Education and Welfare



## CHAPTER 9

### FINANCE, INSURANCE, AND REAL ESTATE

In October 1958 there were an estimated 2,900 people employed in the finance, insurance and real estate sectors of the Tri-County economy. A detailed breakdown of this figure including wage and salary payments is shown below:

	<u>Employment</u>	<u>Payroll</u>
Banking and Credit Agencies	1,037	\$ 4,353,000
Security and Commodity Brokers, and Investment Companies	50	376,000
Insurance	1,300	6,280,000
Real Estate and Rental	513	1,850,000
Total	2,900	\$12,859,000

It is evident that insurance is the most important of the three sectors, followed by banking and credit agencies. Although these three service activities account for a very small fraction of total employment they play an essential role in the functioning of the economy.

#### Finance: General

The bulk of capital supplied in the Tri-County Area in 1958 was handled by the following institutions:

<u>Institution</u>	<u>Total Number</u>	<u>Total Assets</u>
Commercial Banks (excludes Michigan National Bank)	21	\$197,488,833
Savings and Loan Associations	3	65,140,573
Small Loan Companies	18	9,564,102
Investment Bankers and Brokers	7	Not Available
(Includes one open-end mutual investment company)		

It will be seen that the Michigan National Bank is excluded from the total of commercial banks. This is because yearly banking reports do not reveal the separate activities of individual branches of parent banks. Since Michigan National has six branches located in six other Michigan cities it would be inappropriate to assign total

reported assets of the bank to the Tri-County Area. However, information given by the bank to the Bureau of Business and Economic Research on a confidential basis was included in the inter-industry matrix.

#### Commercial Banking

There are 16 state and 6 national banks in the Tri-County, but the vast bulk of banking business is carried on in Lansing by the three largest banks in the area. The accompanying table gives some idea of the distribution of banks by asset size and shows that 19 of them had less than \$16 million total assets.

<u>Number of Banks</u>	<u>Capital Assets, December 31, 1958</u> <u>(\$000,000)</u>
11	\$ 1 - 5
7	6 - 10
1	14 - 16
1	40 - 45
<u>2</u>	Over 50
Total 22	

TABLE 1  
COMMERCIAL BANK DEPOSITS 1950 to 1958

<u>Date</u>	<u>County</u>	<u>Total</u> <u>Deposits</u> <u>(000)</u>	<u>Deposits of Individuals</u>	
			<u>Partnerships and Corporations</u> <u>Demand</u> <u>(000)</u>	<u>Time</u> <u>(000)</u>
June 23, 1958	Clinton	\$ 21,642	\$ 6,819	\$ 12,456
	Eaton	26,195	7,761	14,157
	Ingham	243,233	88,881	113,108
June 30, 1956	Clinton	20,946	6,959	11,465
	Eaton	23,727	8,815	11,922
	Ingham	206,745	89,749	80,851
June 30, 1954	Clinton	18,639	6,971	10,152
	Eaton	21,924	8,024	10,868
	Ingham	187,251	91,544	69,232
June 30, 1952	Clinton	16,529	6,405	8,897
	Eaton	19,888	7,807	9,791
	Ingham	157,972	77,871	54,289
December 30, 1950	Clinton	14,859	5,637	7,927
	Eaton	17,772	7,153	8,737
	Ingham	143,085	74,535	47,982

SOURCE: Detroit Branch, Federal Reserve Bank of Chicago

Another measure of banking activity may be seen in Table 1, which shows the volume of bank deposits in the area for selected years. From 1950 to 1958 total deposits increased by approximately 66 percent, demand deposits by 19 percent and time deposits by 116 percent. The table also shows the pronounced importance of Ingham County. As the most important governmental and business center in the area, Lansing has a clearing house composed of the three largest banks and representatives from the state government and city of Lansing.

#### Growth of Banking

An examination of the national income accounts reveals that in the last ten years interest income in the United States has risen by nearly 300 percent. This reflects the high level of demand by borrowers during a period of rising interest rates. Commercial banks have undoubtedly shared in these increased receipts by virtue of their role as major suppliers of short-term capital. Table 2 traces the growth of the banks in the Tri-County Area, and it is evident that they have been in step with national trends. Every item in the consolidated statement has increased markedly. The 168 percent increase since 1948 in loans and discounts is particularly important as an indication of the greater volume of credit used in the area over the last 10 years. Some of the major types of outstanding loans are summarized for 21 of the 22 banks as of December 31, 1958.

<u>Type of Loan</u>	<u>Amount</u>
1. Loans secured by real estate	\$35,993,469
2. Loans to individuals for household, family and other personal expenditures	20,865,090
3. Commercial and industrial loans, other than those secured by real estate	13,872,377
4. Loans to farmers (excluding loans secured by real estate)	6,342,580
5. Other loans and discounts	<u>2,475,867</u>
Total	\$79,549,383

The largest category is loans secured by real estate, of which approximately 54 percent were secured by residential properties (other than farm) which did not carry any form of federally guaranteed mortgage. About \$6 million of the loans to individuals (item 2) was for financing the installment purchase of passenger cars, and another large component item was about \$5 million of single-payment loans for family or personal expenditures. The last item shown in the table consists largely of loans made to other financial intermediaries like personal loan companies, and savings and loan associations.

The expansion of bank credit was inevitably matched by an equally impressive rise in the liquidity of area residents as witnessed by the percentage growth in all types of deposits. Time deposits of individuals, partnerships and corporations provided an

TABLE 2

TRI-COUNTY REPORTS OF CONDITION OF  
STATE AND NATIONAL BANKS AS OF DECEMBER 31<sup>1</sup>

<u>Assets</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>	<u>Percent Change 1948 to 1958</u>
Cash and due from banks	\$ 22,965,839	\$ 30,418,540	\$ 33,851,964	47.40
U. S. obligations	39,964,723	53,482,604	57,598,307	44.12
Other bonds and securities	13,768,283	18,808,934	24,083,535	74.92
Loans and discounts	29,714,377	52,462,801	79,549,383	167.71
Fixed assets and other real estate	790,758	1,603,750	2,024,558	156.03
Other assets	173,277	289,969	381,086	119.93
Total Assets	<u>\$ 107,377,257</u>	<u>\$ 157,066,598</u>	<u>\$ 197,488,833</u>	83.92
<u>Liabilities</u>				
Demand deposits of individuals, partnerships, and corporations	\$ 44,493,056	\$ 67,017,171	\$ 72,700,600	63.40
Time deposits of individuals, partnerships, and corporations	46,283,204	61,786,856	89,236,300	92.80
Public funds including U. S. deposits	8,482,475	13,980,100	15,479,192	82.48
Deposits of banks	1,130,285	1,285,639	2,401,713	112.49
Other deposits	783,640	2,114,618	2,088,444	166.51
Total Deposits	<u>\$ 101,172,660</u>	<u>\$ 146,184,384</u>	<u>\$ 181,906,249</u>	79.80
Other Liabilities	255,244	989,983	1,557,583	510.23
Capital	2,243,000	3,772,500	5,417,500	141.53
Surplus	2,162,000	3,746,000	5,402,500	149.88
Undivided profits and reserves	1,544,353	2,373,731	3,205,001	107.53
Total Liabilities	<u>\$ 107,377,257</u>	<u>\$ 157,066,598</u>	<u>\$ 197,488,833</u>	83.92

<sup>1</sup>Excludes Michigan National Bank, which operates branches on a state-wide basis.

SOURCE: State Banking Department



important source of funds for the banks. However, this general picture of area financial liquidity must be modified by an unknown proportion of these deposits which was attracted to Lansing from other population centers. This was accomplished by offering higher interest rates on specified minimum sums left on time deposit for guaranteed periods. The program was actively promoted and is indicative of the aggressive competition existing between banks in the area. It also emphasizes that in recent years the local demand for credit accommodation of all types has pressed hard upon the local supplies of credit.

#### Adequacy of Facilities

Competition between banks, combined with a high degree of managerial imagination, has provided the Tri-County Area with modern banking services. There seems to be an adequate number of banks and bank branches strategically located for the public convenience: one bank has already installed a machine check-sorting system and is building extensive new facilities in downtown Lansing. It is significant that considerable attention is being given to market research in an effort to improve existing services and ensure that the community will continue to benefit from healthy competition.

All commercial and industrial firms interviewed during this survey were questioned about banking services, charges and availability of capital. Of 50 major firms interviewed, only two expressed any reservations about banking services. These two firms were located outside of Ingham County and noted that their local town banks were unable to handle the size of loans requested and appeared reluctant to make any special efforts to supply ancillary services. These problems are not crucial because of the ease of obtaining accommodation in Lansing and Detroit.

While all those interviewed agreed that adequate short-term and intermediate loans were available, six companies expressed the opinion that there was a shortage of long-term investment capital. These companies face an acute problem. They are too small to float new security issues except at a prohibitive cost and complain that net earnings are insufficient to supply internal financing. As a result, they cannot replace obsolescent equipment as rapidly as they would like, and hence are denied the opportunity of countering rising costs with increased productivity.

One possible partial solution to this problem is for local initiative to form an investment company under the aegis of the Small Business Administration. Such an investment company would have access to long-term risk capital with which to finance medium-sized corporations, besides assisting in a general program of economic development. Although the banking community does not feel that any immediate action is called for, some leading businessmen are currently advocating the formation of such an investment company.

#### Investment Banking

The investment banking industry in Michigan is heavily concentrated in Detroit.

Some security underwriting is done by local houses, but most new issues are launched by the larger eastern investment bankers, having their main offices in New York. These large firms undertake the original underwriting of a new issue of securities and then form selling groups composed of smaller regional houses located throughout the nation. In this way local investment houses in cities like Detroit and Lansing have an opportunity to participate in the offering of new securities originally underwritten in the major money markets. However, most local houses and branch offices of nationally known investment bankers derive a large part of their income by acting as broker-dealers for the investing public. In 1958 there were nine firms engaged in underwriting or selling securities in the Tri-County Area. Three of these nine are branch offices of nationally-known firms. One specializes in open-end mutual fund shares and the other two in general security brokerage work and investment counseling.

It is extremely difficult to establish the volume of securities traded or held by area residents, but the following very rough estimates are advanced on the basis of a survey of members of the investment banking industry in the area for 1958.

Estimated security sales	\$37,700,000
Estimated security purchases	22,847,000
Estimated dividends paid out	1,300,000
Estimated value of securities held for area residents, December 31, 1958	33,872,000

These figures are extremely rough estimates since they reflect only that business which is handled by local firms. All of them are located in downtown Lansing. It is safe to assume that many residents trade with firms outside the area. It should also be noted that the estimated \$1.3 million of dividends paid refers only to that proportion of securities which are held in safekeeping for investors. Obviously, many residents retain their own portfolios and receive dividends directly from the companies in which they own stock. Alternatively, their portfolios may be held for safekeeping by firms outside the area.

The survey revealed that about 85 percent of all security transactions are made for residents of Lansing and East Lansing. Furthermore, a large proportion of this total is attributable to East Lansing. This is an indication of the much higher average level of incomes enjoyed by residents of East Lansing, who are therefore able to save and invest on a bigger scale than residents in more typical residential areas.

#### Small Loan Companies

In 1958 there were 17 small loan companies in the Tri-County Area. These institutions are licensed and supervised by the State Banking Commission and empowered to make personal loans of up to \$500.

Table 3, a consolidated balance sheet for the 17 local small loan companies,

TABLE 3

CONSOLIDATED BALANCE SHEET FOR ALL SMALL LOAN LICENSEES  
IN THE TRI-COUNTY AREA AS AT DECEMBER 31, 1958

Balance Sheet

ASSETS

Cash in office and in banks	\$ 220,342.44
Loans receivable of \$500.00 or less	5,965,287.07
Real estate (less reserve for depreciation--buildings)	-0-
Furniture, fixtures and equipment (less reserve for depreciation)	93,085.80
Deferred charges and prepaid expense	88,446.15
Other Assets:	
Organization or development expense	6,596.71
Cost of financing	10,735.80
Other	2,484,641.44
Total Assets Used in the Small Loan Business	<u>\$8,869,035.41</u>
Total loans not on small loan basis	1,245.13
Other assets not used in Small Loan Business	693,822.23
Total All Assets	<u><u>\$9,564,102.77</u></u>

LIABILITIES AND CAPITAL

Accounts and notes payable:	
Banks	\$1,425,162.96
Due to parent company or affiliates	2,811,660.84
Other short term notes and accounts	437,928.61
Bonds and long term notes	673,500.00
Other Liabilities:	
Accrued expenses	14,047.18
Reserve for unearned discount	186,343.28
Dealer reserves	56,268.12
Expense Reserves:	
Expense reserve for bad debts--Small Loans	173,321.47
Expense reserve for bad debts--other receivables	14,337.90
Reserve for licenses and taxes	70,029.69
Other expense reserves	983.19
Branch office capital	2,458,512.26
Net worth (if individual or partnership)	53,264.26
Capital stock: (if corporation)	
Preferred	300,000.00
Common	256,150.00
Appropriated surplus or capital reserves	35,985.50
Surplus (including undivided profits)	596,607.51
Total Liabilities and Capital	<u><u>\$9,564,102.77</u></u>

SOURCE: State Banking Department

indicates outstanding loans of about \$6 million on December 31, 1958. This figure is equal to almost 30 percent of the \$20,865,090 in personal loans outstanding held by commercial banks in the area. Thus small loan companies are important both numerically and as suppliers of personal funds.

Table 4 shows that loan companies prefer to lease rather than invest in office space, and the larger expense items are salaries, federal taxes and reserves for bad debts. The latter item reflects the high degree of risk in making small loans to persons usually unable to get accommodation at the commercial banks. However, the banks still play an important indirect role in so far as they supply the loan companies with an appreciable proportion of their capital. In effect, the loan companies borrow from the banks on "wholesale" terms and then act as financial "retail" experts in relending their funds to the public in the form of small loans.

The small loan industry in the Tri-County Area is a thriving sector of the economy which should continue to advance at an accelerated rate if minimum loan ceilings are raised. There is evidently a pressing need for personal credit, which has also stimulated another type of institution providing similar services but on much more advantageous terms. This institution is the credit union.

#### Credit Unions

Credit unions were introduced into the United States around 1909 and had their first substantial growth in Massachusetts. They are now authorized by the federal government and most states. They have increased rapidly since World War II.

In 1958 there were 29 credit unions in the Tri-County Area, 15 of which responded to a request for financial data about their operations. Four of the respondents said they were not chartered in 1948, hence Tables 5, 6, 7, and 8, which summarize assets, liabilities, income and expenses for 1958 and 1948 do not cover the same number of institutions.

Table 5 for 1958 shows personal and real estate loans comprised 78.6 percent of total assets. As far as could be determined, the real estate loans consisted largely of building loans maturing in about four months, made to persons building their own homes and requiring credit accommodation prior to receiving a long-term mortgage. A part of the loans, for periods up to three years, was used to remodel existing dwellings. The largest liability consisted of membership shares, which also supplied nearly all the loanable funds.

Table 6 for 1958 summarizes income and expenses; it is evident that 96 percent of total income is derived from interest on loans. The two major expense items were salaries and insurance charges, amounting to 66 percent of all outgoings. Collection and office space costs were conspicuously low. Comparisons of growth can be made by

TABLE 4

CONSOLIDATED STATEMENT OF INCOME AND EXPENSE  
FOR ALL SMALL LOAN COMPANIES IN THE TRI-COUNTY AREA  
FROM JANUARY 1, 1958, to DECEMBER 31, 1958

Gross Income Derived from Small Loan Business:	
Charges on loans of \$500.00 or less	\$1,479,830.10
Collections on accounts previously charged off	18,762.01
Other income derived from Small Loan Business	<u>523.72</u>
Total Gross Income Derived from Small Loan Business	\$1,499,115.83
Expenses of Conducting Small Loan Business:	
Advertising	50,505.27
Amortization	1,635.25
Auditing	3,214.37
Bad Debts:	
Charged off	72,694.88
Additions to reserve for bad debts	108,116.66
Credit reports	19,101.61
Depreciation on furniture, fixtures, equipment and auto	13,458.35
Insurance and fidelity bonds	3,020.91
Legal fees and disbursements	6,846.44
Postage and express	15,927.78
Printing, stationery and supplies	11,937.62
Recording and acknowledging fees paid by licensee	221.62
Rent, heat, light and janitor service	68,358.12
Salaries	354,445.66
Supervision and administration	90,944.12
Taxes:	
Licenses and license taxes	3,776.24
State and local taxes	32,629.19
Federal taxes	159,039.98
Telephone and telegraph	33,452.85
Travel, automobile expenses and allowances	34,127.53
Other expenses of conducting Small Loan Business	<u>36,867.76</u>
Total Expenses of Conducting Small Loan Business (not including interest paid on borrowed funds)	\$1,120,322.21
Total Net Earnings Derived from Small Loan Business for the period (before deducting interest paid on borrowed funds)	<u>\$ 378,793.62</u>

## MEMORANDA

Gross earnings from sources outside Small Loan Business	\$ 243,118.66
Expenses incurred in operations outside Small Loan Business	<u>221,946.99</u>
Net earnings outside Small Loan Business	\$ 21,171.67

SOURCE: State Banking Department

TABLE 5

CONSOLIDATED REPORT OF ASSETS AND LIABILITIES OF 15 CREDIT UNIONS  
AS AT DECEMBER 31, 1958

ASSETS		<u>Percent of Total</u>
Personal Loans	\$ 7,291,191.64	65.1
Real Estate Loans	1,517,506.90	13.5
Loans to other Credit Unions	35,000.00	0.3
U. S. Government Obligations	311,675.46	2.8
Other Securities	75,865.01	0.7
Shares in Building & Loan Associations	480,289.35	4.3
Shares in Other Credit Unions	197,688.76	1.8
Credit Union:		
Lands and Buildings	263,872.62	2.3
Furniture and Fixtures	64,343.83	0.6
Cash on Hand and in Banks	893,044.51	8.0
Other Assets	<u>72,162.83</u>	<u>0.6</u>
Total Assets	<u>\$ 11,202,640.91</u>	100.0
LIABILITIES		
Deposits	\$ 7,003.93	0.0
Notes Payable	25,273.44	0.2
Dividends Payable (declared but not credited)	31,950.52	0.3
Other Liabilities	108,438.18	1.0
Shares -- Members	10,316,446.41	92.1
Shares -- Other Credit Unions	125,811.13	1.1
Undivided Profits	253,066.19	2.3
Reserves (established under Sec. 17)	319,964.80	2.9
Other Reserves	<u>14,686.31</u>	<u>0.1</u>
Total Liabilities	<u>\$ 11,202,640.91</u>	100.0

SOURCE: Bureau of Business and Economic Research

TABLE 6

CONSOLIDATED STATEMENT OF INCOME AND EXPENSE FOR 15 CREDIT UNIONS  
FOR THE YEAR ENDING DECEMBER 31, 1958

		Percent of Total
<b>Income:</b>		
Interest on loans after deduction of rebates or patronage dividends	\$ 770,470.52	96.0
Income from investments	24,657.03	3.0
Profit on sale of bonds	none	none
Cash over	81.44	0.0
Other income (includes rent, insurance rebates, interest on bank certificates of deposit)	7,748.02	1.0
Total Income	<u>\$ 802,957.01</u>	<u>100.0</u>
<b>Expenses:</b>		
Interest on borrowed money	2,904.39	0.9
Interest paid on deposits	none	none
Treasurer's salary	39,247.28	12.0
Other salaries	93,946.94	28.7
Borrower's insurance	50,003.65	15.2
Life savings insurance	33,278.29	10.1
Dues in associations	16,933.47	5.2
Surety bond premium	3,276.31	1.0
Examination fees	3,679.13	1.1
Audit fees	2,476.06	0.8
Stationery and supplies	7,816.91	2.4
Cost of space occupied	8,489.87	2.6
Educational expense	8,871.67	2.7
Collection expense	1,416.50	0.4
Depreciation on building	1,646.04	0.5
Depreciation on furniture and fixtures	4,698.58	1.4
Social security taxes	1,703.02	0.5
Fire and hazard insurance	886.72	0.3
Recording fees	148.00	0.1
Cash short	408.89	0.1
Loss on sale of bonds	none	none
Miscellaneous expense	45,760.86	14.0
Total Expense	<u>\$ 327,836.73</u>	<u>100.0</u>
Net Profit	<u>\$ 475,120.28</u>	

SOURCE: Bureau of Business and Economic Research

TABLE 7

CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES OF 11 CREDIT UNIONS  
AS AT DECEMBER 31, 1948

ASSETS		<u>Percent of Total</u>
Personal Loans	\$ 699,220.67	55.7
Real Estate Loans	204,145.93	16.3
Loans to Other Credit Unions	2,000.00	0.2
U. S. Government Obligations	128,895.80	10.3
Other Securities	14,600.92	1.2
Shares in Building and Loan Associations	11,100.00	0.9
Shares in Other Credit Unions	35,697.67	2.8
Credit Union:		
Lands and Buildings	3,079.93	0.2
Furniture and Fixtures	1,788.89	0.1
Cash on Hand and in Banks	153,804.36	12.3
Other Assets	830.47	.0
Total Assets	<u>\$1,255,164.64</u>	100.0

LIABILITIES		
Deposits	\$ 28,768.27	2.3
Notes Payable	175.95	.0
Dividends Payable (declared but not credited)	none	none
Other Liabilities	173.44	.0
Shares -- Members	1,165,129.33	92.9
Shares -- Other Credit Unions	77.13	.0
Undivided Profits	17,708.84	1.4
Reserves (established under Sec. 17)	31,710.08	2.5
Other Reserves	11,421.60	0.9
Total Liabilities	<u>\$1,255,164.64</u>	100.0

SOURCE: Bureau of Business and Economic Research



TABLE 8

CONSOLIDATED STATEMENT OF INCOME AND EXPENSE OF 11 CREDIT UNIONS  
FOR THE YEAR ENDING DECEMBER 31, 1948

		<u>Percent of Total</u>
<b>Income:</b>		
Interest on loans after deduction of rebates or patronage dividends	\$ 74,534.87	91.6
Income from investments	4,455.00	5.5
Profit on sale of bonds	2,293.58	2.8
Cash over	15.41	.0
Other income (includes rent, insurance rebates, interest on bank certificates of deposit)	38.58	0.1
Total Income	<u>\$ 81,337.44</u>	<u>100.0</u>
<b>Expenses:</b>		
Interest on borrowed money	185.48	0.6
Interest paid on deposits	150.83	0.5
Treasurer's salary	9,611.69	30.2
Other salaries	10,120.65	31.9
Borrower's insurance	2,304.48	7.2
Life savings insurance	none	.0
Dues in associations	699.73	2.2
Surety bond premium	263.75	0.8
Examination fees	1,212.29	3.8
Audit fees	77.71	0.2
Stationery and supplies	1,088.00	3.4
Cost of space occupied	230.43	0.7
Educational expense	450.70	1.4
Collection expense	171.73	0.5
Depreciation on building	342.21	1.1
Depreciation on furniture and fixtures	430.84	1.4
Social security taxes	79.61	0.2
Fire and hazard insurance	96.37	0.3
Recording fees	none	.0
Cash short	none	.0
Loss on sale of bonds	200.21	0.6
Miscellaneous expense	4,152.74	13.0
Total Expense	<u>\$ 31,869.45</u>	<u>100.0</u>
Net Profit	<u>\$ 49,467.99</u>	

SOURCE: Bureau of Business and Economic Research

comparing the 1958 statements with those for 1948, but it must be remembered that the latter year covers only 11 organizations out of an unknown total. Nevertheless, the dramatic increase in total assets from about \$1.3 million in 1948 to \$11.2 million in 1958 is a good indication that credit unions are probably the fastest growing financial institutions in the Tri-County Area. Not shown in any of the tables is the fact that in 1958 these institutions paid out or declared \$378,014 in dividends to their members.

### Savings and Loan Associations

Savings and Loan Associations specialize in local real estate mortgages. They differ from commercial banks in that their savings accounts are not treated as deposits but as ownership shares which pay "dividends" rather than interest. Mortgage specialization and aggressive management, as well as the postwar building boom have all contributed to a tremendous growth in the number and size of Savings and Loan Associations throughout the nation. However, regional patterns have varied widely and at times run counter to the national trend. This is true in the Tri-County Area where one dissolution and a merger reduced the associations from six in 1948 to three by 1958. Even so, the volume of assets employed, and volume of mortgages made, increased steadily during the entire period. This can be seen by studying Tables 9, 10, and 11, which are consolidated financial statements for Savings and Loan Associations for selected years. Between 1948 and 1958 the volume of first mortgages jumped by 225 percent, share accounts rose 304 percent, and total assets grew by 166 percent.

Of the three companies doing business in 1958, one is chartered by the federal government and two by the state of Michigan. Each association has a distinctive administrative policy reflecting managerial preferences and local real estate conditions. For example, one association seems much more aggressive in augmenting its resources by borrowing from the Home Loan Bank System. All agree that during the last five years there has been a strong demand for loans which has exceeded available savings. To some extent, share accounts have been attracted from outside the area and there seems to be a high degree of personal loyalty on the part of savers toward the associations. Managements explain that many savers leave money on deposit for long periods even after removing their residences to other parts of the country. Even so, it seems reasonable to assume that the associations draw most of their new savings out of the area and that this future growth will be largely conditioned by the degree to which they can compete with other financial institutions. There is every indication that the commercial banks are planning to become more active in the mortgage field and will also be more aggressive in attracting time deposits by offering higher interest rates.

### Insurance

In 1958 there were 119 insurance companies of all types maintaining offices in the Tri-County Area. Of this number 11 had head offices in the area while the remaining 108 operated as branch offices of headquarters located elsewhere. Table 12 shows the resident companies by location, type, and selected balance sheet items as at December 31,

TABLE 9  
 CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES FOR ALL  
 SAVINGS AND LOANS ASSOCIATIONS IN THE TRI-COUNTY AREA  
 AS AT JUNE 30, 1948

ASSETS		
First mortgage loans	\$15,698,016.07	
Share loans	124,972.90	
Real estate contracts	2,978,938.45	\$18,801,927.42
Real estate held for redemption		7,750.56
Real estate owned		49,493.56
Investment securities	4,480,624.66	
Cash on hand and in banks	685,279.75	5,165,904.41
Office building less depreciation	423,461.66	
Furniture, fixtures and equipment less depreciation	6,701.22	430,162.88
Deferred charges		10,067.08
Other assets		137.36
<b>TOTAL ASSETS</b>		<u>\$24,465,443.27</u>

LIABILITIES		
Installment savings shares	\$ 648,705.48	
Optional savings shares	2,910,938.30	
Advanced savings shares	4,936,536.25	
Fully paid shares	11,142,667.82	19,638,847.85
Notes payable		244,100.00
Due borrowers on incomplete loans	302,607.58	
Other accounts payable	220,447.15	523,054.73
Unrealized income		116,029.51
Other liabilities		109.14
Legal reserve	2,686,353.72	
Special reserves	215,253.18	
Undivided profits reserve	1,022,333.54	
Guaranty reserve for purchased land contracts	17,000.40	
Reserve for series G bond redemption	2,361.20	3,943,302.04
<b>TOTAL LIABILITIES</b>		<u>\$24,465,443.27</u>

Statement of operations year ended June 30, 1948

Gross operating income	\$ 1,097,446.42
Less: operating expense	325,389.56
Net operating income	<u>772,056.86</u>
Add: non-operating income	46,040.23
	818,097.09
Less: non-operating expense	7,432.13
<b>NET EARNINGS</b>	<u>\$ 810,664.96</u>

Miscellaneous information

Number of first mortgage loans	4,507
Number of real estate contracts	1,047
Number of real estate held for redemption	2
Number of real estate owned	16
Number of parcels of real estate under lease option	none
Number of invested share accounts	16,326
Rate of dividend declared	none - 5%

SOURCE: Office of the Secretary of State

TABLE 10

CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES FOR ALL  
SAVINGS AND LOANS ASSOCIATIONS IN THE TRI-COUNTY AREA  
AS AT JUNE 30, 1954

## ASSETS

First mortgage loans	\$33,111,910.96	
Share loans	292,385.87	
Real estate contracts	3,583,192.84	\$36,987,489.67
Real estate held for redemption		9,391.51
Real estate owned		450.00
Investment securities	2,658,041.48	
Cash on hand and in banks	2,729,468.55	5,387,510.03
Office building less depreciation	589,132.50	
Furniture, fixtures and equipment less depreciation	70,362.12	659,494.62
Deferred charges		6,394.60
Other assets		941.00
<b>TOTAL ASSETS</b>		<u><u>\$43,051,671.43</u></u>

## LIABILITIES

Installment savings shares	\$ 443,738.62	
Optional savings shares	13,385,018.78	
Advanced payment shares	5,973,970.85	
Fully paid shares	15,874,170.92	35,676,899.17
Notes payable		1,165,000.00
Due borrowers on incomplete loans	453,946.36	
Escrow, accounts payable and other liabilities	486,794.75	940,741.11
Unrealized income	157,381.13	
Specific reserves	30,850.50	
Legal reserves	3,287,901.87	
Other general reserves	226,148.72	
Undivided profits reserves	1,566,748.93	5,269,031.15
<b>TOTAL LIABILITIES</b>		<u><u>\$43,051,671.43</u></u>

## Statement of operations year ended June 30, 1954

Gross operating	\$ 2,022,953.28
Less: operating expense	573,229.91
Net operating income	<u>1,449,723.37</u>
Add: non-operating income	27,877.01
	1,477,600.38
Less: non-operating expense	23,065.08
<b>NET EARNINGS</b>	<u><u>\$ 1,454,535.30</u></u>

## Miscellaneous information

Number of first mortgage loans	6,875
Number of real estate contracts	730
Number of real estate owned	1
Number of real estate held for redemption	1
Number of invested share accounts	20,720
Rate of dividend declared	3% - 7%

SOURCE: Office of the Secretary of State

TABLE 11

CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES FOR ALL  
SAVINGS AND LOANS ASSOCIATIONS IN THE TRI-COUNTY AREA  
AS AT JUNE 30, 1958

ASSETS		
First mortgage loans	\$51,054,272.21	
Share loans	504,979.34	
Real estate contracts	3,429,533.17	\$54,988,784.72
Real estate held for redemption		49,306.61
Investment securities	4,599,036.69	
Cash on hand and in banks	4,208,374.33	8,807,411.02
Office building less depreciation	1,186,464.56	
Furniture, fixtures and equipment less depreciation	91,099.18	1,277,563.74
Deferred charges		16,167.50
Other assets		1,340.53
<b>TOTAL ASSETS</b>		<u><u>\$65,140,574.12</u></u>
LIABILITIES		
Installment savings shares	\$ 420,458.50	
Optional savings shares	27,378,107.13	
Advanced payment shares	6,492,210.61	
Fully paid shares	22,143,085.69	56,433,861.93
Notes payable		688,375.00
Due borrowers on incomplete loans	608,089.48	
Escrow, accounts payable and other liabilities	849,496.11	1,457,585.59
Unrealized income		224,463.07
Specific reserves		44,491.99
Legal reserve	4,177,570.52	
Other general reserves	369,622.36	
Undivided profits reserve	1,764,603.66	6,311,796.54
<b>TOTAL LIABILITIES</b>		<u><u>\$65,140,574.12</u></u>
Statement of operations year ended June 30, 1958		
Gross operating income		\$ 3,202,362.45
Less: operating expense		739,891.07
Net operating income		<u>2,462,471.38</u>
Add: non-operating income		7,579.32
		<u>2,470,050.70</u>
Less: non-operating expense		45,744.77
<b>NET EARNINGS</b>		<u><u>\$ 2,424,305.93</u></u>
Miscellaneous information		
Number of first mortgage loans		8,615
Number of real estate contracts		620
Number of invested share accounts		25,070
Current dividend rate		3 1/2% - 4 1/2%

SOURCE: Office of the Secretary of State

TABLE 12

## INSURANCE COMPANIES WITH HEAD OFFICES IN THE TRI-COUNTY AREA, 1958

County	Name and Address of Company	Type	Total Admitted Assets	Total Liabilities not including Capital	Capital Stock	Surplus over Capital and all Liabilities	Total Direct Premiums in Michigan	Total Direct Losses in Michigan	Life Premiums	Life Losses Paid
Ingham	Farm Bureau Life Ins. Co. of Mich. 4000 N. Grand River, Lansing	Legal Res. Life Ins.	\$ 5,264,722	\$ 4,590,733	\$252,700	\$ 421,289			\$1,759,630	\$85,843
Ingham	American Annuity Life Ins. Co. 807 American State Bank Bldg., Lansing	Legal Res. Life Ins.	1,293,816	1,086,695	200,000	25,121			67,313	
Ingham	Michigan Millers Mutual Ins. Co. 208 N. Capitol Avenue, Lansing	Mutual - Fire & Mar.	21,767,295	14,063,774		7,703,521	\$ 4,183,297	\$1,652,058		
Eaton	Barry & Eaton Mutual Ins. Co. 315-317 S. Cochran, Charlotte	Mutual - Fire & Mar.	367,037	195,255		171,782	236,813	117,459		
Ingham	Pioneer Mutual Fire Ins. Co. 226 E. Grand River, Lansing	Mutual - Fire & Mar.	952,071	497,718		454,353	848,144	315,686		
Ingham	Michigan Mutual Hail Ins. Co. 107 N. Butler, Lansing	Mutual - Fire & Mar.	No Data							
Clinton	Farmers' Mutual Fire Ins. Co. of Clinton County 201 E. State St., St. Johns	Local Farm Mutual Ins.	875,838	196,952		678,886	223,987	90,968		
Ingham	Farmers' Mutual Fire Ins. Co. of Ingham County, Box 271, Mason	Local Farm Mutual Ins.	183,503	77,418		106,085	84,570	56,819		
Ingham	Auto Owners Ins. Co. Kalamazoo at Townsend, Lansing	Casualty & Surety Co.	38,289,228	25,867,173		12,422,055	17,663,305	9,017,180		
Ingham	Michigan Surety Co. Michigan Theatre Bldg., Lansing	Casualty & Surety Co.	4,084,488	2,882,028	658,125	544,335	883,261	406,932		
Ingham	State Accident Fund 232-234 S. Capitol, Lansing	Casualty & Surety Co.	12,762,165	8,787,240		3,974,925	4,227,395	2,575,709		

SOURCE: 88th Annual Report of the Commissioner of Insurance of the State of Michigan, Lansing, 1958

These transactions were executed by 56 of the 166 realtors in the Tri-County Area. Unfortunately, insufficient data are available to permit a detailed statistical analysis of the transactions but it is possible to make some general comments based upon direct interviews with realtors, contractors, and suppliers of mortgage money.

In general, residential real estate in Greater Lansing is 5 percent to 10 percent more expensive than similar properties in Detroit or Grand Rapids. In this respect, Greater Lansing is in much the same position as Ann Arbor. Several explanations are offered to account for the higher costs. First, there is an acute shortage of prime residential land, especially in areas like East Lansing. Thus sellers are able to demand the highest prices for older properties simply because of their locational advantages. Second, until recently the Tri-County Area had been more dependent upon custom-built homes as opposed to the more standardized types of houses produced in mass. Third, the price of building materials is higher in the Tri-County Area than in Detroit or Grand Rapids; hence final costs are higher. Fourth, the income-stabilizing effects of government and the university have always tended to make Lansing a high-cost area.

Undoubtedly the real explanation is some combination of these four factors. Whatever the explanation, the basic fact remains that residential real estate prices tend to be noticeably higher than in many other metropolitan areas. Since the cost of shelter constitutes an important part of the average family budget it follows that living costs in the Tri-County Area tend to be inflated by the high cost of housing. To the extent that this is so, the Tri-County Area has a competitive disadvantage in competing with surrounding industrial areas where living costs may be lower. It would seem therefore that residential real estate costs may become a significant handicap to future economic growth.

Commercial construction is not so heavily handicapped by the same cost factors as residential building because of unusually keen competition between contractors and the constant threat of invasion of the area by firms located in Detroit and Grand Rapids. This type of outside competition becomes especially keen whenever the cost of a proposed project exceeds \$300,000. Beyond that level the project is increasingly attractive to a widening range of outside firms only too ready to tender bids. As a result, local contractors have an extremely precarious existence in a highly fluctuating and competitive market. New construction by Michigan State University has provided an extremely important underpinning for local contractors. However, only the larger, well financed companies have survived for any period of time. Competition has tended to eliminate, through bankruptcy, numerous ambitious entrants into the construction field.

#### Current Trends in House Building

The residential housing market is undergoing some changes that may eventually prove very significant. There has been a marked increase in the number of low-cost housing subdivisions developed upon a mass production basis. If this trend develops

1957. Michigan Millers Mutual and Auto Owners Insurance are clearly the largest local companies.

The total 119 companies serving the area may also be classified according to the type of insurance underwritten. Since some companies underwrite different lines of business they fall into more than one category, as demonstrated by the fact that the total for Table 13 exceeds 119.

TABLE 13  
INSURANCE FIRMS CLASSIFIED BY TYPES  
OF BUSINESS TRANSACTED

<u>Type</u>	<u>Number</u>
Fire and Marine	24
Legal Reserve Life	56
Casualty and Surety Companies	35
Nonprofit Hospital	2
Cooperative Assessment	1
Fraternal	4
Total	122

Another measure of insurance services rendered to area residents is the number of companies represented in each major center of population. Here again, the total figure implies some double counting because the larger companies are frequently represented in several towns. The general picture is shown in Table 14.

TABLE 14  
NUMBER OF INSURANCE COMPANIES REPRESENTED  
IN SELECTED PLACES, 1958

<u>Place</u>	<u>Number of Companies</u>
Lansing	110
Mason	2
Williamston	1
Eaton Rapids	1
Charlotte	7
Grand Ledge	3
St. Johns	8
Total	132



### Life Companies

Unlike other insurance companies, life companies accumulate funds to the credit of policyholders. These funds have become an important source of investment capital, and it is interesting to estimate the extent to which locally domiciled life companies are supplying the area with capital.

There are two local life companies, both of which are growing at a creditable rate. The total of their admitted assets was over \$7 million in 1958 and they have grown in the following fashion:

<u>Year</u>	<u>Amount of Admitted Assets</u>
1951	\$ 483,903
1952	733,792
1953	1,202,173
1954	3,316,263
1955	4,223,736
1956	5,328,959
1957	6,558,538
1958	7,949,512

In 1958 their total investments were divided between different types of assets as shown in Table 15.

The table shows that mortgages, public utility bonds and corporate bonds constitute about 71 percent of all invested assets. Enquiries revealed that most of the mortgages are government guaranteed paper purchased from other financial institutions all over the country. The bond portfolio is also widely diversified both by industries and by their geographical location. As far as can be determined, these insurance companies play virtually no part in supplying capital to industry or to the residential building market in the Tri-County Area.

It is extremely difficult to estimate the extent to which life insurance companies domiciled outside the area are providing capital. It is known that two or three large shopping centers have been financed by loans from insurance companies and that one company has been active recently making residential real estate loans. However in terms of aggregates it seems that the insurance industry is playing a very minor role in supplying growth capital to the Tri-County Area.

### Conclusions

Metropolitan Lansing is not an insurance center in the accepted meaning of the term. Nevertheless, the industry provides an important service to the community and gives every indication of continued growth.

TABLE 15

DISTRIBUTION OF ASSETS OF THE TWO LEGAL RESERVE LIFE INSURANCE COMPANIES HAVING THEIR HEAD OFFICES IN THE TRI-COUNTY AREA IN 1958<sup>1</sup>

<u>Type of Investment</u>	<u>Value</u>	<u>Percent of Total</u>
Bonds:		
Government	\$ 523,236	6.6
States	55,178	0.7
Political Subdivisions	394,785	5.0
Special Revenue	74,881	1.0
Railroads	125,029	1.6
Public Utilities	1,768,659	22.2
Industrial & Miscellaneous	1,217,658	15.3
Other:		
Stocks	134,060	1.7
Mortgages	2,636,792	33.2
Real Estate	274,702	3.4
Policy Loans	108,736	1.3
Cash & Bank Deposits	242,308	3.0
Accounts recoverable from reinsurers	126	---
Life insurance premiums and annuity considerations deferred and uncollected	338,517	4.3
Interest and other investment due and accrued	<u>54,845</u>	<u>0.7</u>
Total	\$7,949,512	100.0

<sup>1</sup>Any item equal to less than 1 percent of the total is treated as being equal to zero.

SOURCE: State Department of Insurance

### Real Estate and Construction

Increasing population and economic growth inevitably call for new buildings of various kinds and improvements to existing structures. Unfortunately it is extremely difficult to present a comprehensive picture of construction trends in Metropolitan Lansing. The data are fragmentary, no records exist of demolished structures, and the reporting methods vary among the counties. In addition, reported values for new buildings frequently differ by a wide margin from cost or market values, and inflation makes inter-year comparisons hazardous. In spite of these handicaps, a study of building permits issued does illuminate the pace of construction, its character and the general direction of urban development. To help clarify the discussion Map 1 is included, showing townships and the larger population centers.

### Clinton County

In Clinton County, new building permits are handled for all townships by the County Zoning Board in St. Johns. Incorporated places issue their own permits independently when they have zoning ordinances. This arrangement was instituted in 1943 and became generally enforced by 1950. It is estimated that, excluding incorporated places, some \$20 million was spent on construction during the period 1950 to 1958. The number of permits issued for the county as reported to the federal government was as follows:

<u>Year</u>	<u>Number of Permits</u>
1955	169
1956	203
1957	177

The city of St. Johns is the most important incorporated place in Clinton County as far as new construction is concerned. The city has acquired four new subdivisions in the past 20 years, and began issuing building permits in 1953 as part of a concerted effort to establish better industrial and community planning. Table 16 gives a fairly complete picture of recent trends and clearly emphasizes the prosperous years of 1954 and early 1955. The remaining incorporated places in Clinton County are listed with some brief comments relating to the status of zoning ordinances and new construction.

Maple Rapids, in Essex Township, has a building code for the four main corners of the village, but there has been no new construction in the last few years. At the moment a committee is working on a new building code for the entire village. On the other hand Fowler has been issuing permits during the past ten years but has no zoning laws. The village issued 11 permits for dwelling units and seven for commercial buildings in the last five years. The incorporated villages of Westphalia and Ovid also have no building code but issue permits. However, a total of only about 35 houses have been built in these two villages in the last five years. The village of DeWitt is growing towards the north and west, and between 1956 and 1958 issued 13 permits for

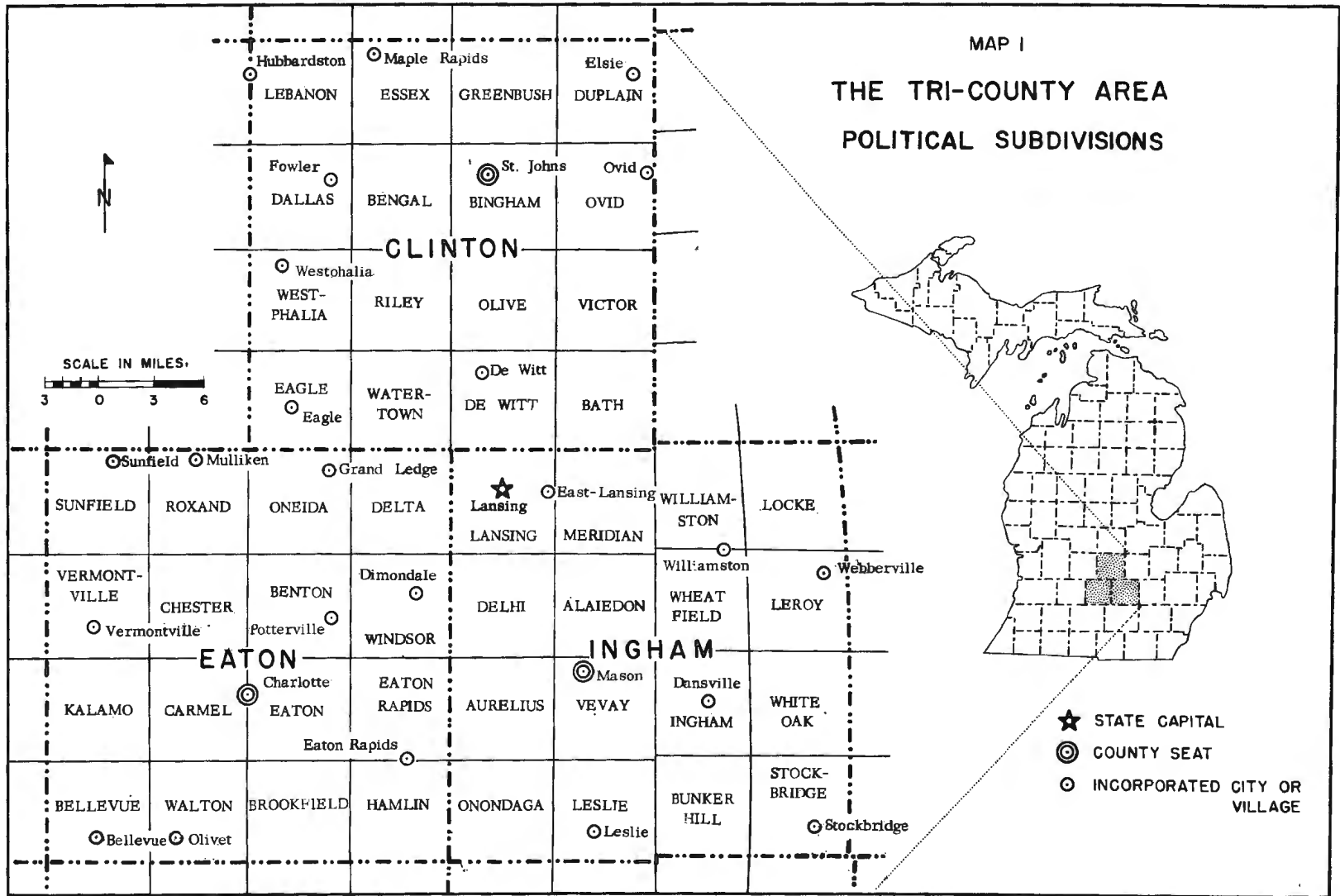


TABLE 16

NUMBER AND TYPE OF BUILDING PERMITS  
ISSUED BY ST. JOHNS 1953-1958

Number of Permits

<u>Year</u>	<u>Homes</u>	<u>Additions &amp; Repairs</u>	<u>Residential Garages</u>	<u>Industrial &amp; Commercial</u>	<u>Public Buildings</u>	<u>Total</u>
1953	26	33	23	6	none	88
1954	43	28	22	12	2	107
1955	34	30	25	13	none	102
1956	32	31	17	10	3	93
1957	28	27	27	10	none	92
1958	<u>17</u>	<u>29</u>	<u>20</u>	<u>11</u>	<u>5</u>	<u>82</u>
Total	180	178	134	62	10	564

Dollar Values

<u>Year</u>	<u>Total Estimated Construction</u>	<u>Non-taxable Public Buildings</u>	<u>Industrial &amp; Commercial</u>	<u>Homes</u>	<u>Residential Garages</u>	<u>Repairs &amp; Addition</u>
1953	\$ 337,990	\$-----	\$ 35,500	\$ 261,000	\$ 17,465	\$ 24,025
1954	1,037,765	458,000	96,700	436,000	18,085	28,980
1955	730,750	-----	303,600	371,000	22,400	33,750
1956	673,725	70,000	154,300	390,725	15,200	45,500
1957	662,835	-----	209,000	366,560	33,000	54,275
1958	<u>811,131</u>	<u>356,514</u>	<u>158,500</u>	<u>216,900</u>	<u>21,650</u>	<u>57,567</u>
Total	\$4,254,196	\$884,514	\$957,600	\$2,042,185	\$126,800	\$244,097

SOURCE: Zoning Officer, St. Johns

new houses, 43 permits for building alterations and five permits for new commercial buildings. The present building code was established in 1954 although no permits were issued until 1956. It is evident, then, that new construction of all types in Clinton County is minimal, with most of it being undertaken in St. Johns, the county seat.

Eaton County

The building situation in Eaton County is somewhat similar to that in Clinton. Six townships issue their own permits but only three townships report building activity to the federal government. These are Benton, Delta and Windsor Townships, for which the reported figures are shown below:

<u>Township</u>	<u>Number of Permits</u>		
	<u>1955</u>	<u>1956</u>	<u>1957</u>
Benton	193	191	214
Delta	142	168	178
Windsor	26	29	19

The incorporated places issue their own permits and sometimes have zoning ordinances. The most important center of new building activity is Charlotte, which is expanding to the southwest and southeast. The town established zoning laws in 1954 and a building code was adopted in 1956. The building pattern in this community is summarized in Table 17.

This level of activity is largely the result of local initiative in helping an aluminum extrusions plant to expand at Charlotte. An unreported volume of building is also going on at Grand Ledge, Eaton Rapids and Bellevue in addition to construction put in place by the non-reporting townships. Nevertheless, it is true to say that Charlotte is by far the most important center for new building construction in the county.

Ingham County

The volume of building in Ingham County far exceeds the combined figures for Clinton and Eaton. Total estimated construction is summarized in Table 18 and more detailed figures for the more important townships and incorporated places are shown for selected years in Tables 19, 20, 21, 22, and 23.

An examination of the geographical distribution of new residential construction over the last three years shows that most new houses are going up on the south and southwestern edges of the city of Lansing running into Delhi Township and across the county line into Windsor and Delta Townships in Eaton County. At the same time, the city of Lansing has been constantly enlarging by annexing immediately surrounding areas. This growth by annexation seems to be following a definite pattern. In the preliminary stage a small number of prospective home owners decide to build outside

TABLE 17

BUILDING PERMITS ISSUED BY CHARLOTTE  
1954-1958

<u>Type</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Single Family	25	40	34	29	20
Residential Remodeling	60	77	60	115	126
Residential Garages	18	33	23	23	13
Commercial, new	--	3	10	2	3
Commercial, remodeling	10	10	15	14	20
Industrial, new	--	0	2	0	0
Industrial, remodeling	1	0	1	0	6
Educational	--	6	1	0	0
Religious	--	1	1	0	0
Demolition and Moving	17	18	12	3	6
Trailers	--	1	1	0	0
Municipal	--	1	0	0	0
Heating <sup>1</sup>	--	--	0	32	61
Total	<u>131</u>	<u>190</u>	<u>160</u>	<u>218</u>	<u>255</u>

<sup>1</sup>Inspections instituted in September 1956.

DOLLAR VALUE OF BUILDING PERMITS  
ISSUED BY CHARLOTTE 1954-1958

<u>Type</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
Single Family	\$ 186,800	\$ 389,800	\$ 344,850	\$ 294,700	\$ 220,800
Residential Remodeling	46,757	55,659	43,330	89,152	107,228
Residential Garages	13,696	25,000	20,950	25,729	13,000
Commercial, new	---	30,000	164,800	145,200	27,000
Commercial, remodeling	n. a.	8,100	40,550	20,179	27,441
Industrial, new	---	---	164,000	---	---
Industrial, remodeling	n. a.	---	10,000	---	26,535
Educational	---	359,800	400,000	---	---
Religious	---	50,000	8,000	---	---
Municipal	---	24,000	---	---	---
Total	<u>\$ 247,253</u>	<u>\$ 942,359</u>	<u>\$ 1,196,480</u>	<u>\$ 574,960</u>	<u>\$ 422,004</u>

SOURCE: Zoning Officer, Charlotte

TABLE 18  
ESTIMATED CONSTRUCTION IN INGHAM COUNTY 1957-1958

Type	1957		1958	
	Number Projects	Value (\$000)	Number Projects	Value (\$000)
Commercial Buildings	68	\$ 3,336	65	\$ 2,907
Manufacturing Buildings	15	472	7	402
Educational and Science Buildings	23	5,930	15	6,320
Other Non-Residential Buildings	33	6,017	38	5,758
Total Non-Residential	139	15,755	125	15,389
Hotels, Dormitories, Apartment Buildings	78	6,231	12	560
One and Two Family Houses	1,163	16,156	1,161	15,799
Other Residential Buildings	1	15	1	355
Total Residential	1,242	22,402	1,174	16,714
Total Public Works and Utilities	34	4,365	48	2,477
Total Construction	1,415	42,522	1,347	34,580

SOURCE: The Dodge Corporation

TABLE 19  
BUILDING PERMITS ISSUED BY LANSING TOWNSHIP 1954-1958

Year	New Dwellings		New Non-Residential <sup>1</sup>		Totals	
	Number Permits	Value	Number Permits	Value	Number Permits	Value
1954	606	\$5,292,560	337	\$2,636,669	943	\$7,829,229
1955	625	6,263,300	389	2,875,618	1,014	9,138,918
1956	434	4,858,093	337	1,797,206	771	6,655,299
1957	251	2,813,200	355	1,404,596	606	4,217,796
1958	227	2,796,400	376	4,579,611	503	7,376,011

N. B. The clerk in Lansing Township only keeps Dwellings and Totals on a yearly basis.  
The New Non-Residential figure is derived by subtracting New Dwellings from Totals.

<sup>1</sup>New non-residential additions, alterations and commercial-industrial permits are included.

SOURCE: Zoning Officer, Lansing Township



TABLE 20

BUILDING PERMITS ISSUED BY DELHI TOWNSHIP  
1954-1958

Year	<u>New Dwellings</u>		<u>Garages</u>		<u>Additions</u>		<u>Other Commercial Buildings (Churches, Schools)</u>		<u>Totals</u>	
	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>
1954	254	\$ 1,847,650	86	\$ 79,930	88	\$ 188,175	28	\$ 143,425	456	\$ 2,208,180
1955	278	2,344,200	100	79,045	96	125,400	16	152,100	490	2,690,745
1956	199	1,666,950	88	69,020	100	828,825	28	209,025	416	2,773,220
1957	179	1,645,200	85	63,395	95	178,865	32	1,127,205	391	3,014,665
1958	157	1,458,000	98	69,450	73	98,125	27	256,200	355	1,878,775

N. B. Garages are actually a part of residential dwellings.

Additions includes all alterations.

Other Buildings includes schools, commercial, industrial, etc.

SOURCE: Zoning Officer, Delhi Township

TABLE 21

BUILDING PERMITS ISSUED BY MERIDIAN TOWNSHIP 1956-1958

Year	<u>Dwellings</u>				<u>Commercial and Public Buildings</u>			
	<u>New</u>		<u>Alterations</u>		<u>New</u>		<u>Alterations</u>	
<u>Number</u> <u>Permits</u>	<u>Value</u>	<u>Number</u> <u>Permits</u>	<u>Value</u>	<u>Number</u> <u>Permits</u>	<u>Value</u>	<u>Number</u> <u>Permits</u>	<u>Value</u>	
1956	294	\$4,304,050	47	\$ 83,525	12	\$ 90,000	2	\$ 45,000
1957	310	4,863,000	102	139,025	40	1,362,863	2	2,800
1958	200	2,498,800	75	102,698	18	522,775	7	169,450

SOURCE: Zoning Officer, Meridian Township

the city limits in order to enjoy the lower township taxes. In time these home owners discover the need to protect their real estate investment by banding together for the purpose of obtaining zoning ordinances. As the number of homes increases problems begin to multiply. Septic tanks become a danger to public health, schools become inadequate and before long the residents find themselves demanding all the amenities of civilized urban living. At this point many home owners are eager to petition for annexation to the city. They must then face the expense of replacing septic tanks with connections to the city sewage system, and probably installing city water in place of individual wells. The number and approximate locations of new residential subdivisions are shown in Table 24.

Naturally, Table 24 tells a somewhat incomplete story since not all new houses are built in subdivisions and the subdivisions vary in size. Even so, there is an indication that Lansing Township is filling up, and the pressures on residential land will continue to push unplanned urban sprawl into the surrounding townships. The trend is also facilitated by improved highways which enable employees to live at greater distances from their places of employment.

The present tendency of Lansing to spread towards the south and southwest may be explained in several ways. First, ground conditions in many places to the north and east of Lansing are highly unsuitable for building due to muck patches and swampy areas. The county line to the north and blocks of university-owned land to the east also present barriers that inhibit continuous urban development. Some notable subdivisions have been established on highway U. S. 16 east of East Lansing, but are mostly confined to custom-built homes. On the other hand, growth to the south and southwest offers

TABLE 22

CITY OF LANSING  
BUILDING PERMITS ISSUED

1954-1958

Year	<u>Dwellings</u>				<u>Non-Residential</u>				<u>Total</u>	
	<u>New</u>	<u>Alterations</u>	<u>New</u>	<u>Alterations</u>	<u>New</u>	<u>Alterations</u>	<u>New</u>	<u>Alterations</u>	<u>Permits</u>	<u>Value</u>
	<u>Number</u>	<u>Value</u>	<u>Number</u>	<u>Value</u>	<u>Number</u>	<u>Value</u>	<u>Number</u>	<u>Value</u>	<u>Permits</u>	<u>Value</u>
1954	421	\$ 4,616,800	498	\$ 413,676	381	\$ 4,434,999	118	\$ 959,580	1418	\$ 10,425,055
1955	383	4,181,600	403	396,745	354	7,734,099	127	2,325,553	1267	14,637,997
1956	274	3,170,200	289	349,047	326	9,343,791	142	1,911,840	1131	14,774,878
1957	379	4,232,600	388	368,175	294	5,435,421	116	2,472,666	1177	12,508,862
1958	411	4,520,600	322	362,985	282	8,152,786	119	435,675	1134	13,552,896

SOURCE: Zoning Officer, City of Lansing

TABLE 23

BUILDING PERMITS ISSUED BY THE  
CITY OF EAST LANSING1954-1958<sup>1</sup>

Year	<u>New Dwellings</u>		<u>Commercial</u>		<u>Alterations</u>		<u>Total</u>	
	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>	<u>Number Permits</u>	<u>Value</u>
1954	8	\$ 425,000	8	\$ 320,200	58	\$ 223,543	74	\$ 968,743
1955	16	391,500	2	67,000	70	120,190	88	578,690
1956	6	171,500	9	1,019,000	91	274,133	106	1,464,633
1957	18	417,200	5	88,800	82	241,194	105	747,194
1958	88	1,780,000	2	69,000	126	259,254	216	2,108,254

<sup>1</sup>Alterations pertain only to dwellings.

A large share of the commercial sector was comprised of gas stations.

SOURCE: Zoning Officer, East Lansing

TABLE 24

NUMBER OF SUBDIVISIONS IN INGHAM COUNTY  
1953, 1955, 1957

<u>Townships</u>	<u>1953</u>	<u>1955</u>	<u>1957</u>
Lansing	15	16	7
Meridian	3	14	12
Delhi	5	8	3
Williamston	1	4	--
Alaiedon	3	2	--
Vevay	--	1	--
<u>Cities</u>			
Lansing	4	5	5
Mason	1	--	1
Williamston	--	--	1

SOURCE: The State Journal

easy access to the larger manufacturing plants within the city and developers have tended to concentrate more upon mass produced houses.

In spite of the fact that many new dwellings are being constructed outside of Lansing proper it is estimated that members of the Lansing Board of Realtors still transact 90 percent of the total volume of real estate sales. The volume of sales has yearly exceeded \$20 million since 1954 and covers properties within a ten-mile radius of the state capital. The figures are as follows:

TABLE 25

REAL ESTATE SALES MADE BY MEMBERS OF THE  
LANSING BOARD OF REALTORS 1954-1958

<u>Year</u>	<u>Dollar Sales</u> <u>(000)</u>
1954	\$21, 113
1955	24, 924
1956	25, 897
1957	23, 661
1958	25, 000

SOURCE: Lansing Board of Realtors

it may help to lower building costs and hence make the area a cheaper place in which to live. Larger realty companies are also interesting themselves in selling houses on a "trade-in" basis analogous to that of the automobile market. This type of operation calls for a large amount of capital and extensive credit but will tend to add flexibility to the housing market.

## CHAPTER 10

### TRANSPORTATION, COMMUNICATIONS AND PUBLIC UTILITIES

In 1958 the transportation, communications and public utilities sector employed 3,600 people or 4 percent of total estimated employment. Transportation accounted for 1,190 employees, 600 of whom were engaged in trucking and 300 in railroads and railway express services. The remaining 290 people were employed by highway passenger, warehousing and taxicab companies. The communications industry accounted for 1,160 employees, of whom 1,050 were employed by telephone and telegraph firms and 110 in radio broadcasting and television. The utilities and sanitary services employed the remaining 1,250 of the total 3,600 making up the entire sector.

Wages and salaries paid out by the sector amounted to \$20,176,000. This sum constituted 4.9 percent of all wages and salaries for the area and was distributed as follows:

Transportation	\$ 7,949,000
Communications	4,906,000
Utilities and Sanitary Services	7,321,000
Total	<u>\$ 20,176,000</u>

It is evident that in terms of employment, salaries and wages, the sector is a relatively small part of the Tri-County economy. However, this should not conceal the vital importance of the services supplied by the industries under discussion. It is difficult to imagine how the economy could function efficiently in their absence.

#### Highways

A basic factor in improved communications is the new system of highways that has been developed since World War II. The Tri-County Area is already deriving immense benefits from the federal and state highway programs, so it is appropriate to describe the five major routes providing rapid connections with other urban centers of the state and nation. Two of these highways, U. S. 127 and U. S. 27, link the area with the Ohio and Indiana Turnpikes, thus assuring rapid access to Chicago and points further east and west. Map 1 shows how the five routes converge on Lansing and gives some insight into the average commercial traffic volume accommodated during a 24-hour period.





The heaviest traffic moves along U. S. 16 between Lansing and the Detroit region. There is also a high volume of traffic between Lansing and Charlotte on M. 78. Unfortunately there are no data to show the ratios of inbound and outbound vehicles or the types of commodities transported. Moreover, it is extremely difficult to obtain such information by direct interview: like railroads, trucking companies are most reluctant to give information which they feel might benefit their competitors. As far as could be determined, most of the freight on U. S. 16 consists of automobiles and parts, metal products and similar inventory items associated with the automotive industry. There is also an appreciable volume of prepared food items, most of which are imported into the area from Grand Rapids and Kalamazoo. In addition to this commercial traffic there are an increasing number of commuters who live outside of Lansing in places like St. Johns, Owosso, and Williamston. This trend toward suburban living is likely to increase in the next five years with the completion of new four-lane highways that make it easier to get to and from work. It is planned that U. S. 16 will become part of the Federal Interstate Highway System, renumbered as route U. S. 96. There will also be a by-pass south of Lansing designed to relieve any congestion in the city caused by through traffic. The present surface condition and mileage of existing state and federal highways in the Tri-County Area is shown in Table 1. It will be seen that the area is well served by a total of about 318 miles of trunkline highways of which about 164 miles are made of concrete.

The importance of a good highway system to any community is demonstrated by national trends in the use of trucking services as opposed to other modes of transportation. According to the U. S. Department of Commerce, the proportion of total inter-city freight carried by trucks has risen from 3 percent in 1929 to 20 percent by 1958. Much of this increase has been at the expense of the railroads, which are becoming confined to hauling long-distance bulk freight.

This changing transportation pattern reflects the higher degree of flexibility enjoyed by motor carriers, plus their greater operating efficiencies for certain types of hauling. These advantages have proved to be especially attractive to the automobile industry and its suppliers. As a result, there are now 126 trucking establishments domiciled in the Tri-County Area. These, plus those domiciled outside the three counties, carry approximately 60 percent of the freight entering and leaving the Tri-County Area, according to a local estimate. Table 2 shows a detailed breakdown of the kinds of certification currently held by carriers domiciled in the area.

The Tri-County Area is also served by three inter-city bus lines, Greyhound, Indian Trails, and Shortway Lines, which carry a large part of the passenger traffic both within the area and between it and other metropolitan areas. While most bus riders travel a relatively short distance, there is evidence that improving equipment and extensive advertising are lengthening the average trip per passenger. The bus lines are particularly important in moving large numbers of students in and out of the area at the beginning and end of University sessions and on week-ends.

TABLE 1

MILEAGE OF TRUNKLINE HIGHWAYS IN THE TRI-COUNTY AREA  
1958

	<u>Rural</u>			<u>Urban</u>			<u>State Trunkline Totals</u>					
	<u>Clinton</u>	<u>Eaton</u>	<u>Ingham</u>	<u>Total</u>	<u>Clinton</u>	<u>Eaton</u>	<u>Ingham</u>	<u>Total</u>	<u>Clinton</u>	<u>Eaton</u>	<u>Ingham</u>	<u>Total</u>
Unimproved												
Gravel and Similar		7.114		7.114					7.114			7.114
Low-Type Bituminous:												
Bituminous Surface												
Treatment		3.608	6.261	9.869	0.644		0.644		4.252	6.261	10.513	
Oil Aggregate												
and Similar		23.966	25.167	49.133	2.794	3.319	6.113		26.760	28.486	55.246	
High Type Bituminous:												
Bituminous Concrete												
Non-rigid Base		18.474	0.450	18.924	0.193	0.864	1.057		18.667	1.314	19.981	
Bituminous Concrete												
Rigid Base	12.458	19.319	20.783	52.550	1.789	7.676	18.339	27.804	14.247	26.995	39.122	80.364
Concrete	48.783	50.706	29.464	128.953	4.078	4.075	6.726	14.879	52.861	54.781	36.190	163.832
Brick and Block						0.720	0.332	1.052		0.720	0.332	1.052
Total	61.241	123.187	82.125	266.553	5.867	16.102	29.580	51.549	67.108	139.289	111.705	318.102

SOURCE: State of Michigan: 27th Biennial Report of the State Highway Commissioner for the fiscal years ending June 30, 1957 - June 30, 1958

TABLE 2

NUMBER AND CERTIFICATION OF TRUCKING COMPANIES  
IN THE TRI-COUNTY AREA 1958

<u>Certification</u>	<u>Ingham</u>	<u>Clinton</u>	<u>Eaton</u>	<u>Total</u>
Contract Carrier	5	1	1	7
Common Carrier	2	-	-	2
Limited Common Carrier	71	32	13	116
Temporary Limited Carrier	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>
Total	79	33	<u>14</u>	126

SOURCE: Michigan Public Service Commission, Motor Transport Division

#### Railroads

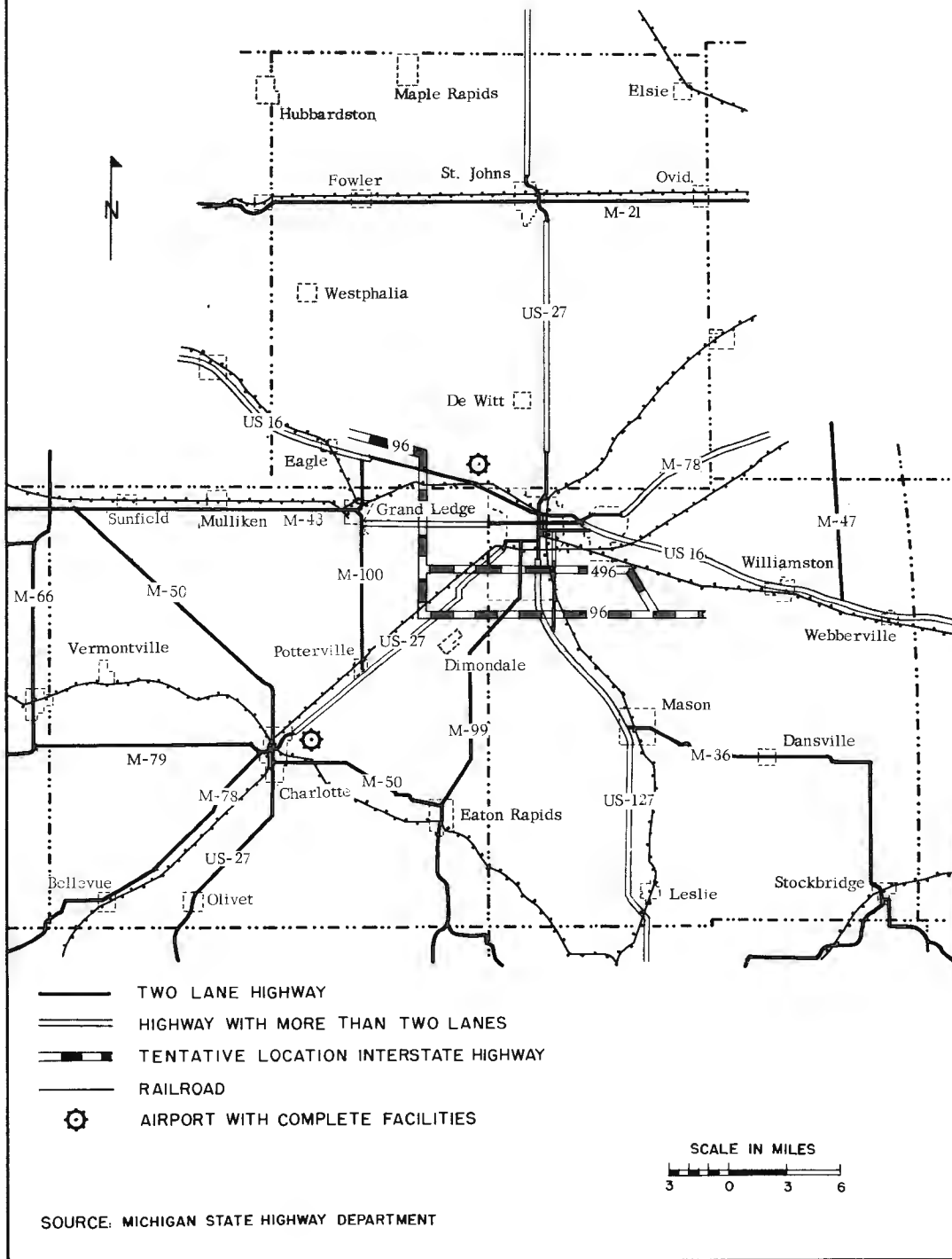
There are three railway companies serving the Tri-County Area as shown on Map 2: the Chesapeake and Ohio (C&O), the Grand Trunk Western Railway (GTWR), and the New York Central Railroad (NYC). Two trunk lines run through the counties: the C&O from Buffalo to Chicago and the GTWR from Toronto to Chicago. There are also two NYC branch lines which cross the area. One goes from Jackson to Bay City and the other from Jackson to Grand Rapids. Jackson is also on the NYC main line from Buffalo to Chicago but is not shown on the map because it is outside of the Tri-County Area.

The decline in volume of rail freight has already been noted, as has the dearth of statistical information about traffic movements. The only picture of commodity movements available was obtained from direct interviews with company executives and presents the following pattern.

The C&O imports a variety of commodities such as steel, auto parts, manufactured food-stuffs, lumber and building materials, coal, and agricultural machinery.

MAP 2,

TRI-COUNTY HIGHWAYS, RAILROADS, AND AIRPORTS



The last item is becoming more important as Lansing develops as a distributing center. Outbound commodities include automobile parts, agricultural sprayers, and grains largely bound for export points like Toledo. The railroad currently has two eastbound and four westbound trains leaving Lansing every 24 hours, but during the peak of the yearly automobile production season an extra train runs between Lansing and Flint. However, short haul traffic for all three railroads has declined substantially in the last 20 years. The only exception to this is shipments of fertilizer, which enjoys a railroad rate advantage over truck movements. Coal seems to be about the most important single revenue item and is consumed both by residential and commercial users. The largest single consumer in the area is the Lansing Board of Water and Light.

The C&O also serves the Tri-County Area by transshipping goods by road to points like Grand Ledge from its rail facilities in Grand Rapids. This procedure is part of a general program to cut costs and thus combat competition. Along the same lines, all three railroads are exploring the use of "flexi-vans" which may enable them to offer more competitive transportation services.

The GTWR and NYC conduct much the same type of operation as the C&O and handle varying proportions of the same kinds of freight. All railroads offer the same service at identical rates and it is the opinion of the traffic managers interviewed that total rail freight is probably divided about equally among the railroads. An exception to this broad generalization is the GTWR, which only brings in a limited amount of coal since the company does not have a coal-yard in the area, but this is compensated for by sizeable imports of timber and building materials. Outbound freight consists mostly of automobiles, auto parts and around 250 cars of grain per year out of Charlotte. In the last few years the company has discontinued its town delivery services, and package freight volume has fallen precipitately due to the competition from truckers.

The NYC railroad has had the same general experience as far as traffic volume is concerned as the GTWR and C&O. However, the company has a good incoming volume of steel for the forging industries and also handles the switching for the Oldsmobile plant. Nearly all the dry goods consumed in the area come express from New York, as do some less than carload lots of appliances. There is a fairly even balance between incoming and outgoing freight, with exports consisting mostly of auto parts, fertilizer, forgings and scrap iron.

General downward trends for rail passenger traffic are a common feature in most communities today. The Tri-County Area is no exception. Nevertheless, there are 12 passenger trains daily connecting Lansing with Grand Rapids, Bay City, Toledo, Chicago, Jackson and Detroit. The Chicago and Detroit connections enable travelers to go by rail to any major city in the country.

All three railroad companies are emphatic in their statements that there would be no problem in providing extra trains or facilities for passenger and freight traffic

should the need arise.

### Air Transportation

The only large commercial airport serving metropolitan Lansing is located on U. S. 16 just outside the city of Lansing as shown on Map 2. The nearest other airports are Willow Run, 74 miles away, Detroit Metropolitan (90 miles), Grand Rapids (62 miles), and Flint (50 miles). This places Lansing's Capitol City Airport in a strategic position for serving a block of five Central Michigan counties having the following populations in 1958.

<u>Counties</u>	<u>Population</u>
Clinton	34,650
Eaton	52,280
Ingham	<u>216,860</u>
Subtotal	303,790
Gratiot	36,030
Ionia	<u>42,680</u>
Total	382,500

While Gratiot and Ionia are not part of metropolitan Lansing, a detailed study of traffic potential for Capitol City Airport clearly indicates that these other counties supply a significant proportion of total passengers enplaned.

By 1947 the airport represented a capital investment of about \$500,000, most of which was investment in facilities. Construction since then has included additional runways and a new terminal building financed by \$1.3 million from the federal government, \$950,000 from the state and \$750,000 from the city of Lansing. Further improvements are planned over the next ten years on the assumption that traffic will increase at the same rate as the national average. If these hopes are realized it will entail expenditures of about \$2 million for new construction including some T-hangars, a large general service hangar, and a field maintenance building. At least one runway will be extended to 7,000 feet to accommodate jet-type aircraft, probably of the Electra class.

At the present time North Central Air Lines and Capital Airlines are the only two scheduled airlines serving the area, but they are sufficient to ensure adequate connections with the major transcontinental routes. Only Capital Airlines moves freight, which is limited to shipments not exceeding 150 pounds per piece. Any larger shipments are usually handled at Detroit. The greater part of the freight traffic through Lansing is connected with the automotive industry. In past years, for example, inbound freight has been larger than outbound due to rush demands for tools and parts for the Oldsmobile plant. Other important components of total freight traffic are fashion goods and flowers.

TABLE 3

AIRPORT USE  
 Capitol City Airport  
 Lansing, Michigan

	<u>Number Air Passengers</u>	<u>Pounds Air Mail</u>	<u>Pounds Air Express</u>	<u>Pounds Air Freight</u>	<u>Total Landings and Takeoffs</u>
1948	18,286	70,705	382,658	435,339	*
1949	22,058	112,340	300,438	480,907	*
1950	29,450	136,274	399,627	1,080,329	*
1951	30,838	146,436	302,092	174,630	*
1952	43,181	169,739	357,495	216,803	*
1953	57,030	201,306	431,981	322,722	*
1954	74,356	239,447	388,270	284,072	55,799
1955	78,956	265,330	620,439	370,113	60,651
1956	71,849	275,648	488,534	338,998	82,071
1957	82,105	280,027	511,884	416,086	104,098
1958	71,169	293,645	480,411	304,252	96,709

Note: Capital Airlines carries approximately 90.5 percent of the air passengers, 74.5 percent of the air mail, 80.9 percent of the air express and 100 percent of the air freight.

The figures for passengers, mail, express and freight are incoming and outgoing.

North Central Airlines began operations in Lansing in April, 1953.

Capital Airlines were on strike for a portion of 1958.

SOURCE: Michigan Department of Aeronautics

The general growth patterns of passenger and freight traffic handled by Capitol City Airport are depicted in Table 3. It will be noted that between 1948 and 1958 the number of passengers enplaned increased by 289 percent. Up to 1956 more passengers usually arrived than departed, due to the number of people coming to Lansing to collect their Oldsmobiles. However, since then passenger traffic has become more evenly balanced. The table also shows that since 1948 air mail increased by 315 percent and air express by 25 percent, while air freight declined by 30 percent.

Communications

About 87 percent of the 121, 139 telephones in the Tri-County Area are owned by the Michigan Bell Telephone Company. The next largest firm is the General Telephone Company with about 9 percent of the total telephones, while the remaining 4 percent is shared among six other independent companies. The total number of telephones in service during 1955 and 1958 is shown in Table 4, from which it can be seen that both Michigan Bell and General have increased their units by about 25 percent. The other companies have not increased proportionately.

TABLE 4  
NUMBER OF TELEPHONES IN THE TRI-COUNTY AREA  
BY COMPANIES 1955 and 1958

<u>Company</u>	<u>1955</u> Number of <u>Telephones</u>	<u>1958</u> Number of <u>Telephones</u>
Michigan Bell Telephone Company	87, 883	105, 633
General Telephone Company	9, 174	11, 412
Aurelius and Vevay Telephone Exchange	178	213
Grand Valley Telephone Company	--	336
Rural Telephone Company	1, 665	1, 851
Shiawassee Telephone Company	825	925
Sunfield Telephone Company	459	408
Westphalia Telephone Company	<u>313</u>	<u>361</u>
Total Tri- County	100, 497	121, 139

SOURCE: Michigan Public Service Commission

Table 5 gives a detailed picture of telephones serviced by Michigan Bell since 1955. During the period January 1, 1955 to January 1, 1959, the company's Lansing Exchange increased its number of telephones by about 27 percent while all other Michigan Bell



exchanges in the area grew by 18 percent. The company covers the more populous parts of the area, as is seen in Map 3.

TABLE 5  
MICHIGAN BELL TELEPHONE COMPANY TELEPHONES IN USE  
1955 - 1959<sup>1</sup>

<u>Exchange</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>
Lansing	71,995	76,506	81,348	87,479	91,214
Mason	2,448	2,544	2,719	2,793	2,914
Dansville	312	325	330	337	349
Holt	1,714	1,940	2,110	2,263	2,411
Mulliken	305	325	345	344	358
Dimondale	695	734	768	807	839
Pottersville	431	451	460	477	498
Leslie	1,079	1,133	1,157	1,192	1,207
Vermontville	535	554	571	593	588
Charlotte	3,968	4,183	4,341	4,414	4,558
Nashville	902	931	972	982	995
Bellevue	845	888	938	983	999
Olivet	492	543	584	614	609
Eaton Rapids	<u>2,162</u>	<u>2,241</u>	<u>2,259</u>	<u>2,355</u>	<u>2,434</u>
Total	87,883	93,298	98,902	105,633	109,973

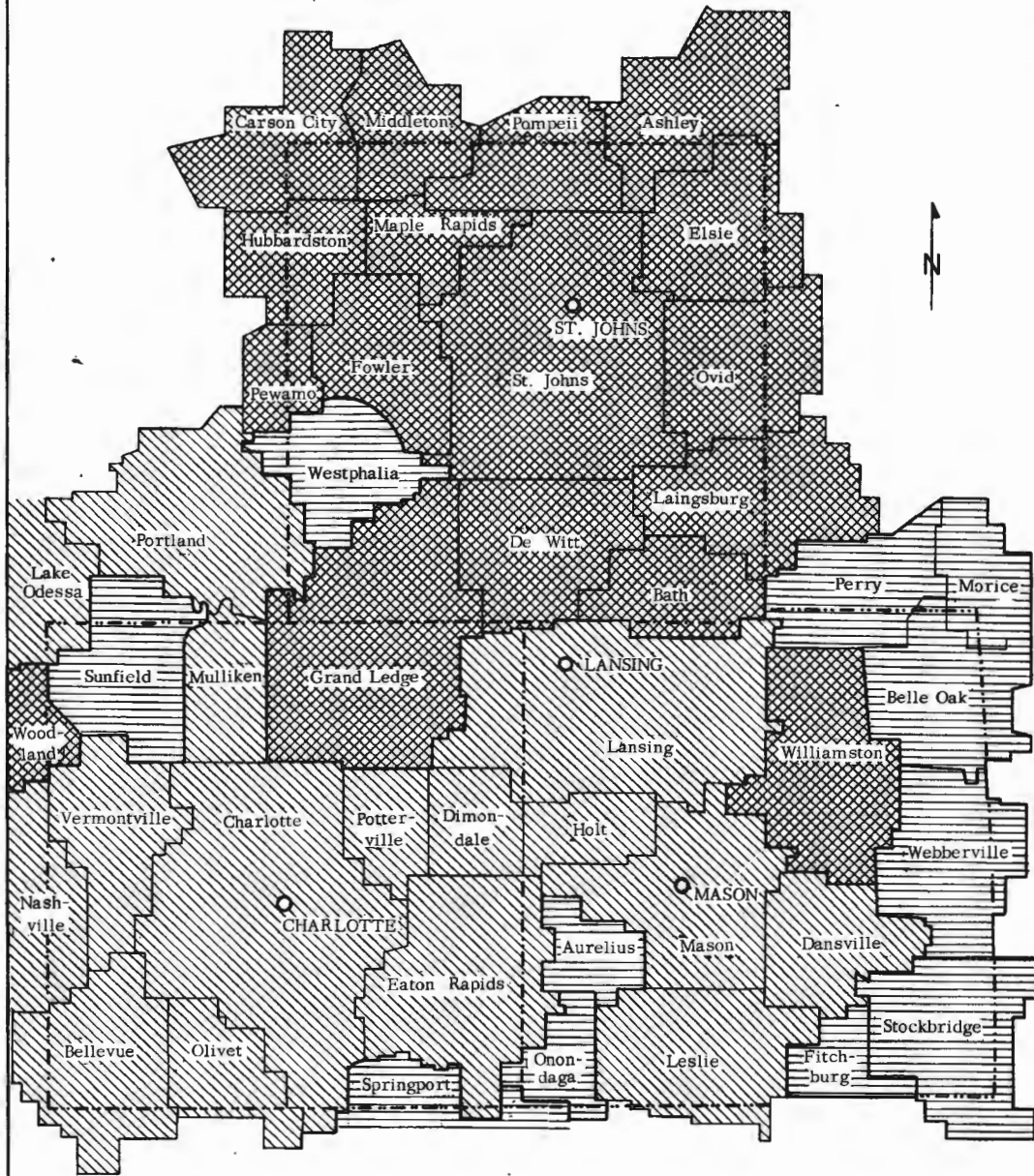
<sup>1</sup>Number of telephones as of January 1 of each year






SOURCE: Michigan Bell Telephone Company

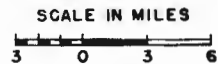
The Michigan Bell Telephone Company began operations in the area in 1928 and now has its divisional headquarters in Lansing with 13 exchanges scattered throughout Eaton and Ingham Counties. The company's healthy growth has been accompanied by some substantial capital investments which have greatly improved the services offered. The company is currently spending \$4.8 million in the Lansing Exchange area to introduce new technical advances developed during the past few years. For example, it is anticipated that by 1962 the Lansing Exchange will have a complete system of Direct-Distance-Dialing.

Similar improvements are being undertaken by the General Telephone Company, which plans to spend about \$1 million for capital improvements in 1959 and 1960. One of the major projects in 1959 included converting the Grand Ledge Exchange to a dial operation coupled with extended area service to Lansing. Extended area service has also been introduced between Bath and Lansing and between Dewitt and Lansing. In addition, equipment for Direct-Distance-Dialing will be installed in St. Johns, together with a toll cable connecting St. Johns with Owosso and Alma.

MAP 3  
**TELEPHONE COMPANIES SERVING THE TRI-COUNTY AREA  
 1958**



- |   |                                 |   |              |
|---|---------------------------------|---|--------------|
|  | MICHIGAN BELL                   |  | EXCHANGE     |
|  | GENERAL TELEPHONE               |  | COMPANY AREA |
|  | INDEPENDENT TELEPHONE COMPANIES |   |              |



SOURCE: MICHIGAN PUBLIC SERVICE COMMISSION

The parts of the area covered by the six smaller companies are shown on Map 3. These firms employ between 30 and 150 employees and render efficient services, but on a much more restricted scale, mostly for the rural parts of Clinton and Eaton Counties. In 1954, 88 percent of the farms in Eaton County, 87 percent in Ingham and 71 percent in Clinton County had telephones. Comparable figures for the state show that 67 percent of all farms in Michigan had telephones. Thus the rural coverage in the Tri-County Area is substantially higher than in the state as a whole.

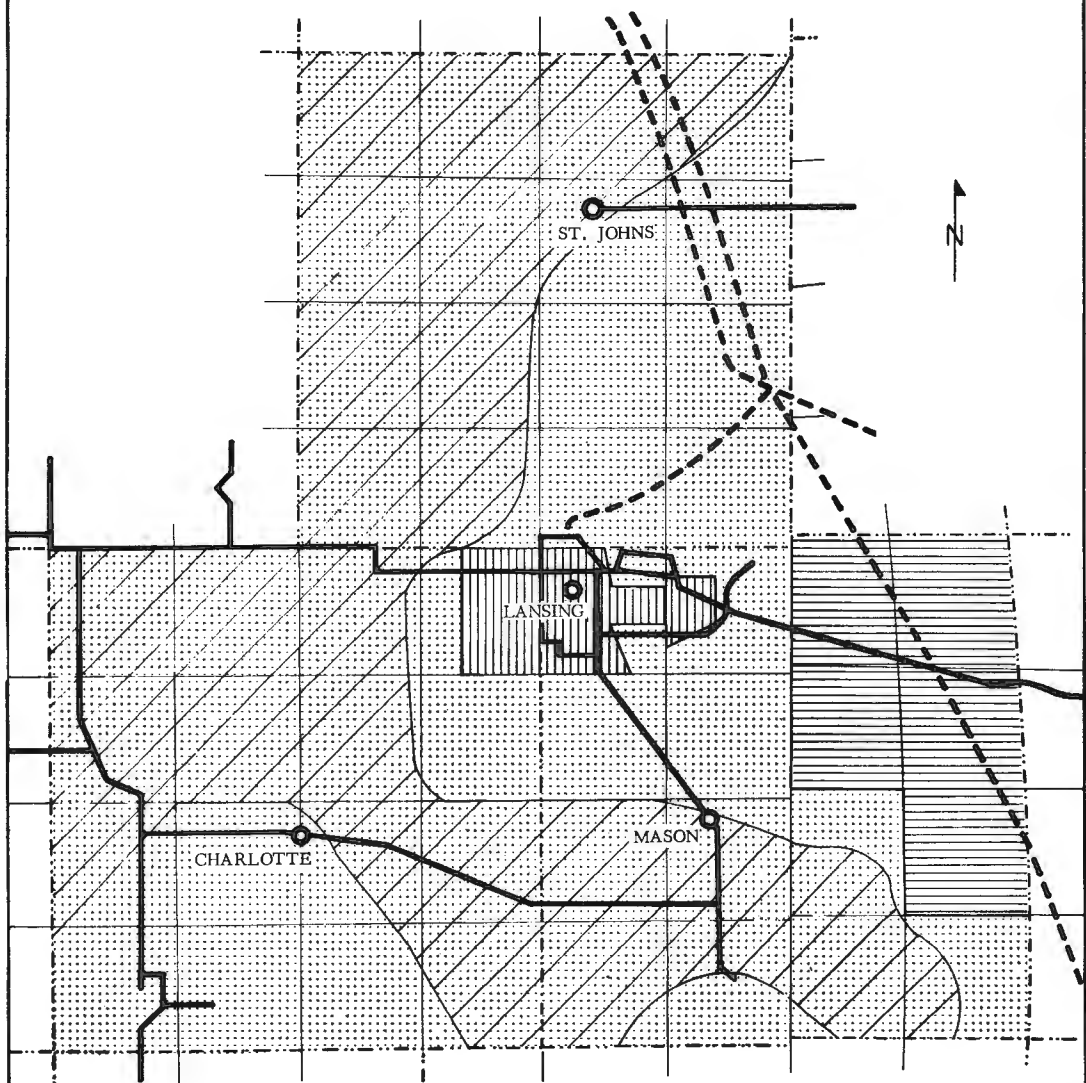
#### Electric Power







It is hardly surprising that the great bulk of electrical energy sold in the Tri-County Area is consumed in the city of Lansing and immediate environs, because it is here that a preponderance of individual consumers, industrial users, and commercial users is concentrated. This important district is served by the municipally-owned Board of Water and Light, as shown in Map 4. It will be noted that the district covers the cities of Lansing, East Lansing, the greater part of Lansing Township and the eastern half of Delta Township in Eaton County. The company administers a municipally-owned system consisting of two coal-burning steam-electric plants, eight substations and an exchange station of 30,000 kilowatts capacity which is linked with the Consumers Power Company network. Since the installed capability is around 226,000 kilowatts, while integrated hourly demand runs at about 150,000 kilowatts, there is a comfortable margin of capacity to take care of rising demand or any emergency shutdowns in any part of the network. A useful by-product from the generating plants is steam-heat, which is being sold to 800 customers in the Lansing central business district. The Oldsmobile plant is also an important customer, using about \$1 million worth of steam-heat annually.

Map 4 delineates the districts in the Tri-County Area served by the Consumers Power Company, Detroit Edison Company and the Tri-County Electric Cooperative. The latter organization is licensed to supply communities having a population of under 1,500 persons. As far as generating facilities are concerned, all suppliers except the Lansing Board of Water and Light draw their power from generators outside the Tri-County Area. Detroit Edison and Consumers Power get their electricity from generating plants located throughout Michigan and the Electric Cooperative buys its power from the Wolverine Electric Cooperative, Incorporated. All the companies serving the area are directly or indirectly linked together by a grid system ensuring supplies in the event any single firm faces an emergency.

The growth of power consumption supplied by the four companies for selected years is depicted in Table 6, from which the relative standing of each company can be determined. Table 7 presents the same data organized to emphasize how total consumption for selected years is divided among the main categories of users. It will be seen that total kilowatt hour sales have increased since 1948 by approximately 75 percent. At the same time, the proportionate shares consumed by the residential and commercial sectors have increased at a much more rapid rate than the industrial sector. On the

MAP 4  
ELECTRIC AND GAS UTILITIES SERVING THE TRI-COUNTY AREA  
1958



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li> LANSING BOARD OF WATER AND LIGHT</li> <li> CONSUMERS POWER CO.</li> <li> DETROIT EDISON CO.</li> <li> TRI-COUNTY ELECTRIC COOP.</li> </ul> | <ul style="list-style-type: none"> <li> GAS LINES - CONSUMERS POWER CO.</li> <li> GAS LINES - MICHIGAN GAS STORAGE CO.</li> </ul> |
|--|---|

SCALE IN MILES  
3 0 3 6

SOURCE: MICHIGAN PUBLIC SERVICE COMMISSION

TABLE 6

ESTIMATED KILOWATT HOURS OF ELECTRICITY SOLD BY COMPANIES IN THE TRI-COUNTY AREA  
FOR SELECTED YEARS  
(in millions)

	<u>Consumers Power</u>			<u>Detroit Edison</u>			<u>Tri-County Coop</u>			<u>Board of Water and Light</u>		
	<u>1948</u>	<u>1954</u>	<u>1958</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>	<u>1948</u>	<u>1954</u>	<u>1958</u>
Residential	17,200	42,541	60,217	5,310	10,555	14,192	9,000	10,000	10,810	76,282	123,990	166,840
Commercial Light and Power	9,113	19,986	31,721	1,286	1,790	2,553				56,183	93,356	133,913
Industrial Power	5,111	14,989	20,346	80	203	237				198,670	344,289	314,750
Total	31,424	77,516	112,284	6,676	12,548	16,982	9,000	10,000	10,810	330,635	561,635	615,503

SOURCE: Consumers Power; Michigan Public Utilities Commission; Tri-County Electric Coop and Lansing Board of Water and Light

TABLE 7

ESTIMATED TOTAL KILOWATT HOURS OF ELECTRICITY SOLD IN THE TRI-COUNTY AREA CLASSIFIED BY SECTOR-USERS  
1948 - 1954  
(in millions)

<u>Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Total</u>
1948	107,992	66,582	203,861	378,435
1954	187,086	115,132	359,481	661,699
1958	242,049	168,187	335,333	755,569

SOURCE: Consumers Power; Michigan Public Utilities Commission; Tri-County Electric Coop and Lansing Board of Water and Light

other hand, the figures for industrial sales for 1958 must be used with caution because of the generally depressed state of manufacturing during that year.

Both present generating capacity and future investment plans ensure adequate power for the area. In Lansing alone installed capability will be increased to 260,000 kilowatts by 1962. The main line connections with the other companies also ensure a reserve of power. Adequacy of rural services may be judged by the fact that the 1954 Census showed 99 percent of all farms in the Tri-County Area had electricity.

### Gas

Consumers Power Company is the sole distributor of natural gas in the Tri-County Area. The gas is purchased by Michigan Gas Storage, a subsidiary of Consumers Power, from fields in Texas, Kansas, Oklahoma and Louisiana, and conveyed by pipe line to Michigan by the Panhandle Eastern Pipe Line Company.

On reaching Michigan the gas is taken to large underground storage areas in the northern part of the state, where reserves are built up during the summer months to meet the heavy winter peak demands. This arrangement ensures a more stable supply of gas for existing customers throughout the state but has not solved the problem of the 12,000 applicants currently waiting for gas space heating in the Tri-County Area. This backlog of customers is mainly due to shortages in gas supplies, which will be remedied when more or bigger pipe lines have been constructed. Difficulties are also experienced in bringing supplies to the more rural sections of the area, where lack of population density pushes up costs disproportionately. The company uses a standard formula which requires that for each \$4 investment there must be an annual minimum revenue of \$1 to justify tapping a main line of 300 lbs. pressure. If these conditions are met then the company will pay for the extension pipe from the main line to the customer's lot line. However, the customer is required to pay for the costs involved in going from lot line to the meter. This formula does not preclude special arrangements being made with large industrial users, who frequently have special difficulties which need consideration.

In the past decade gas consumption in the Tri-County Area has almost tripled, increasing from 3.1 billion cubic feet in 1948 to 8.9 billion cubic feet in 1958. The largest single component is space heating which has grown by about 258 percent since 1948 and now constitutes around 60 percent of total sales. Commercial and industrial sales have increased 238 percent, but domestic sales show a decrease of 11 percent. These figures must be treated with some care because customers classified as domestic users are automatically reclassified under space heating sales when space heating is installed in their dwellings.

It seems reasonable to suppose that gas supplies will continue to be augmented, enabling consumption to increase in the years ahead.

TABLE 8

GAS CONSUMPTION IN THE TRI-COUNTY AREA FOR SELECTED YEARS  
(Cubic Feet)

<u>Year</u>	<u>Domestic</u>	<u>Space Heating</u> <sup>1</sup>	<u>Commercial and Industrial</u>	<u>Total</u>
1948	721, 785, 000	1, 507, 685, 000	856, 198, 000	3, 085, 668, 000
1954	616, 469, 000	3, 943, 451, 000	2, 120, 989, 000	6, 680, 909, 000
1958	640, 606, 000	5, 404, 330, 000	2, 891, 619, 000	8, 936, 555, 000

<sup>1</sup> Sold on a restricted basis; about 12, 000 applications currently pending.

SOURCE: Consumers Power Company

Water

Cities in the Tri-County Area obtain their fresh water from 172 wells drilled to an average approximate depth of 400 feet and ranging between 12 and 14 inches in diameter. These municipal water systems are inspected and controlled by the State Health Department which, among other things, requires monthly samples from all filtration plants, insists that the plants be operated by qualified personnel, and examines the adequacy of proposed water supply plans. This power of review entitles the state to deny the necessary operational permit if it believes any proposed municipal plans are defective or inadequate. In enforcing its recommendations, the department may obtain a civil court order, adopt criminal procedures or simply get the court to rule that a practice must be stopped. In most instances the department acts as an expert adviser to local communities and any problems are solved by negotiation.

Besides public water systems there are many individual wells drilled by private persons or companies over which the state has no control, nor need the Department of Health be consulted. Inevitably, as population grows the pattern of drilling is changing. Due to increased demand and depletion of local ground water supplies, wells for municipal systems must be drilled further out and connected by supply pipes. Most experts are of the opinion that supplies may well become something of a problem in the next ten years unless alternative sources are obtained. At present supplies are adequate, although many municipal systems seem in need of additional facilities like filtration plants and increased storage capacity tanks. In fact, most of the smaller systems deliver untreated water directly to residents.

The city of Lansing has the largest municipal water system, drawing supplies from 89 wells. The water is treated in a large conditioning plant and then stored in underground reservoirs holding about one day's supply. From the reservoir it is pumped by steam or electric pumps into cast-iron water mains for distribution to all

parts of the city. Average daily pumpage is around 17.6 million gallons, although the maximum capacity of the treatment plant is about 24 million gallons. This extra capacity provides a safety margin for unusually hot summer days when water is sometimes used at the rate of 35 million gallons.

In the immediate future Lansing is well provided for as far as water supplies are concerned. The main problem will be in meeting the cost of laying new mains as the city expands. Further annexations may entail bringing in water from more distant wells for treatment, and then pumping the treated water back to consumers. This may call for a considerable amount of initial investment that will require bond financing with consequent taxation.

East Lansing has a separate water system capable of pumping a maximum of about 3.5 million gallons every 24 hours. The water is obtained from five wells and processed at three plants located in different parts of the city. It is then stored in two elevated towers capable of holding around 450,000 gallons. These arrangements ensure an adequate water supply, but the city has also a reciprocity agreement with Michigan State University designed to meet any unexpected problems. This agreement permits either party to call on the other for water if the occasion arises. The city is also developing a five-year program to meet future needs and is already planning to drill another well in the immediate future.

The city of Mason has four wells, although only two are currently in operation, supplying the community with an average of 400,000 gallons every 24 hours. Around 250,000 gallons are stored in one elevated tank but the city has no treatment plant. It is anticipated that these facilities could accommodate around 3,000 more people, so there should be no difficulty in meeting immediate future needs.

The city of St. Johns in Clinton County also has a municipal water system with six wells and a storage tank of around 100,000 gallons capacity. Water treatment is confined to an iron removal process and the one large industrial water user has private facilities which relieves the municipal system of a heavy burden. At present there seems no reason to believe that existing plant is inadequate, although any sudden growth in population would necessitate further investment.

The above brief descriptions of the water systems in Lansing, East Lansing, Mason and St. Johns give an insight into the manner in which this service is being supplied in the major population centers. Most public officials are of the opinion that supplies are generally adequate but that the quality of water could be improved by the addition of treatment plants. However, consumers in general seem to prefer present services rather than increased local taxation. The basic problem for the entire area is the extent to which ground resources are adequate to meet increasing demands. Such a question can only be answered after a detailed water resources study has been made.



## Sewerage

It is a matter of common observation that a rapidly growing population places increasing pressures upon existing public facilities and creates new problems. In the Tri-County Area these tendencies are clearly seen in the provision of efficient sewage disposal systems. Lansing and East Lansing contain the most densely populated sections of the area and both city sewage systems are operating above capacity. In fact the situation in the Greater Lansing Area is sufficiently grave to call for drastic action.

The sewage outfalls for the city of Lansing are into the Grand and Red Cedar Rivers and Sycamore Creek. Their flow places upper limits upon the amount of sewage that can be handled. The Grand River is used as a cooling agent in the production of electricity. This raises the water temperature, thus limiting the river's oxygen-carrying capacity. Such a reduction not only slows down bacteriological action but severely affects animal life and the recreational values of the river. Obviously the problem could be met by requiring firms to construct cooling towers in place of using the river as a cooling agent.

The same sequence of events is taking place as the result of dumping poorly treated or even raw sewage in the Red Cedar River. The oxygen content in summer is frequently reduced to near zero especially in those stretches of the river in and adjacent to East Lansing. In view of the situation, the Department of Health has ruled that no additional outfalls into the river can be constructed east of East Lansing. While no ruling of this nature has yet been made for Sycamore Creek, it is evident that at the present rate of pollution similar action will be imperative within the next few years.

As already noted, both Lansing and East Lansing sewage treatment plants are operating at or above capacity depending upon the time of year. Since 1956 there has been a series of engineering reports reviewing the problem. One suggested solution involves the expenditure of \$6 million to expand the Lansing plant for the purpose of serving both cities on a cooperative basis. It is generally agreed that whatever action is taken it will be necessary for East Lansing to abandon its present treatment plant because of locational factors. It is also anticipated that new separate facilities would cost East Lansing around \$3 million.

Both St. Johns and Mason have excellent municipal sewerage systems. The latter city has just completed a new \$550,000 activated sludge system which should prove adequate for the next decade on the assumption that population trends continue along their present paths. St. Johns also has a relatively new trickle filter treatment plant that will be adequate for some years to come. Charlotte is well equipped with a modern treatment plant, disposal system and storm sewers that will take care of current population trends for the next ten years. In fact, a survey of incorporated areas outside of Greater Lansing reveals that the smaller centers of population are taking all appropriate steps to ensure efficient disposal of sewage, despite the fact that the small community invariably faces difficulties in selling bonds at a reasonable price outside Michigan.

Sewage disposal in the non-incorporated areas is usually dealt with by individual septic tanks constructed according to standards enforced by the county boards of health. Clinton County has no Board of Health but a local official is charged with the specific duty of inspecting newly constructed private sewerage systems. Where the soil is sandy and population density low these types of system can be made to work satisfactorily. However, if the soil is clay-like and resists percolation, or if population density rises, trouble soon emerges. Unfortunately both these conditions exist on the periphery of Greater Lansing, where urban sprawl is at its worst in the Tri-County Area. At best, septic tanks are a temporary expedient that must eventually be replaced by modern sewage disposal methods; hence property owners eventually pay twice for the same service. A misinformed sense of public economy aggravated by a multiplicity of local governmental jurisdictions has frequently obstructed an intelligent solution of the sewage disposal problem. This picture is fairly typical throughout the nation and constitutes one of the pressing difficulties that arise when a large proportion of city dwellers move out to the urban fringes.

## CHAPTER 11

### INTER-INDUSTRY FLOW OF GOODS AND SERVICES IN CLINTON, EATON AND INGHAM COUNTIES, 1958

The object of this section is to describe the rationale behind the Inter-Industry Relations Table which has been constructed for the Tri-County Area for 1958. The presentation is as nontechnical as possible in order to enable readers with moderate knowledge of theoretical economics to understand the relationships which the Table embodies. It will be helpful, first of all, to develop an overall view of Table 1 and at the same time to discuss some of the relevant nomenclature.

The numbers in the Table are in thousands of dollars; each set of numbers in a particular column represents the purchases or receipts of the sector named in the caption (at the top) from the various sectors listed at the left side (in the stubs). Conversely, the set of numbers in a particular row represents the sales or shipments of the sector named in the stub to the various sectors listed in the column captions. Hence the sets of numbers in the columns are frequently referred to as inputs and the sets of numbers in the rows are called outputs. The reader should have little trouble with the data at this point, except possibly as concerns the values along the main diagonal. The first number in this main diagonal of the table is \$7 million, in the upper left corner. It is clear that this figure represents purchases (or sales) by Livestock, Dairy, and Poultry enterprises from (to) Livestock, Dairy, and Poultry enterprises. Similarly, the second number on the main diagonal, \$3 million, represents intra-sector transactions within the Crops, Vegetables, Fruits, and Nuts area. In the former case, interchanges within the sector include sale of baby chicks to poultry growers, sales of cattle by livestock growers to livestock feeder farms, etc., and in the latter case interchanges of seed between farmers would constitute the most important item. As a further example, the interchange within the Motor Vehicles industry (col. 11, row 11) includes shipments by the Fisher Body Company in Lansing to the Oldsmobile Plant in Lansing plus sales and purchases of parts and equipment, etc.

Columns 1 through 24 are known as intermediate demand or processing sectors while columns 25 through 30 comprise the final demand or autonomous sectors. Other names for columns 1 through 24 include endogenous sectors and nonautonomous sectors. Likewise, columns 25 through 30 are frequently called exogenous sectors or nonprocessing sectors. This terminology is reviewed here because the terms are highly descriptive and frequently used by economists, and if the reader will reflect upon them briefly he will be better prepared to understand the discussion which

follows. The intermediate demand or processing sectors may be considered to exist for the purpose of accommodating or serving the final demand sectors, columns 25 through 30. Thus changes in final demand necessitate adjustments in the output of the processing sectors.

The totals of the numbers in the rows and the columns are shown at the right and bottom, respectively. The row total represents the gross production or output of the given sector in the Tri-County Area in 1958. The corresponding column total represents the gross outlay or input required in producing the sector's gross output in 1958.

1958 final demand by households in the Tri-County Area of \$640 million was more than twice as great as the second largest final demand category of net competitive exports amounting to \$290,215,000. Inputs by households are classified as final demand, because the goods and services consumed by them are purchased after all the processing has been completed and they are consumed as final products. Net competitive exports also are classified as final demand even in the case of exports of raw or intermediate materials because they will not be processed further by the processing sectors of the Tri-County Area.

The concept of competitive and noncompetitive imports and exports is somewhat subtle. Industrial and economic activities which were carried on in the Tri-County Area in 1958 are referred to as competitive industries while those industries and activities which did not exist in the Tri-County Area in 1958 are designated as noncompetitive. Gross imports of those types of items which were not produced in the Tri-County Area in 1958 are shown in the row entitled Noncompetitive Imports and are treated as inputs or costs to the consuming sector named in the column caption. It would, of course, be entirely feasible to show gross competitive imports and gross competitive exports in two separate columns in the table as was done in the 1947 National Emergency Model (200 x 200 sector study). Although information in the files of the Bureau of Business and Economic Research could be used to accomplish this result, it would require prohibitively expensive analysis. For most purposes the single column Net Competitive (Imports-) (Exports+) is adequate and the required data can be easily obtained as a balancing figure.

The remaining sectors of final demand in order of dollar magnitudes are State and Local Government expenditures (\$179,135,000), New and Maintenance Construction expenditures (\$77 million), Federal Government expenditures (\$72 million), and Gross Private Capital Formation expenditures (\$46 million). All of these expenditures are classified as final demand for the same reason that household expenditures are so classified: the items purchased constitute final products which are used as such and require no further processing by the area's processing sectors.

The data in columns 1-24 within the processing sectors (1-24) may be called

intermediate or secondary inputs while the data in columns 1-24 within sectors 25-30 may be referred to as primary inputs. Inputs or costs in the latter categories include tax and nontax payments to governments, maintenance construction costs, charges for noncompetitive imports, depreciation and other capital consumption allowances, wages and salaries, and entrepreneurial income, corporate profits after income tax, interest, royalties, business expenditures for travel and entertainment, and several other relatively small items of similar nature. All of these represent operating costs including profits and depreciation, which may also be considered to be a cost of employing capital.

The data in the columns within the processing sectors represent inputs or purchases of items from competitive industries named in the stubs regardless of whether or not the items were actually produced within the Tri-County Area. In other words these are inputs of the types of items produced within the Tri-County Area in 1958 irrespective of where they were actually made. In this regard it will be noted that most of the sectors had a net competitive import balance in 1958, the largest such negative figure in this case being for primary metals.

Another aspect of the Table which one must understand to interpret it intelligently is that the figures in the Table which are in thousands of dollars reflect the value of the goods or services at producers' prices; in the case of a manufactured item this would mean f. o. b. factory prices. The payments for marketing activities are shown in the trade sectors and the output of the trade sectors is defined as the trade margin or gross profit. This is true of all wholesale trade and of retail trade except for eating and drinking establishments, whose output is measured in terms of gross receipts since their activity is similar in some ways to that of the manufacturing sectors which utilize raw and intermediate materials to produce a higher-value product. The parallel with the preparation and serving of food and drink is obvious.

Excise taxes are treated in the same manner as marketing charges, being charged to the sector that purchased the item rather than the sector that produced it and served as a collection agency for the tax. For example, excise taxes on telephone bills are charged to the sector that uses the telephone service rather than to the telephone industry which collects the tax and remits it to the government.

A few more aspects of the final demand columns should be noted in this general discussion. Gross Private Capital Formation of \$46 million covers 1958 capital investment by industries included in the processing sectors, with the exception of public education and hospitals. In addition, investment in residential construction is included in the Gross Private Capital Formation column as a purchase from the New Construction sector. Primarily, however, the Gross Private Capital Formation column represents purchases of plant and equipment as an investment by the processing sectors. All expenditures by households, including purchases of durable consumer goods such as automobiles, are shown in the Household column except residential

construction, mentioned above. However, the imputed rent for owner-occupied homes is treated as a household purchase from the Real Estate and Rental Sector. Investment expenditures by hospitals and public schools are included in the State and Local Government columns.

#### IMPLICATIONS OF TABLE 1 APPLICABLE TO THE TRI-COUNTY AREA

The construction of Table 1 required a large expenditure of time and effort on the part of a number of highly trained people. However, the reader who is willing to make the comparatively modest investment in the time required to understand the rationale behind Table 1 will be rewarded with great insight into the structure and operation of the Tri-County Area.

Almost at a glance it is possible to learn the scope of economic activity in the area, including relative magnitudes. The inputs and outputs of each sector can, of course, be studied on a detailed basis to establish its degree of dependence upon other sectors; for specific purposes such analysis is indicated. The high degree of interdependence of the Tri-County economy is evident in the fact that few blank spaces occur in the Table.

The dominance of the motor vehicle industry is clear. In comparison state and local government expenditures are definitely of secondary magnitude. While such expenditures undoubtedly lend some stability to the economy, it is evident that the Tri-County Area will continue to experience marked cyclical fluctuations until it is able to attain better diversification for its industrial base. Since the Tri-County Area is prominent in the public eye as the site of the state government and a major university, it is worth stressing the point that the region's character is determined largely by the dominant motor vehicle and allied industries. To understand the kind of trade and service activities carried on here, one must appreciate the fact that the Tri-County Area is primarily an industrial one.

Like most statistical analyses, the data in Table 1 are particularly useful for formulating and testing hypotheses. For example, Trade and Services are seen to be imported into the Tri-County Area in large volume, as shown by the figures in column 26, rows 15, 16, 19, 20, and 21. Due to the dominance of industry in the area it is reasonable to assume that trade and service businesses are primarily oriented toward customers with income levels and tastes typical of industrial workers. It can be further hypothesized, on the basis of this assumption and the aforementioned facts from the Table, that a significant number of consumers who demand a wide choice of high quality merchandise and better-than-average service are seeking them outside the Tri-County Area.

The fact that medical and other professional services enjoy a net export balance does not prove that the medical facilities available in the Tri-County Area are

actually in excess of the needs of the area. Without a doubt the medical and other professional services did contribute to the economic well-being of the Tri-County Area in 1958. But it does not necessarily follow that local medical facilities and services are satisfactory, or that they could not contribute even more to the economy of the area. In fact more and better facilities and services probably would contribute to both the physical and financial well-being of the residents.

Transportation and Communication is a net import into the Tri-County Area. This situation can be considered to be normal for any metropolitan area with the possible exception of a transportation center such as the Chicago area.

Electric power and gas services are furnished in greatest volume in the Tri-County Area by the Lansing Board of Water and Light and Consumers Power Company, with headquarters in Jackson. Most of the net import of electric power and gas is accounted for by the natural gas and electric power which is supplied to the area by Consumers Power Company. Without considering any of the other factors which might be of overriding importance, the area itself would benefit most financially if any future increments in demands for electrical service were supplied by the Lansing Board of Water and Light or by a facility, private or public, which produces electricity at a location within the Tri-County Area. This is true of any sector which now shows a significant net import value.

Finance and insurance services enjoyed a significant net export balance in 1958. Further expansion of the rapidly growing insurance business could provide a very desirable diversifying element in the economy of the area.

Livestock, dairy, and poultry were imported into the area in substantial volume in 1958. This may be of some consequence to the outlying interests in the area, especially since future growth in the population and consumption will require considerably greater amounts of these items in the future.

Crops, vegetables, fruits, and nuts were exported, showing a net balance of nearly \$11 million in 1958. It seems reasonable to assume that extensive land-utilizing operations such as this will more and more seek sites removed from urbanized areas, so this positive source of income in the area may be expected to become relatively less significant.

With two exceptions, the manufacturing sectors were net importers. This is a measure of the market for manufactured items in 1958 that is being served by facilities outside the Tri-County Area. Although these situations may be considered to constitute positive locational reasons for expanding such types of business here, it is clear that many other factors are of equal importance in determining whether such expansion should actually be undertaken. Study of these other factors was beyond the scope of this project. About all that can be said is that the Table presents some

important but incomplete information on this subject.

Negative figures in the Table are not bad but rather inevitable. The negative values represent net imports and are made possible by the net exports and vice-versa. In most cases where the values are negative, the Table simply reflects the fact that the output of this type of item is needed in the economy of the Tri-County Area but that all or part of it can be more efficiently produced outside the area.

A small but potentially important manufacturing industry in the Tri-County Area is chemical and allied products. The types of products include plastics, cleaning and polishing products, and fertilizers.

Far and away the most important activity in the Tri-County Area is manufacturing of motor vehicles. This fact is most clearly shown in column 26, Net Competitive (Imports-) (Exports+). Until the area can successfully diversify, its fortunes will continue to be tied to this one type of demand. This is a more crucial issue for the Lansing area than the historical record of employment and population growth indicates, in that Oldsmobile has enjoyed better market performance than even the typical General Motors brand. On the other hand if the same thing should happen to Oldsmobile that has happened to Buick, the Tri-County Area could be expected to be nearly as hard hit as Flint has been by Buick's misfortunes. In the wide-open automobile market this is more than a remote possibility.

A comment on the figure in column 26 row 30 seems in order. The \$14,891,000 net export figure is accounted for largely by money flowing in from outside the area to students of Michigan State University. While no commodity is exported, it can be considered to be a net export of educational services, paid for by parents living outside the Tri-County Area. This is obviously a matter of considerable economic consequence.

#### NONCOMPETITIVE IMPORTS INTO THE TRI-COUNTY AREA IN 1958

As a by-product of the data gathered for Table 1, broad estimates of imports of those types of items that were not produced in Clinton, Eaton and Ingham Counties in 1958 have been made. These estimates are presented in Table 1 (a). In spite of the lack of detail they undoubtedly can be helpful to established and potential business interests in the area in indicating fruitful avenues for further research into the scope of the local market for types of items which were not being produced here in 1958.

#### EXPLANATION OF TABLE 2: DIRECT PURCHASES PER DOLLAR OF OUTPUT, 1958

The data in Table 2, for the 24 processing sectors, are computed from the data in Table 1 by reducing the values therein to ratios of their respective column totals. The technically-minded reader is likely to question the appropriateness of the Table's title and wonder if it should not be Direct Purchases per Dollar of Input instead of



TABLE 1(a)

NONCOMPETITIVE IMPORTS INTO THE TRI-COUNTY AREA, 1958  
(in thousands of dollars)

BBER	Sectors	
31	Cotton, tobacco farming, fishing, hunting and trapping	736
32	Metallic and nonmetallic mining	4,474
33	Alcoholic beverages and tobacco manufactures	10,172
34	Jute, linen, cordage and twine, apparel, leather and footwear	38,974
35	Plywood	953
36	Paper and pulp	11,401
37	Industrial chemicals, drugs, paints, vegetable and animal oils, coke and by-products	27,600
38	Tires, tubes, and miscellaneous rubber products	42,489
39	Glass and Cement	10,439
40	Blast furnaces and steel foundries	4,332
41	Primary and secondary non-ferrous metals	10,425
42	Tin cans and cutlery	1,139
43	Fixtures, engines, machines, and equipment	22,357
44	Metal barrels and foil	277
45	Electrical instruments and equipment	46,051
46	Transportation equipment except motor vehicles	7,766
47	Instruments, watches, clocks, silverware, and parts	9,001
48	Cork products, motion pictures products, small arms, and ammunition	493
49	Water and pipeline transportation	3,457
50	Foreign imports (noncompetitive)	4,154
	Total	256,690

Note: Definitions of the BBER Sectors will be found in the Appendix

Direct Purchases per Dollar of Output. Actually, one title is as accurate as the other since the gross inputs or outlays are equal to the gross outputs (this is true of the processing sectors: the processing sector column totals are equal to their respective row totals). Total inputs are equal to total outputs for the processing sectors because profits (or losses) are treated as a cost (negative in the case of a loss) to the purchaser and this fact equates the gross output of a processing sector to its gross input (that is, for the processing sectors, the value of production is equal to the cost of production).

The figures in Table 2 are generally referred to as input coefficients by technicians and they reflect the cost structure of each processing sector. It is easy to use the input coefficients to make rather simple but interesting calculations which throw some light on the interdependence of the various economic sectors in the Tri-County Area in 1958. For example, one dollar's worth of output of motor vehicles required an input of over 7.6 cents (\$.076378) of the types of fabricated metals that are manufactured in the Tri-County Area. Hence it follows that \$1 million worth of output of motor vehicles in 1958 in the Tri-County Area had a first-round impact of over \$76,000 upon the area's fabricated metal industries. The output of \$76,000 of fabricated metal products which were produced in the area to satisfy this demand had a second-round impact upon the area's primary metal industries of approximately  $\$76,000 \times .246305 = \$19,000$ . The third-round impact of the \$19,000 worth of output of primary metals upon the area's electric power and gas utilities was  $\$19,000 \times .016776 = \$300$ . Typically, the impacts after the third round, although theoretically infinite in number, are small enough to be ignored for purposes of application.

It is clear, however, that the above example, which partially traces the impacts of the output of \$1 million of motor vehicles upon, successively, the area's: (1) fabricated metal industries; (2) primary metal industries, and (3) electric power and gas utilities, did not by any means measure the total impact of the output of \$1 million worth of motor vehicles in the Tri-County Area. The effects, of course, spread out in every direction but with sharply decreasing effects from one round to the next.

A not-too-surprising reaction of the reader at this point might be that this is all rather interesting but that the use of Table 2 in this manner is too cumbersome to be of more than limited value. This is probably a fair appraisal, but fortunately it is entirely feasible to use Table 2 as a basis for calculating a third table which is designed to accomplish the results that Table 2 seems to promise but falls short of delivering.

#### EXPLANATION OF TABLE 3: DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF FINAL DEMAND, 1958

Table 3 is based upon Table 1 but is computed more directly from Table 2. In the previous section we traced the impacts upon other sectors for three rounds,

along a particular route, of \$1 million worth of production (output) of motor vehicles in 1958. Theoretically it would be possible to proceed in this way, and, by including all the sectors in the calculations, slowly build up a table of the total requirements on all sectors entailed by the production of any one sector. The problem is slightly more complex but in a similar manner it would be possible to build up a table of the total requirements on all sectors entailed by deliveries outside the processing system from any one sector. Table 3 shows the results of a systematic, simultaneous, and complete set of computations of the desired type, carried through by means of a very high speed electronic digital computer. It is of special interest because it shows the combined direct and indirect requirements placed on all sectors by the delivery outside the processing system of \$1 of output from each sector. Sectors 1 and 2 and 7 and 12 have been combined in Table 3 because the capacity of the available electronic computer was limited to a 22 x 22 matrix. The difficulty which would have been encountered in inverting a 24 x 24 matrix was out of proportion to the value of maintaining sectors 1 and 2 and sectors 7 and 12 in an uncombined state.

Some of the applications of Table 3 will be developed in the following sections of this report.

#### PROJECTIONS OF OUTPUT, INCOME, EMPLOYMENT AND POPULATION OF THE TRI-COUNTY AREA, 1965, 1970, AND 1980

Projections are of doubtful value and even dangerous to those concerned with implementation of policy if the bases on which they have been made are only partially understood. This is a study in applied economics, the applications of which always have been and always will remain an art, as is true of applications of techniques and knowledge in any other field. Like the competent physician who skillfully applies appropriate scientific techniques in treating a patient, great effort has been exerted in using the available statistical, economic, historical, and mathematical means to gain a better understanding of the prospective growth of the Tri-County Area.

Every effort has been made to assess the future prospects of the Tri-County Area in realistic terms. In the past the Area has been fabulously fortunate, due in part to circumstances of chance, location, and political maneuvering. It would be naive to assume that great good fortune will continue to smile, granting dynamic growth without effort on the part of the local population. The Tri-County Area is now in a state of maturity, and like all competent adults must grasp the opportunities of the future through the intelligent application of its own resources in sharp competition with other areas.

The projections are presented in a precise manner out of expediency rather than choice. The basic assumptions are based on estimates of changes in final demand for goods and services produced in the Tri-County Area. Likewise the measures of structural coefficients for 1958 (Table 3) may be considered to be approximately cor-

rect at best and their weakness is further amplified by the assumption that they are stationary and applicable to the periods of 1965, 1970, and 1980. The defense that can be made for this approach is a telling one, however: this interindustry relations analysis offers by far the best tool in existence for assessing the future prospects of a region.

It is to be hoped that errors in basic assumptions will offset errors in structural coefficients; at worst errors will be compounded, although something between the former and the latter can be reasonably expected.

The projections of final demand are shown in Table 4. The specific figures used will not be accorded the stature of a detailed justification. Rather the judgment behind these specific figures will be briefly outlined; with the exception of final demand for motor vehicles it will become apparent to the careful reader (one interested enough to study the calculations in detail) that modifications of specific projections in the relative order of 100 percent and even more in general will have surprisingly unimportant effects upon the overall outlook for the Tri-County Area. This is further strong evidence of the overwhelming dominance of the motor vehicle industry in the area.

The industry that is likely to continue to serve as principal pace setter into the foreseeable future and beyond is motor vehicles. It has been assumed in this study that outside demand (net competitive exports) for this area's motor vehicle products will have expanded sufficiently by 1965 to support a level of operations of the industry in the Tri-County Area roughly equivalent to that achieved in the peak year of 1955. A detailed study of the expected replacement demands has been made, from which, together with assumptions regarding national imports and exports, national population projections and changes in per capita utilization of motor vehicles, a projection of domestic production of motor vehicles can be derived. Remarkably similar projections have been publicized by motor vehicle manufacturers, governmental agencies, and private research organizations, and the following representative projections have been adopted, which have proved to be entirely consistent with detailed projections of the critical factors outlined above. Details of these projections will be found in the Appendix,

After 1965, when it has been assumed that the existing capacity of the motor vehicle industry will be fully utilized in the Tri-County Area, the question of future expansion is a crucial one. Certainly there is no guarantee that the motor vehicle industry in general and General Motors in particular will see fit to further expand the facilities here to a greater extent than the growth of the industry on a national basis. It seems more likely, in fact, that in a small area such as this one, which has large-scale facilities devoted to a single industry, an increase in facilities over and above existing capacity will either roughly parallel the national growth rate of the industry or fall substantially below it. Other possibilities include growth greatly

**MOTOR VEHICLE PRODUCTION IN THE UNITED STATES, 1947-1959  
WITH PROJECTIONS TO 1980  
(In thousands)**

1947	4,815
1948	5,249
1949	6,252
1950	8,013
1951	6,762
1952	5,563
1953	7,348
1954	6,536
1955	9,204
1956	6,919
1957	7,220
1958	5,614
1959	6,500
.	
1965	8,500
1970	10,000
1980	13,000

above the national rate or a persistent absolute decline in the output of this industry in the Tri-County Area. Taking into consideration the tendency toward geographical dispersion by the motor vehicle industry, economies of scale, and the high degree of competition among areas for new industrial plants, the following ranking of the possibilities after 1965 appears reasonable:

1. Most probable - The rate of increase in motor vehicle production facilities in the Tri-County Area will fall substantially below the national growth rate.
2. Less probable - The rate of increase will roughly equal the national growth rate.
3. Still less probable - The rate of increase in motor vehicle production facilities will greatly exceed the national growth rate.
4. Least probable but entirely possible (if the Oldsmobile Division of General Motors should fall upon bad times) - A persistent absolute decline in the output of this industry in the Tri-County Area will occur.

Possibility 2 or 3 above is probably most attractive depending upon the

interest of the specific individual. Alternate 1 is what the citizens of the area should be prepared to expect and alternate 4 would undoubtedly be the most painful of all the possibilities to the area's residents and others.

Projections based on the first possibility (that the rate of motor vehicle industry growth in the Tri-County Area will fall below the national rate after 1965) are to be found in Tables 4, 5, and 6. Net competitive exports from the local area have been estimated to increase 41 percent between 1958 and 1965, by 9 percent between 1965 and 1970, and by 11 percent between 1970 and 1980. All of these rates are significantly below the motor vehicle industry's national projections.

Consistent with these assumptions regarding outside demand for motor vehicles, it has been assumed to be most probable that the output of the local primary and fabricated metal industries, and the machinery industries, would also be operating at their full currently existing estimated capacity by 1965.

Agriculture has been handled differently, the assumption being that this activity in the Tri-County Area will be limited more by the competition of the urban portions of the counties for land than by final demand for the area's agriculture commodities. On this basis it has been assumed that the output of agriculture would grow only moderately throughout the period covered by these projections, from about \$64 million in 1958 to \$70 million by 1980.

Only a very pessimistic outlook could justify the assumption that no industry new to the Tri-County Area would locate therein during the next two decades. On the other hand the attitude that this is a built-in certainty and will happen as a matter of course hardly seems justified. On the assumption and belief that interested local businessmen and other citizens will vigorously seek to attract new industry into this area, the output of miscellaneous manufacturing industries has been allowed to increase by more than 55 percent from 1958 to 1965 with additional increases by 1980. Furthermore, outside demand for chemicals and allied products has been increased so sharply that projected percentage increases are very large. These sharp increases for a rapidly growing industry seem justified on the assumption that if the growth does not actually take place in the case of chemicals there is still a contingency factor to cover new and as yet unforeseeable industries.

Even if these optimistic projections for the chemical industry and the miscellaneous manufacturing industries are realized they can be expected to have only a moderate effect upon the growth of the Tri-County Area. Due to the dominance of the motor vehicle industry, only something truly gigantic can alter the pattern of growth contingent upon automobile production.

Outside demands for the services of the remaining two exporting industries have also been projected generously but can be expected to have only small impact

upon the area's growth (i. e. , finance and insurance, and medical and other professional services). The tone of these statements should not lead the reader to infer that the authors believe the things that may have small impact are unimportant - after all, any contribution to the economic well-being of the area, no matter how small, should be appreciated by residents. The basic problem faced by the area is that it has one large support, two medium-sized supports and a number of relatively small ones. The large support, of course, is the motor vehicle industry. The two medium-sized ones are (1) education and nonprofit institutions and (2) the various governmental activities. Michigan State University, with its projected growth in size and "exporting" possibilities, dominates the education and nonprofit institution sector, and, along with state government, should contribute significantly to the future growth of the area. If the relatively small supports could be nurtured into medium-sized supports a balance would be more favorable. The optimum industrial structure is probably a large number of medium-sized supports, but this situation has never been the pattern for the Tri-County Area and is not likely to occur. In fact only a major dislocation would bring it about: so the theoretical optimum would be a brutally painful actuality.

For 1965 and beyond, final demand by federal government for the area's goods and services has been projected approximately parallel to predicted increases in personal income in the United States (in constant dollars, of course, as is true of all the dollar projections considered herein; see Appendix). Actually the 1965 projections of federal expenditures were made on a detailed basis and reflect different rates of growth for each category of expenditure. The total government expenditure projected for the Tri-County Area from 1958 increases slightly more than it is reasonable to assume that national personal income will increase from 1958 to 1965, primarily because of the expectation that the federal government will substantially increase its aid to the area's educational institutions between 1958 and 1965. Likewise, after 1965 an increase has been projected in total government expenditures slightly lower than might reasonably be anticipated for national personal income, and no differentiation in growth rates between different categories of expenditures has been considered.

The same general approach has been utilized in projecting state and local government expenditures, except that the rates of growth projected are slightly less than the anticipated growth in personal income in Michigan, on the assumption that local government expenditures would lag somewhat behind state government expenditures. Again, differential rates of growth for categories of expenditures were projected for 1965 over 1958 but this was not done in subsequent periods. It has been assumed herein that the state of Michigan will continue to grow dynamically; this assumption is based upon the hope and belief that the admittedly negative factors at work in the state's economy will be offset by the positive effects of the development of the St. Lawrence Seaway.

New and Maintenance Construction, Gross Private Capital Formation, and

Household expenditures were projected in line with projected increases for the other three categories analyzed above and again differential growth rates were projected from 1958 to 1965 but uniform growth rates were projected thereafter.

For 1965, a simultaneous solution was used to derive net competitive imports. Certain restrictions, which were discussed in the beginning of this section, were placed upon the outputs of the motor vehicle industry, primary and fabricated metal industries, machinery, miscellaneous manufacturing, and agriculture.

After 1965, net competitive imports were determined by a simultaneous solution with only one restriction, that upon the output of agriculture, which has already been discussed. Outputs of all other industries were allowed to seek an equilibrium level determined by the projections of final demand and the structural coefficients calculated for 1958 and used in subsequent years.

By the use of Table 3 and the projections of final demand presented in Table 4, projections of outputs by industries and payments to households have been derived. Needless to say the projections of outputs for individual industries are subject to extremely large forecasting errors, but total output figures and payments to households undoubtedly are subject to less error than the individual components. The individual components are presented mainly to show how the aggregates were built up rather than in order to present unrealistically detailed projections. The detailed projections of output by sector such as those for utilities, retail trade, etc. will undoubtedly be of interest to relevant groups, however, but it is desirable that these projections be interpreted and used with utmost caution.

Projections of outputs by industries are presented in Table 5. The method of calculating 1965 output is illustrated in the accompanying exemplar for sector 13, electric power and gas.

Projections of payments to households, employment, and population are presented in Tables 6 and 6A. The rationale behind this method of projecting population is the fact that local birth and death rates have little effect upon population change in a small area. Rather, changes in economic opportunity as reflected in changes in income to the residents are assumed to be the determining factors. Projections of income to households in constant dollars are adjusted for long-term changes in productivity (+2 percent per year) and for trends in hours worked per week (assumed to decline from 40 hours in 1958 to 35 hours in 1980). This adjusted series is used to project employment in the Tri-County Area. Labor force projections are derived therefrom by assuming that unemployment will amount to 5 percent in 1965 and 7.5 percent in 1970 and 1980. The higher estimate of unemployment during the latter periods is not necessarily an indication of pessimism. It is primarily to serve as a contingency factor to cover the effects of increasing industrial productivity which may be reflected by increased unemployment, further reductions in time worked per



COMPUTATION OF PROJECTION OF GROSS TRI-COUNTY OUTPUT FOR SECTOR 13,  
ELECTRIC POWER AND GAS, FOR 1965

BBER	Sector	Direct and Indirect Requirements	1965 Final Demand	Output of
		from the Electric Power and Gas Industry per dollar of Final Demand of the Industry named at left (See Table 3, Col. 13)	Forecast for the Output of the Industry named at left (See Table 4) (\$000)	the Electric Power and Gas Industry (1) x (2) (\$000)
		(1)	(2)	(3)
	1 & 2 Agriculture	.007503	18,543	139
	3 Food and Kindred Products	.012797	42,683	546
	4 Lumber and Furniture	.015016	- 4,164	- 63
	5 Printing and Publishing	.007734	760	6
	6 Chemicals and Allied Products	.010049	16,230	163
	7 & 12 Miscellaneous Manufactured Products	.023553	-16,135	-380
	8 Primary Metals	.026278	-107,448	-2,824
	9 Fabricated Metal Products	.037646	-59,953	-2,257
	10 Machinery Including Electrical	.023450	-19,488	-457
	11 Motor Vehicles	.018881	924,045	17,447
	13 Electric Power and Gas	1.019473	13,119	13,374
	14 Transportation and Communication	.008717	-36,648	-319
	15 Wholesale Trade	.015771	20,573	324
	16 Retail Trade	.041426	122,615	5,079
	17 Finance and Insurance	.009921	46,421	461
	18 Real Estate and Rental	.009507	64,490	613
	19 Personal Services and Amusements	.033649	24,360	820
	20 Business Services	.009964	- 371	- 4
	21 Repair Services	.029964	9,506	285
	22 Medical and Other Professional Services	.007973	42,340	338
	23 Education and Nonprofit Institutions	.030240	117,000	3,538
	24 Mining and Other	.014484	- 3,935	- 57
	Gross Tri-County Output of Sector 13			36,772

week or per year, or withdrawals from the labor force by people who no longer find it necessary to work.

The calculation of the final demand coefficient for payments to households for sector 13 is illustrated herewith. Calculations for the other sectors were made in a similar manner from Tables 3 and 4.

In Tables 4A, 5A, and 6A an alternate set of projections of output, income, employment and population of the Tri-County Area for 1970 and 1980 has been computed. These projections differ chiefly from those presented in Tables 4, 5, and 6 in that the second ranked less probable assumption regarding growth in net competitive exports for the Tri-County motor vehicle industry was used: to wit, that the rate of increase will roughly equal the national growth rate (in domestic production). Another basic assumption that has been changed is in regard to net competitive exports for Chemicals and Allied Products. In the alternate projections, net competitive exports of the areas' Chemical and Allied Products have been assumed to increase (much less sharply than in the former projection) in a manner parallel to the projected growth of value added by the state of Michigan's Chemical and Allied Products industry from 1965 to 1980 (see Appendix). Other assumptions remain unchanged.

Alternate projections in Table 4A of the other categories of final demand (New and Maintenance Construction, Gross Private Domestic Investment, Household Expenditures, and Net Competitive Imports) for 1970 and 1980 have been made on the same basis as those in Table 4. These alternate projections are somewhat different and of larger magnitude because they have been related (informally) to the alternate and higher overall projections of Net Competitive Exports, Federal Government expenditures, and State and Local Government expenditures in the same manner as was previously explained in regard to Table 4.

The authors have approached this difficult if not impossible job of making projections, in an openminded and objective way. Certainly there are individuals who possess more information about individual issues which the authors had to weigh and consider as best they could in making these projections. We urge the Tri-County Planning Commission to seek advice and criticism of this report from such obvious sources as the executives of Oldsmobile, Fisher Body, and other executives of General Motors. Possibly not even these men could project very much better at present than this report has done. However, they will be in a position to give helpful advice regarding the outlook for this area long before it becomes apparent to the average area resident. Likewise, executives of the plastic companies who are operating here as well as those of other local companies should be called upon to criticize these projections and offer positive suggestions.

The stake of these companies and their executives in this area's development and improvement is much greater even than that of most of the other residents of this

COMPUTATION OF FINAL DEMAND COEFFICIENT FOR PAYMENTS TO HOUSEHOLDS FOR SECTOR 13

BBER	Sector	Direct and Indirect Requirements	Direct Purchases of the	Final Demand
		from the Industry named at left, per dollar of Final Demand of the Electric Power and Gas Industry (See Table 3, Row 13)	Services of Households per dollar of Output, of the Industry named at left (See Table 2, Row 30)	Coefficient for Payments to Households (1) x (2)
		(1)	(2)	(3)
1 & 2	Agriculture	.001821	.457892	.000834
3	Food and Kindred Products	.002402	.204674	.000492
4	Lumber and Furniture	.001356	.407018	.000552
5	Printing and Publishing	.003642	.593561	.002162
6	Chemicals and Allied Products	.000624	.204700	.000128
7 & 12	Miscellaneous Manufactured Products	.013324	.351582	.004684
8	Primary Metals	.019534	.401316	.007839
9	Fabricated Metal Products	.003355	.353399	.001186
10	Machinery Including Electrical	.006647	.374962	.002492
11	Motor Vehicles	.008206	.189307	.001553
13	Electric Power and Gas	1.019473	.560209	.571118
14	Transportation and Communication	.057900	.580859	.033632
15	Wholesale Trade	.005862	.754005	.004420
16	Retail Trade	.000900	.615731	.000554
17	Finance and Insurance	.027908	.454208	.012676
18	Real Estate and Rental	.002322	.674251	.001566
19	Personal Services and Amusements	.000180	.571744	.000103
20	Business Services	.003965	.369203	.001464
21	Repair Services	.004616	.445312	.002056
22	Medical and Other Professional Services	.000847	.774550	.000656
23	Education and Nonprofit Institutions	-----	.789500	-----
24	Mining and Other	.018973	.404389	.007672
Total Final Demand Coefficient for Payments to Households for Sector 13				.657839

area including the authors of this report and the members of the Planning Commission staff. They not only live here themselves, but the intelligent development of this area is of utmost importance to the efficient operations of their companies, and to the welfare of their employees.

#### METHODOLOGY USED IN THE TRI-COUNTY INTER-INDUSTRY RELATIONS STUDY FOR 1958

Table 1: Inter-Industry Flow of Goods and Services in Clinton, Eaton, and Ingham Counties for 1958 was constructed, in so far as it was feasible, from data obtained directly by questionnaire from business firms, governmental agencies, etc. with large-scale operations in the Tri-County Area. Estimates were also made in part from secondary sources of published and unpublished information. The data on which the matrix is based are of uneven quality, and hence some degree of uncertainty necessarily attaches to the entries shown herein. No means are available for estimating the range or probability of error. However, it is felt that in the aggregate the results are a reasonable reflection of general interrelationships among the sectors for the year 1958.

Unfortunately, it proved necessary to construct the table for a recession year and the primary inputs in particular (tax and nontax payments to governments, corporate profits, entrepreneurial income, payrolls, etc.) were undoubtedly distorted to a considerable degree. Although 1957 would have been a more suitable year for purposes of constructing a matrix, this was not feasible because 1958 was the year which the current business and manufacturing censuses covered. Although the data from these censuses had not been published or otherwise made available at the time that this study was made, nevertheless most of the data that were required for this project paralleled those which the firms were required by law to compile and make available to the U. S. Bureau of the Census covering the year 1958. This fact made it much more feasible for the cooperating firms to furnish the information for the Tri-County study. Perhaps it should be pointed out that the cooperating private firms were under no legal obligations to furnish data of any type although only one medium-sized firm that was contacted refused to do so. Experience on this project indicates very strongly that it would be most unwise to attempt to construct a regional matrix for any but a manufacturing and business census year. This means that any study of this type that is attempted in the near future should unquestionably utilize the 1958 recession period; the next feasible period will be 1963, when business and manufacturing censuses again have been scheduled by Congress.

As noted above, it is not possible to make definite statements in general about the accuracy of the entries in the Table. Some indication of the accuracy of the entries is afforded by the following tabulation, which shows the percentage of each sector's inputs covered by detailed data gathered direct from business firms and governmental agencies. The last line in the tabulation indicates that on the average 60 percent of

PERCENTAGE OF PROCESSING SECTORS' INPUTS AS SUCH,  
COVERED BY DIRECT SURVEY

BBER	Total Outlays (inputs) (\$000)	Percentage Covered by Direct Survey	Percentage Estimated from Secondary Sources
1 Livestock, Dairy, and Poultry	28,500	0	100
2 Crops, Vegetables, Fruits, and Nuts	35,740	0	100
3 Food and Kindred Products	46,000	41	59
4 Lumber and Furniture	5,700	0	100
5 Printing and Publishing	13,200	24	76
6 Chemicals and Allied Products	10,000	5	95
7 Miscellaneous Non-Durable Products	8,920	0	100
8 Primary Metals	30,400	89	11
9 Fabricated Metal Products	20,300	45	55
10 Machinery Including Electrical	32,630	12	88
11 Motor Vehicles	916,500	83	17
12 Miscellaneous Durable Products	15,100	37	63
13 Electric Power and Gas	25,785	95	5
14 Transportation and Communication	27,950	36	64
15 Wholesale Trade	30,000	1	99
16 Retail Trade	92,500	0	100
17 Finance and Insurance	67,150	82	18
18 Real Estate and Rental	63,920	0	100
19 Personal Services and Amusements	20,350	0	100
20 Business Services	13,150	0	100
21 Repair Services	12,800	0	100
22 Medical and Other Professional Services	36,150	3	97
23 Education and Nonprofit Institutions	80,000	85	15
24 Mining and Other	<u>3,190</u>	<u>0</u>	<u>100</u>
Totals	1,635,935	60	40

the inputs of the processing sectors was obtained by direct survey. This is true as far as it goes but when it is realized that the survey obtained outputs as well as inputs it is clear that substantially more than 60 percent actually was obtained by direct survey. It would be prohibitively time-consuming to calculate precisely how much more than 60 percent of the total inputs (outputs) was obtained from the survey, although it can be expected to amount to about an additional 24 percent, bringing the total inputs (outputs) covered by direct survey to nearly 84 percent.

One additional weakness of the data in Table 1 should be understood. Wherever possible the data presented herein cover the calendar year 1958 but in a few instances some small and medium-sized firms reported fiscal year 1958 data. The most important instances where 1958 fiscal year data were used, however, were the educational sector and that comprising the state and local governments.

The manufacturing sector questionnaire used in the survey phases of the project is included in the Appendix. With minor modifications the questionnaires used for other types of sectors were basically similar to this one.

TABLE 1  
Interindustry Flow of Goods and Services in Clinton, Eaton, and Ingham Counties, Michigan, 1958\*  
By Sector of Origin and Destination  
(in thousands of dollars)

BBER	Sectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Gross Tri-County Output		
		Live-stock, Dairy, and Poultry	Crops, Vegetables, Fruits, and Nuts	Food and Kindred Products	Lumber and Furniture	Printing and Publishing	Chemicals and Allied Products	Misc. Non-Durable Products	Primary Metals	Fabricated Metal Products	Machinery including Electrical	Motor Vehicles	Misc. Durable Products	Electric Power and Gas	Transportation and Communication	Wholesale Trade	Retail Trade	Finance and Insurance	Real Estate and Rental	Personal Services and Amusements	Business Services	Repair Services	Medical and Other Prof. Serv.	Education and Non-Profit Inst.	Mining and Other	New and Maintenance Const.	Net Competitive (Imports -) (Exports +)	Federal Government	State and Local Governments	Gross Private Capital Formation	Households			
1.	Livestock, Dairy, and Poultry	7,000		17,410			20	55							5		800						300	17	30		-15,667	100	100	30	18,300	28,500		
2.	Crops, Vegetables, Fruits, and Nuts	4,600	3,000	3,480	160		5						10		15		350			3			100	8		300	+10,754	3,300	55		9,600	35,740		
3.	Food and Kindred Products	3,000	220	7,020		1	30	6					40	5	140	130	4,300			6			985	100	225	5	-31,258	345	400		60,300	46,000		
4.	Lumber and Furniture	2	45	60	1,450	1	10	10	50	100	340	4,800	160	15	3	100	30	170	325	10	15	5	30	35	7	7,000	-14,228	30	125	1,000	4,000	5,700		
5.	Printing and Publishing			55	12	1,000	60	1	30	55	35	1,600	450	10	175	160	300	1,500	25	80	5,305	20	140	2,500	5	-5,643	75	750		4,500	13,200			
6.	Chemicals and Allied Products		1,800	25	2		890	10		20	75	200	695		15	15	150		45	130	5	10	50	130	10	5	+2,883	10	25		2,800	10,000		
7.	Miscellaneous Nondurable Products	500	1,410	530	215	55	130	805	450	80	185	12,500	275	150	850	180	350	85	530	285	40	145	130	310	37	1,680	-32,987	145	815	40	19,000	8,920		
8.	Primary Metals	4			100		40		8,890	5,000	3,540	87,000	115	270	65		5					1			100	2,970	-78,075	10	5	300	60	30,400		
9.	Fabricated Metal Products	15	70	30	140	2	5		80	2,425	1,835	70,000	180	35	45	20	85	10		20	20	95	8	15	40	7,500	-65,445	20	150	900	2,000	20,300		
10.	Machinery including Electrical	27	90	70	40	70	21	15	300	780	5,700	32,000	120	105	40	30	30		2	7	70	540		200	52	1,260	-20,319	150	650	6,580	4,000	32,630		
11.	Motor Vehicles	40	170	135	10		5		15	120	65	253,310	55	100	360	60	350			2	10	2,380	1		46	110	+620,356	22,000	1,300	1,500	14,000	916,500		
12.	Miscellaneous Durable Products	2	100	20	35	65	50	32	314	110	465	10,500	1,440	45	100	255	670	1,100	80	670	565	51	900	635	11	3,080	-10,915	50	270	300	4,100	15,100		
13.	Electric Power and Gas	90	15	275	40	80	70	60	510	490	415	5,565	325	450	140	400	3,475	325	500	562	55	275	200	2,200	32	80	-7,884	40	1,000		16,000	25,785		
14.	Transportation and Communication	900	590	1,285	285	290	400	105	540	400	545	36,300	750	1,300	2,070	375	1,800	610	975	350	240	130	450	1,860	16	3,640	-54,861	280	1,300	500	24,525	27,950		
15.	Wholesale Trade	400	490	690	90	80	85	40	400	355	525	6,700	165	100	315	100	1,800	330	250	185	60	710	800	400	12	4,000	-9,372	15	125	1,900	18,250	30,000		
16.	Retail Trade	750	540	20	2	2	2	1	1	5	15	25	10	5	250	55	200	100	1,100	25	5	35	100	1,500	4	3,500	-17,244		12	1,480	100,000	92,500		
17.	Finance and Insurance	120	210	350	70	45	80	17	200	125	200	1,200	165	400	515	500	1,400	24,780	1,000	275	135	55	210	400	25	1,200	+12,623	600	250		20,000	67,150		
18.	Real Estate and Rental	500	3,825	120	25	130	75	55	100	95	100	1,100	100		450	500	3,700	1,120	420	1,290	210	600	1,000	2,500	15	250		90	550	1,000	44,000	63,920		
19.	Personal Services and Amusements			15		29									5		250	110	50	1,480	160	130	100	150			-4,279		150		22,000	20,350		
20.	Business Services		5	325	60	100	480	50	40	130	270	5,000	95	65	175	780	3,500	860	100	495	400	80	110	250	2	400	-1,437	15	100		700	13,150		
21.	Repair Services	90	450	200	40	15	20	20	40	45	75	1,500	100	65	605	700	1,000	100	100	285	10	350	100	130	50	1,500	-4,295	5	500		9,000	12,800		
22.	Medical and Other Professional Services	100		35	12	30	15	8	35	40	70	1,000	30		135	300	1,500	750	50	115	70	170	300	300		1,000	+6,625	200	5,060	200	18,000	36,150		
23.	Education and Nonprofit Institutions																																	80,000
24.	Mining and Other	370	55	300			70	4,000	10	30	110		500	410	2										33	1,000	-4,008	5	3		300	3,190		
25.	New and Maintenance Construction	370	115	105	12	20	20	15	140	45	90	2,200	65	1,400	1,280	40	500	200	6,000	135	20	50	300	1,500	3	20		700	36,190	25,000	465	77,000		
26.	Noncompetitive Imports	450	425	2,600	290	2,550	4,900	1,085	4,555	1,880	4,440	139,000	2,000	3,210	980	780	2,500	1,000	490	705	100	730	1,000	700	940	8,500		1,500	2,050	4,730	62,600	256,690		
27.	Federal Government	120	400	980	250	700	400	335	1,000	575	870	61,500	720	1,600	1,100	1,200	3,000	2,000	280	700	700	300	585	600	135	900		400	400	250	100,000	182,000		
28.	State and Local Governments	450	900	450	40	100	70	85	500	221	430	10,000	200	1,600	1,880	700	3,500	1,500	8,500	900	100	238	251	400	70	500		6,365	7,600	20	30,000	77,570		
29.	Gross Private Capital Formation																																	
30.	Households	8,600	20,815	9,415	2,320	7,835	2,047	2,110	12,200	7,174	12,235	173,500	6,335	14,445	16,235	22,620	56,955	30,500	43,098	11,635	4,855	5,700	28,000	63,160	1,290	26,600	+14,891	31,050	69,200	270	6,000	711,090		
	Gross Tri-County Outlay	28,500	35,740	46,000	5,700	13,200	10,000	8,920	30,400	20,300	32,630	916,500	15,100	25,785	27,950	30,000	92,500	67,150	63,920	20,350	13,150	12,800	36,150	80,000	3,190	77,000	+290,215	72,000	179,135	46,000	640,000	2,940,285		

\*Each row shows distribution of output of producing industry named at left. Each column shows input distribution for purchasing industry named at top. Data are from the Bureau of Business and Economic Research, Michigan State University. In most instances data are for calendar year 1958 but in some cases the only data available were for various 1958 fiscal years.

Note: Definitions of the BBER sectors will be found in the Appendix.

TABLE 2  
Tri-County, Direct Purchases Per Dollar of Output, 1958\*

BBER	Sectors	Livestock, Dairy, and Poultry	Crops, Vegetables, Fruits and Nuts	Food and Kindred Products	Lumber and Furniture	Printing and Publishing	Chemicals and Allied Products	Misc. Non-Durable Products	Primary Metals	Fabricated Metal Products	Machinery including Electrical	Motor Vehicles	Misc. Durable Products	Electric Power and Gas	Transportation and Communication	Wholesale Trade	Retail Trade	Finance and Insurance	Real Estate and Rental	Personal Services and Amusements	Business Services	Repair Services	Medical and Other Prof. Services	Education and Non-Profit Inst.	Mining and Other
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1.	Livestock, Dairy, and Poultry	.245614		.378478			.002000	.006166							.000179		.008649						.008299	.000212	.009404
2.	Crops, Vegetables, Fruits, and Nuts	.161404	.083940	.075652	.028070		.000500						.000662		.000537		.003784			.000147			.002766	.000100	
3.	Food and Kindred Products	.105263	.006156	.152609		.000076	.003000	.000673					.002649	.000194	.005009	.004333	.046486			.000295			.027248	.001250	.070533
4.	Lumber and Furniture	.000070	.001259	.001304	.254386	.000076	.001000	.001121	.001645	.004926	.010420	.005237	.010596	.000582	.000107	.003333	.000324	.002532	.005084	.000491	.001141	.000391	.000830	.000438	.002194
5.	Printing and Publishing			.001196	.002105	.075758	.006000	.000112	.000987	.002709	.001073	.001746	.029801	.000388	.006261	.005333	.003243	.022338	.000391	.003931	.403422	.001563	.003873	.031250	.001567
6.	Chemicals and Allied Products		.050364	.000543	.000351		.089000	.001121		.000985	.002298	.000218	.046026		.000537	.000500	.001622		.000704	.006388	.000380	.000781	.001383	.001625	.003135
7.	Miscellaneous Nondurable Products	.017544	.039452	.011522	.037719	.004167	.013000	.090247	.014803	.003941	.005670	.013639	.018212	.005817	.030411	.006000	.003784	.001266	.008292	.014005	.003042	.011328	.003596	.003875	.011599
8.	Primary Metals	.000140			.017544		.004000		.292434	.246305	.108489	.094926	.007616	.010471	.002326		.000054					.000078			.031348
9.	Fabricated Metal Products	.000526	.001959	.000652	.024561	.000152	.000500		.002632	.119458	.056237	.076378	.011921	.001357	.001610	.000666	.000919	.000149		.000983	.001521	.007422	.000221	.000188	.012539
10.	Machinery including Electrical	.000947	.002518	.001522	.007018	.005303	.002100	.001682	.009868	.038424	.174686	.034915	.007947	.004072	.001431	.001000	.000324		.000031	.000344	.005323	.042188		.002500	.016301
11.	Motor Vehicles	.001404	.004757	.002935	.001754		.000500		.000493	.005911	.001992	.276388	.003642	.003878	.012880	.002000	.003784			.000098	.000760	.185938	.000028		.014420
12.	Miscellaneous Durable Products	.000070	.002798	.000435	.006140	.004924	.005000	.003587	.010329	.005419	.014251	.011457	.095364	.001745	.003578	.008500	.007243	.016381	.001252	.032924	.042966	.003984	.024896	.007938	.003448
13.	Electric Power and Gas	.003158	.000420	.005978	.007018	.006061	.007000	.006726	.016776	.024138	.012718	.006072	.021523	.017452	.005009	.013333	.037568	.004840	.007822	.027617	.004183	.021484	.005532	.027500	.010031
14.	Transportation and Communication	.031579	.016508	.027935	.050000	.021970	.040000	.011771	.017763	.019704	.016702	.039607	.049669	.050417	.074061	.012500	.019459	.009084	.015253	.017199	.018251	.010156	.012448	.023250	.005016
15.	Wholesale Trade	.014035	.013710	.015000	.015789	.006061	.008500	.004484	.013158	.017488	.016089	.007310	.010927	.003878	.011270	.003333	.019459	.004914	.003911	.009091	.004563	.055469	.022130	.005000	.003762
16.	Retail Trade	.026316	.015109	.000435	.000351	.000152	.000200	.000112	.000033	.000246	.000460	.000027	.000662	.000194	.008945	.001833	.002162	.001489	.017209	.001229	.000380	.002734	.002766	.018750	.001254
17.	Finance and Insurance	.004211	.005876	.007609	.012281	.003409	.008000	.001906	.006579	.006158	.006129	.001309	.010927	.015513	.018426	.016666	.015135	.369025	.015645	.013514	.010266	.004297	.005809	.005000	.007837
18.	Real Estate and Rental	.017544	.107023	.002609	.004386	.009848	.007500	.006166	.003289	.004680	.003065	.001200	.006623		.016100	.016666	.040000	.016679	.006571	.063391	.015970	.046875	.027663	.031250	.004702
19.	Personal Services and Amusements			.000326		.002197									.000179		.002703	.001638	.000782	.072727	.012167	.010156	.002766	.001875	
20.	Business Services		.000140	.007065	.010526	.007576	.048000	.005605	.001316	.006404	.008275	.005456	.006291	.002521	.006261	.026000	.037838	.012807	.001564	.024324	.030418	.006250	.003043	.003125	.000627
21.	Repair Services	.003158	.012591	.004348	.007018	.001136	.002000	.002242	.001316	.002217	.002298	.001637	.006623	.002521	.021646	.023333	.010811	.001489	.001564	.014005	.000760	.027344	.002766	.001625	.015674
22.	Medical and Other Professional Services	.003509		.000761	.002105	.002273	.001500	.000897	.001151	.001970	.002145	.001091	.001987		.004830	.010000	.016216	.011169	.000782	.005651	.005323	.013281	.008299	.003750	
23.	Education and Nonprofit Institutions																								
24.	Mining and Other	.012982	.001539	.006522			.007000	.448430	.000329	.001478	.003371		.033113	.015901	.000072										.010345
25.	New and Maintenance Construction	.012982	.003218	.002283	.002105	.001515	.002000	.001682	.004605	.002217	.002758	.002400	.004305	.054295	.045796	.001333	.005405	.002978	.093867	.006634	.001521	.003906	.008299	.018750	.000940
26.	Noncompetitive Imports	.015789	.011891	.056522	.050877	.193182	.490000	.121637	.149836	.092611	.136071	.151664	.132450	.124491	.035063	.026000	.027027	.014892	.007666	.034644	.007605	.057031	.027663	.008750	.294671
27.	Federal Government	.004211	.011190	.021302	.043860	.053030	.040000	.048767	.032895	.028325	.026663	.067103	.047682	.062052	.039354	.040000	.032432	.029784	.004380	.034398	.053232	.023438	.016183	.007499	.042319
28.	State and Local Governments	.015789	.025181	.009783	.007018	.007576	.007000	.009529	.016447	.010887	.013178	.010911	.013245	.062052	.067263	.023333	.037838	.022338	.132979	.044226	.007605	.018594	.006943	.005000	.021944
29.	Gross Private Capital Formation																								
30.	Households	.301755	.582401	.204674	.407018	.593561	.204700	.225337	.401316	.353399	.374962	.189307	.419537	.560209	.580859	.754005	.615731	.454208	.674251	.571744	.369203	.445312	.774550	.789500	.404389
	Totals	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

\*Each entry shows direct purchases from industry named at left by industry named at top per dollar of output by latter. Data are from the Bureau of Business and Economic Research, Michigan State University.  
Note: Definitions of the BBER sectors will be found in the Appendix.



TABLE 3  
Tri-County, Direct and Indirect Requirements Per Dollar of Final Demand, 1958\*

BBER	Sectors	Agriculture 1 and 2	Food and Kindred Products 3	Lumber and Furniture 4	Printing and Publishing 5	Chemicals and Allied Products 6	Misc. Manufactured Products 7 and 12	Primary Metals 8	Fabricated Metal Products 9	Machinery including Electrical 10	Motor Vehicles 11	Electric Power and Gas 13	Transportation and Communication 14	Wholesale Trade 15	Retail Trade 16	Finance and Insurance 17	Real Estate and Rental 18	Personal Services and Amusements 19	Business Services 20	Repair Services 21	Medical and Other Prof. Services 22	Education and Non-Profit Inst. 23	Mining and Other 24
1. and 2. Agriculture.....		1.344533	.083632	.003189	.005347	.043461	.054991	.006108	.004668	.005828	.011984	.007503	.044896	.023822	.029344	.019153	.095835	.000505	.006079	.014899	.003855	.....	.020410
3. Food and Kindred Products.....		.721857	1.226461	.004346	.010104	.024783	.049181	.006689	.004887	.006785	.014178	.012797	.062789	.032167	.016828	.027390	.056746	.000965	.013392	.015050	.003808	.....	.022637
4. Lumber and Furniture.....		.052691	.005517	1.343101	.014336	.004865	.076778	.053066	.040825	.016491	.009667	.015016	.082574	.026912	.002759	.033372	.014258	.000531	.017985	.013721	.004679	.....	.015339
5. Printing and Publishing.....		.000617	.000738	.000554	1.086821	.000554	.013753	.002146	.001074	.007549	.001310	.007734	.027799	.007659	.000701	.007991	.012225	.002764	.009352	.002342	.002960	.....	.002771
6. Chemicals and Allied Products.....		.007585	.006075	.002244	.033177	1.099033	.029530	.009277	.002037	.004623	.003451	.010049	.052741	.011741	.001191	.018400	.012137	.000930	.056066	.004421	.002812	.....	.013642
7. and 12. Miscellaneous Manufactured Products.....		.020435	.022403	.012216	.029652	.037949	1.130714	.027555	.015476	.014889	.012389	.023553	.052819	.014431	.002045	.021346	.013041	.000426	.011190	.011562	.003017	.....	.215065
8. Primary Metals.....		.001298	.001365	.004139	.004928	.001578	.043570	1.420105	.006474	.018397	.003158	.026278	.032219	.020615	.000613	.018275	.006805	.000156	.003735	.003752	.002457	.....	.009246
9. Fabricated Metal Products.....		.001519	.001421	.010009	.010162	.002488	.029594	.410121	1.142667	.059794	.012467	.037646	.039082	.028274	.001017	.020130	.009483	.000290	.010679	.005443	.003846	.....	.008294
10. Machinery including Electrical.....		.002136	.001778	.018804	.009503	.004600	.039044	.217643	.080365	1.219611	.006814	.023450	.033634	.025928	.001218	.018806	.007492	.000320	.013381	.005462	.004003	.....	.012176
11. Motor Vehicles.....		.002029	.001870	.012849	.010475	.002568	.054068	.242403	.126646	.068860	1.386775	.018881	.073076	.019015	.001046	.012021	.006332	.000295	.011559	.005900	.003202	.....	.011092
13. Electric Power and Gas.....		.001821	.002402	.001356	.003642	.000624	.013324	.019534	.003355	.006647	.008206	1.019473	.057900	.005862	.000900	.027908	.002322	.000180	.003965	.004616	.000847	.....	.018973
14. Transportation and Communication.....		.006622	.008550	.001348	.013582	.002469	.045841	.010771	.005515	.005443	.026485	.008717	1.086446	.015684	.010463	.034769	.021541	.000777	.009409	.025411	.006617	.....	.009045
15. Wholesale Trade.....		.004336	.006451	.005212	.019709	.001506	.021603	.003611	.002618	.003817	.009951	.015771	.018726	1.006484	.002644	.029623	.020551	.000812	.028477	.025125	.011261	.....	.004445
16. Retail Trade.....		.051698	.059602	.001642	.023709	.004317	.022245	.004137	.002939	.002954	.010401	.041426	.031535	.024130	1.004577	.030705	.048108	.003862	.041994	.013822	.017895	.....	.005664
17. Finance and Insurance.....		.001793	.001731	.006128	.049331	.001356	.035926	.001809	.001248	.001358	.001769	.009921	.020847	.009916	.003234	1.588413	.029512	.003355	.022540	.003798	.018557	.....	.007002
18. Real Estate and Rental.....		.001564	.001520	.007186	.003066	.001333	.013360	.001091	.000622	.000622	.001322	.009507	.019211	.005258	.017681	.026904	1.008760	.001039	.003293	.002658	.001648	.....	.002717
19. Personal Services and Amusements.....		.002278	.002388	.002227	.020008	.009847	.062913	.004011	.003040	.003068	.005924	.033649	.028564	.013153	.003091	.029016	.072623	1.079209	.029626	.017463	.007444	.....	.012569
20. Business Services.....		.001752	.001889	.002803	.454965	.002740	.062431	.004745	.003792	.010985	.003212	.009964	.036323	.009719	.001401	.023165	.024380	.014817	1.036985	.003345	.007470	.....	.012069
21. Repair Services.....		.001952	.002091	.004872	.009759	.002575	.034567	.060407	.037077	.067362	.266939	.029964	.032275	.063832	.004367	.015348	.053539	.011627	.012347	1.031969	.015720	.....	.007377
22. Medical and Other Professional Services.....		.035886	.035793	.002048	.008045	.003964	.036859	.001779	.001233	.001199	.002387	.007973	.019411	.024846	.004390	.013258	.032697	.003233	.005306	.004918	1.009254	.....	.007617
23. Education and Nonprofit Institutions.....		.003024	.003483	.001218	.037220	.002568	.017112	.002116	.001058	.004061	.001838	.030240	.030332	.007035	.019802	.011921	.034346	.002345	.005387	.003204	.004712	1.000000	.003805
24. Mining and Other.....		.064988	.088919	.004470	.004732	.006534	.026104	.059651	.019257	.024462	.026442	.014484	.016229	.009679	.003113	.017497	.011956	.000346	.003353	.018480	.001133	.....	1.016827

\*Each entry shows, per dollar of deliveries to final demand by industry named at left, the total dollar production directly and indirectly required from industry named at top. This is the transposed inverse of an identity matrix less the matrix shown in Table 2.  
Note: Definitions of the BBER sectors will be found in the Appendix.

**TABLE 4**  
**Tri-County Final Demand, 1958, and Projected, 1965, 1970, and 1980**  
*(in thousands of constant 1958 dollars)*

BBER Sectors	Net Competitive Exports				Federal Government				State and Local Governments				New and Maintenance Construction				Gross Private Domestic Investment				Households				Net Competitive Imports				Total Final Demand			
	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980
1. and 2. Agriculture.....					3,400	3,500	4,200	6,020	155	200	242	320	300	300	336	408	30	30	34	41	27,900	36,000	40,320	48,948	4,913	21,487	26,569	44,748	26,872	18,543	18,563	10,989
3. Food and Kindred Products.....					345	400	480	688	400	550	666	880	5	5	6	7					60,300	77,730	87,060	105,691	31,258	36,002	40,400	49,131	29,792	42,683	47,812	58,135
4. Lumber and Furniture.....					30	35	42	60	125	150	182	240	7,000	8,500	9,520	11,560	1,000	1,200	1,344	1,632	4,000	5,600	6,272	7,616	14,228	19,649	22,000	26,750	- 2,073	- 4,164	- 4,640	- 5,642
5. Printing and Publishing.....					75	110	132	189	750	1,050	1,270	1,680									4,500	6,300	7,056	8,568	5,643	6,700	7,600	9,378	- 318	760	858	1,059
6. Chemicals and Allied Products.....	2,883	12,260	25,000	80,000	10	25	30	43	25	35	42	56	5	10	11	14					2,800	3,900	4,368	5,304					5,723	16,230	29,451	85,417
7. and 12. Miscellaneous Manufacturing.....					195	300	360	516	1,085	1,500	1,815	2,400	4,760	7,000	7,840	9,520	340	500	560	680	23,100	34,000	38,080	46,240	43,902	59,435	66,800	81,492	-14,422	- 16,135	- 18,145	- 22,136
8. Primary Metals.....					10	15	18	26	5	10	12	16	2,970	4,200	4,704	5,712	300	420	470	571	60	80	90	109	78,075	112,173	125,600	144,329	-74,730	-107,448	-120,306	-137,895
9. Fabricated Metal Products.....					20	60	72	103	150	200	242	320	7,500	11,000	12,320	14,960	900	1,320	1,478	1,795	2,000	3,000	3,360	4,080	65,445	75,533	84,700	97,237	-54,875	- 59,953	- 67,228	- 75,979
10. Machinery including Electrical.....					150	170	204	292	650	715	865	1,144	1,260	1,800	2,016	2,448	6,580	9,400	10,528	12,784	4,000	6,000	6,720	8,160	20,319	37,573	42,200	47,840	- 7,679	- 19,488	- 21,867	- 23,012
11. Motor Vehicles.....	620,356	870,000	950,000	1,050,000	22,000	30,000	36,000	51,600	1,300	1,900	2,299	3,040	110	145	162	197	1,500	2,000	2,240	2,720	14,000	20,000	22,400	27,200					659,266	924,045	1,013,101	1,134,757
13. Electric Power and Gas.....					40	45	54	77	1,000	1,100	1,331	1,760	80	120	134	163					16,000	23,000	25,760	31,280	7,884	11,146	12,500	15,250	9,236	13,119	14,779	18,030
14. Transportation and Communication.....					280	310	372	533	1,300	1,450	1,754	2,320	3,640	5,100	5,712	6,936	500	700	784	952	24,525	35,000	39,200	47,600	54,861	79,208	89,000	108,577	-24,616	- 36,648	- 41,178	- 50,236
15. Wholesale Trade.....					15	20	24	34	125	165	200	264	4,000	5,400	6,048	7,344	1,900	2,500	2,800	3,400	18,250	25,520	28,582	34,707	9,372	13,032	14,600	17,739	14,918	20,573	23,054	28,010
16. Retail Trade.....									12	15	18	24	3,500	4,700	5,264	6,392	1,480	2,000	2,240	2,720	100,000	140,000	156,800	190,400	17,244	24,100	27,000	32,786	87,748	122,615	137,322	166,750
17. Finance and Insurance.....	12,623	13,871	20,000	30,000	600	650	780	1,118	250	300	363	480	1,200	1,600	1,792	2,176					20,000	30,000	33,600	40,800					34,673	46,421	56,535	74,574
18. Real Estate and Rental.....					90	100	120	172	550	650	786	1,040	250	340	381	462	1,000	1,400	1,568	1,904	44,000	62,000	69,440	84,320					45,890	64,490	72,295	87,898
19. Personal Services and Amusements.....									150	160	194	256									22,000	30,000	33,600	40,800	4,279	5,800	6,500	7,897	17,871	24,360	27,294	33,159
20. Business Services.....					15	20	24	34	100	125	151	200	400	540	605	734					700	1,000	1,120	1,360	1,437	2,056	2,320	2,843	- 222	- 371	- 420	- 515
21. Repair Services.....					5	10	12	17	500	550	666	880	1,500	2,000	2,240	2,720					9,000	13,000	14,560	17,680	4,295	6,054	6,800	8,286	6,710	9,506	10,678	13,011
22. Medical and Other Professional Services.....	6,625	9,000	12,000	20,000	200	220	264	378	5,060	5,500	6,655	8,800	1,000	1,350	1,512	1,836	200	270	302	367	18,000	26,000	29,120	35,360					31,085	42,340	49,853	66,741
23. Education and Nonprofit Institutions.....					4,500	9,000	10,800	15,480	50,000	70,000	84,700	112,000									25,500	38,000	42,560	51,680					80,000	117,000	138,060	179,160
24. Mining and Other.....					5	10	12	17	3	5	6	8	1,000	1,350	1,512	1,836					300	400	448	544	4,008	5,700	6,400	7,782	- 2,700	- 3,935	- 4,422	- 5,377
<b>Totals.....</b>	<b>642,487</b>	<b>905,131</b>	<b>1,007,000</b>	<b>1,180,000</b>	<b>31,985</b>	<b>45,000</b>	<b>54,000</b>	<b>77,397</b>	<b>63,695</b>	<b>86,330</b>	<b>104,459</b>	<b>138,128</b>	<b>40,480</b>	<b>55,460</b>	<b>62,115</b>	<b>75,425</b>	<b>15,730</b>	<b>21,740</b>	<b>24,348</b>	<b>29,566</b>	<b>440,935</b>	<b>616,530</b>	<b>690,516</b>	<b>838,447</b>	<b>367,163</b>	<b>515,648</b>	<b>580,989</b>	<b>702,065</b>	<b>868,149</b>	<b>1,214,543</b>	<b>1,361,449</b>	<b>1,636,898</b>

Note: Definitions of the BBER sectors will be found in the Appendix.

**TABLE 4A**  
**Tri-County Final Demand, 1958 and Projected 1965, and Alternate Projection for 1970 and 1980**  
*(in thousands of constant 1958 dollars)*

BBER Sectors	Net Competitive Exports				Federal Government				State and Local Governments				New and Maintenance Construction				Gross Private Domestic Investment				Households				Net Competitive Imports				Total Final Demand			
	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980	1958	1965	1970	1980
1. and 2. Agriculture.....					3,400	3,500	4,200	6,020	155	200	242	320	300	300	348	459	30	30	35	46	27,900	36,000	41,760	55,080	4,913	21,487	29,151	55,704	26,872	18,543	17,434	6,221
3. Food and Kindred Products.....					345	400	480	688	400	550	666	880	5	5	6	8					60,300	77,730	90,167	118,927	31,258	36,002	41,798	55,119	29,792	42,683	49,521	65,384
4. Lumber and Furniture.....					30	35	42	60	125	150	182	240	7,000	8,500	9,860	13,005	1,000	1,200	1,392	1,836	4,000	5,600	6,496	8,568	14,228	19,649	22,812	30,083	- 2,073	- 4,164	- 4,840	- 6,374
5. Printing and Publishing.....					75	110	132	189	750	1,050	1,270	1,680									4,500	6,300	7,308	9,639	5,643	6,700	7,826	10,338	- 318	760	884	1,170
6. Chemicals and Allied Products.....	2,883	12,260	17,000	25,000	10	25	30	43	25	35	42	56	5	10	12	15					2,800	3,900	4,524	5,967					5,723	16,230	21,608	31,081
7. and 12. Misc. Manufactured Products.....					195	300	360	516	1,085	1,500	1,815	2,400	4,760	7,000	8,120	10,710	340	500	580	765	23,100	34,000	39,440	52,020	43,902	59,435	69,063	91,173	-14,422	- 16,135	- 18,748	- 24,762
8. Primary Metals.....					10	15	18	26	5	10	12	16	2,470	4,200	4,872	6,426	300	420	487	643	60	80	93	122	78,075	112,173	130,121	171,737	-74,730	-107,448	-124,639	-164,504
9. Fabricated Metal Products.....					20	60	72	103	150	200	242	320	7,500	11,000	12,760	16,830	900	1,320	1,531	2,020	2,000	3,000	3,480	4,590	65,445	75,533	87,694	115,717	-54,875	- 59,953	- 69,609	- 91,854
10. Machinery including Electrical.....					150	170	204	292	650	715	865	1,144	1,260	1,800	2,088	2,754	6,580	9,400	10,904	14,382	4,000	6,000	6,960	9,180	20,319	37,573	43,660	57,675	- 7,679	- 19,488	- 22,639	- 29,923
11. Motor Vehicles.....	620,356	870,000	990,000	1,300,000	22,000	30,000	36,000	51,600	1,300	1,900	2,299	3,040	110	145	168	222	1,500	2,000	2,320	3,060	14,000	20,000	23,200	30,600					659,266	924,045	1,053,987	1,388,522
13. Electric Power and Gas.....					40	45	54	77	1,000	1,100	1,331	1,760	80	120	139	184					16,000	23,000	26,680	35,190	7,884	11,146	12,952	17,098	9,236	13,119	15,252	20,113
14. Transportation and Communication.....					280	310	372	533	1,300	1,450	1,754	2,320	3,640	5,100	5,916	7,803	500	700	812	1,071	24,525	35,000	40,600	53,550	54,861	79,208	92,040	121,505	-24,616	- 36,648	- 42,586	- 56,228
15. Wholesale Trade.....					15	20	24	34	125	165	200	264	4,000	5,400	6,264	8,262	1,900	2,500	2,900	3,825	18,250	25,520	29,603	39,046	9,372	13,032	15,117	19,939	14,918	20,573	23,874	31,492
16. Retail Trade.....									12	15	18	24	3,500	4,700	5,452	7,191	1,480	2,000	2,320	3,060	100,000	140,000	162,400	214,200	17,244	24,100	27,956	36,873	87,748	122,615	142,234	187,602
17. Finance and Insurance.....	12,623	13,871	20,000	30,000	600	650	780	1,118	250	300	363	480	1,200	1,600	1,856	2,448					20,000	30,000	34,800	45,900					34,673	46,421	57,799	79,946
18. Real Estate and Rental.....					90	100	120	172	550	650	786	1,040	250	340	394	520	1,000	1,400	1,624	2,142	44,000	62,000	71,920	94,860					45,890	64,490	74,844	98,734
19. Personal Services and Amusements.....									150	160	194	256									22,000	30,000	34,800	45,900	4,279	5,800	6,728	8,874	17,871	24,360	28,266	37,282
20. Business Services.....					15	20	24	34	100	125	151	200	400	540	626	826					700	1,000	1,160	1,530	1,437	2,056	2,393	3,160	- 222	- 371	- 432	- 570
21. Repair Services.....					5	10	12	17	500	550	666	880	1,500	2,000	2,320	3,060					9,000	13,000	15,080	19,890	4,295	6,054	7,035	9,281	6,710	9,506	11,043	14,566
22. Medical and Other Professional Services.....	6,625	9,000	12,000	20,000	200	220	264	378	5,060	5,500	6,655	8,800	1,000	1,350	1,566	2,066	200	270	313	413	18,000	26,000	30,160	39,780					31,085	42,340	50,958	71,437
23. Education and Nonprofit Institutions.....					4,500	9,000	10,800	15,480	50,000	70,000	84,700	112,000									25,500	38,000	44,080	58,140					80,000	117,000	139,580	185,620
24. Mining and Other.....					5	10	12	17	3	5	6	8	1,000	1,350	1,566	2,066					300	400	464	612	4,008	5,700	6,612	8,727	- 2,700	- 3,935	- 4,564	- 6,024
<b>Totals.....</b>	<b>642,487</b>	<b>905,131</b>	<b>1,039,000</b>	<b>1,375,000</b>	<b>31,985</b>	<b>45,000</b>	<b>54,000</b>	<b>77,397</b>	<b>63,695</b>	<b>86,330</b>	<b>104,459</b>	<b>138,128</b>	<b>40,480</b>	<b>55,460</b>	<b>64,333</b>	<b>84,855</b>	<b>15,730</b>	<b>21,740</b>	<b>25,218</b>	<b>33,263</b>	<b>440,935</b>	<b>616,530</b>	<b>715,175</b>	<b>943,291</b>	<b>367,163</b>	<b>515,648</b>	<b>602,958</b>	<b>813,003</b>	<b>868,149</b>	<b>1,214,543</b>	<b>1,399,227</b>	<b>1,838,931</b>

Note: Definitions of the BBER sectors will be found in the Appendix.

**TABLE 5**  
**Gross Tri-County Output, 1958, and Projected 1965, 1970, and 1980**  
*(in thousands of constant 1958 dollars)*

BBER Sectors	1958	1965	1970	1980
1. and 2. Agriculture.....	64,240	65,003	70,000	70,000
3. Food and Kindred Products.....	46,000	64,065	71,717	86,632
4. Lumber and Furniture.....	5,700	6,287	6,851	7,380
5. Printing and Publishing.....	13,200	20,149	23,208	29,683
6. Chemicals and Allied Products.....	10,000	22,365	37,319	99,247
7. and 12. Miscellaneous Manufactured Products.....	24,020	37,284	41,075	46,731
8. Primary Metals.....	30,400	43,815	43,909	45,343
9. Fabricated Metal Products.....	20,300	47,048	49,864	55,330
10. Machinery including Electrical.....	32,630	36,043	38,888	45,681
11. Motor Vehicles.....	916,500	1,284,544	1,408,459	1,578,128
13. Electric Power and Gas.....	25,785	36,772	41,231	49,731
14. Transportation and Communication.....	27,950	36,959	40,508	45,262
15. Wholesale Trade.....	30,000	41,549	46,365	55,524
16. Retail Trade.....	92,500	128,810	144,351	175,192
17. Finance and Insurance.....	67,150	90,585	108,689	141,481
18. Real Estate and Rental.....	63,920	88,153	99,036	120,176
19. Personal Services and Amusements.....	20,350	27,785	31,170	37,949
20. Business Services.....	13,150	18,721	21,483	28,057
21. Repair Services.....	12,800	17,798	19,902	23,863
22. Medical and Other Professional Services.....	36,150	49,368	57,818	76,478
23. Education and Nonprofit Institutions.....	80,000	117,000	138,060	179,160
24. Mining and Other.....	3,190	4,897	5,399	6,209

Note: Definitions of the BBER sectors will be found in the Appendix.

**TABLE 5A**  
**Gross Tri-County Output, 1958, Projected 1965, and Alternate Projection for 1970 and 1980**  
*(in thousands of constant 1958 dollars)*

BBER	Sectors	1958	1965	1970	1980
1. and 2.	Agriculture.....	64,240	65,003	70,000	70,000
3.	Food and Kindred Products.....	46,000	64,065	74,048	96,524
4.	Lumber and Furniture.....	5,700	6,287	7,077	9,310
5.	Printing and Publishing.....	13,200	20,149	23,612	31,398
6.	Chemicals and Allied Products.....	10,000	22,365	28,799	40,113
7. and 12.	Miscellaneous Manufactured Products.....	24,020	37,284	42,372	55,226
8.	Primary Metals.....	30,400	43,815	46,472	60,649
9.	Fabricated Metal Products.....	20,300	47,048	52,229	68,562
10.	Machinery including Electrical.....	32,630	36,043	40,545	53,215
11.	Motor Vehicles.....	916,500	1,284,544	1,465,222	1,930,113
13.	Electric Power and Gas.....	25,785	36,772	42,518	56,057
14.	Transportation and Communication.....	27,950	36,959	41,678	54,413
15.	Wholesale Trade.....	30,000	41,549	47,912	62,943
16.	Retail Trade.....	92,500	128,810	149,382	196,602
17.	Finance and Insurance.....	67,150	90,585	111,179	152,312
18.	Real Estate and Rental.....	63,920	88,153	102,133	133,440
19.	Personal Services and Amusements.....	20,350	27,785	32,260	42,573
20.	Business Services.....	13,150	18,721	21,755	28,837
21.	Repair Services.....	12,800	17,798	20,544	26,886
22.	Medical and Other Professional Services.....	36,150	49,368	59,155	82,300
23.	Education and Nonprofit Institutions.....	80,000	117,000	139,580	185,620
24.	Mining and Other.....	3,190	4,897	5,487	6,963

Note: Definitions of the BBER sectors will be found in the Appendix.

TABLE 6

Tri-County Income, Employment, and Population, 1958, and Projected 1965, 1970, and 1980

(all dollar figures represent constant 1958 dollars)

## 6.1, Payments to Households by Processing Sectors, 1958, and Projected 1965, 1970, and 1980

BBER Sectors	Final Demand Coefficient for Payments to Households	1958		1965		1970		1980	
		Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (2)	Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (4)	Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (6)	Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (8)
		(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. and 2. Agriculture.....	.834061	26,872	22,413	18,543	15,466	18,563	15,483	10,989	9,165
3. Food and Kindred Products.....	.774586	29,792	23,076	42,683	33,062	47,812	37,035	58,135	45,031
4. Lumber and Furniture.....	.778177	- 2,073	- 1,613	- 4,164	- 3,240	- 4,640	- 3,611	- 5,642	- 4,390
5. Printing and Publishing.....	.703070	- 318	- 224	760	534	858	603	1,059	745
6. Chemicals and Allied Products.....	.360793	5,723	2,065	16,230	5,856	29,451	10,626	85,417	30,818
7. and 12. Miscellaneous Manufactured Products.....	.639611	- 14,422	- 9,224	- 16,135	- 10,320	- 18,145	- 11,606	- 22,136	- 14,158
8. Primary Metals.....	.671847	- 74,730	- 50,207	-107,448	- 72,189	-120,306	- 80,827	-137,895	- 92,644
9. Fabricated Metal Products.....	.709330	- 54,875	- 38,924	- 59,953	- 42,526	- 67,228	- 47,687	- 75,979	- 53,894
10. Machinery including Electrical.....	.685794	- 7,679	- 5,266	- 19,488	- 13,365	- 21,867	- 14,996	- 23,012	- 15,781
11. Motor Vehicles.....	.554441	659,266	365,537	924,045	512,328	1,013,101	561,705	1,134,757	629,156
13. Electric Power and Gas.....	.657839	9,236	6,076	13,119	8,630	14,779	9,722	18,030	11,861
14. Transportation and Communication.....	.751898	- 24,616	- 18,509	- 36,648	- 27,556	- 41,178	- 30,962	- 50,236	- 37,772
15. Wholesale Trade.....	.870951	14,918	12,993	20,573	17,918	23,054	20,079	28,010	24,395
16. Retail Trade.....	.829762	87,748	72,810	122,615	101,741	137,322	113,945	166,750	138,363
17. Finance and Insurance.....	.845510	34,673	29,316	46,421	39,249	56,535	47,801	74,574	63,053
18. Real Estate and Rental.....	.740695	45,890	33,990	64,490	47,767	72,295	53,549	87,898	65,106
19. Personal Services and Amusements.....	.799408	17,871	14,286	24,360	19,474	27,294	21,819	33,159	26,508
20. Business Services.....	.768178	- 222	- 171	- 371	- 285	- 420	- 323	- 515	- 396
21. Repair Services.....	.750250	6,710	5,034	9,506	7,132	10,678	8,011	13,011	9,762
22. Medical and Other Professional Services.....	.901230	31,085	28,015	42,340	38,158	49,853	44,929	66,741	60,149
23. Education and Nonprofit Institutions.....	.914395	80,000	73,152	117,000	106,984	138,060	126,241	179,160	163,823
24. Mining and Other.....	.572524	- 2,700	- 1,546	- 3,935	- 2,253	- 4,422	- 2,532	- 5,377	- 3,078
Total Payments to Households by Processing Sectors.....			563,079		782,565		879,004		1,055,822

TABLE 6—Concluded

6.2, Payments to Households by Final Demand Sectors and Total Payments to Households, 1958, and Projected 1965, 1970, and 1980

BBER	Paying Sectors	1958			1965		1970		1980	
		Payments to Processing Sectors	Payments to Households	Ratio (2) : (1)	Payments to Processing Sectors	Payments to Households (4) x (3)	Payments to Processing Sectors	Payments to Households (6) x (3)	Payments to Processing Sectors	Payments to Households (8) x (3)
		(\$000)	(\$000)		(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
25.	Construction.....	40,480	26,600	.65711	55,460	36,444	62,115	40,817	75,425	49,563
26.	Net Competitive Exports.....	275,324	14,891	.05409	389,483	21,065	426,011	23,041	477,935	25,852
27.	Federal Government.....	31,985	31,050	.97077	45,000	43,685	54,000	52,421	77,397	75,134
28.	State and Local Governments.....	63,695	69,200	1.08643	86,330	93,791	104,459	113,487	138,128	150,066
29.	Gross Private Tri-County Investment.....	15,730	270	.01716	21,740	373	24,348	418	29,566	507
30.	Households.....	440,935	6,000	.01361	616,530	8,389	690,516	9,396	838,447	11,411
	Total Payments to Households by Final Demand Sectors.....		148,011			203,747		239,580		312,533
	Total Payments to Households by Processing Sectors.....		563,079			782,565		879,004		1,055,822
	Grand Total Payments to Households.....		711,090			986,312		1,118,584		1,368,355

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6.3, Tri-County Employment and Population, 1958, and Projected 1965, 1970, and 1980

Year	Payments to Households	Productivity Index (+2% Per Year)	Adjusted Output (1) ÷ (2)	Hours Worked Index (Assumed)	Adjusted Output (3) ÷ (4)	Employment Index (5) ÷ 711,090	Employment (6) x 90,400	Percent Unemployed	Total Labor Force (7) ÷ 100% - (8)	Population (9) x 2.9638	Population Index 1958 = 100
	(\$000)		(\$000)		(\$000)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1958	711,090	1.0000	711,090	1.0000	711,090	1.000	90,400	11.8	102,500	303,790	100
1965	986,312	1.1486	858,708	.9500	903,903	1.271	114,900	5.0	120,900	358,000	118
1970	1,118,584	1.2681	882,094	.9250	953,615	1.341	121,200	7.5	131,000	388,000	128
1980	1,368,355	1.5457	885,266	.8750	1,011,734	1.423	128,600	7.5	139,000	412,000	136

Note: Definitions of BBER sectors will be found in the Appendix.

TABLE 6A

## Tri-County Income, Employment, and Population, Alternate Projection for 1970 and 1980

*(all dollar figures represent constant 1958 dollars)*

## 6A.1 Payments to Households by Processing Sectors, Alternate Projection for 1970 and 1980

BBER	Sectors	Final Demand Coefficient for Payments to Households	1970		1980	
			Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (2)	Adjusted Final Demand	Direct and Indirect Payments to Households (1) x (4)
			(\$000)	(\$000)	(\$000)	(\$000)
		(1)	(2)	(3)	(4)	(5)
1. and 2. Agriculture .....		.834061	17,434	14,541	6,221	5,189
3. Food and Kindred Products .....		.774586	49,521	38,358	65,384	50,646
4. Lumber and Furniture .....		.778177	- 4,840	- 3,766	- 6,374	- 4,960
5. Printing and Publishing .....		.703070	884	622	1,170	823
6. Chemicals and Allied Products .....		.360793	21,608	7,796	31,081	11,214
7. and 12. Miscellaneous Manufactured Products..		.639611	- 18,748	- 11,991	- 24,762	- 15,838
8. Primary Metals .....		.671847	-124,639	- 83,738	-164,504	-110,522
9. Fabricated Metal Products .....		.709330	- 69,609	- 49,376	- 91,854	- 65,155
10. Machinery including Electrical .....		.685794	- 22,639	- 15,526	- 29,923	- 20,521
11. Motor Vehicles .....		.554441	1,053,987	584,374	1,388,522	769,854
13. Electric Power and Gas .....		.657839	15,252	10,033	20,113	13,231
14. Transportation and Communication .....		.751898	- 42,586	- 32,020	- 56,228	- 42,278
15. Wholesale Trade .....		.870951	23,874	20,793	31,492	27,428
16. Retail Trade .....		.829762	142,234	118,020	187,602	155,655
17. Finance and Insurance .....		.845510	57,799	48,870	79,946	67,595
18. Real Estate and Rental .....		.740695	74,844	55,437	98,734	73,132
19. Personal Services and Amusements .....		.799408	28,266	22,597	37,282	29,804
20. Business Services .....		.768178	- 432	- 332	- 570	- 438
21. Repair Services .....		.750250	11,043	8,285	14,566	10,928
22. Medical and Other Professional Services .....		.901230	50,958	45,925	71,437	64,381
23. Education and Nonprofit Institutions .....		.914395	139,580	127,631	185,620	169,730
24. Mining and Other .....		.572524	- 4,564	- 2,613	- 6,024	- 3,449
Total Payments to Households by Processing Sectors .....			1,399,227	903,920	1,838,931	1,186,449



TABLE 6A—Concluded

6A.2 Payments to Households by Final Demand Sectors and Total Payments to Households, Alternate Projection for 1970 and 1980

BBER	Paying Sectors	1958 Payments to Households ÷ 1958 Payments to Processing Sectors	1970		1980	
			Payments to Processing Sectors	Payments to Households (2) x (1)	Payments to Processing Sectors	Payments to Households (4) x (1)
			(\$000)	(\$000)	(\$000)	(\$000)
		(1)	(2)	(3)	(4)	(5)
25. Construction.....		.65711	64,333	42,274	84,855	55,759
26. Net Competitive Exports.....		.05409	436,042	23,586	561,997	30,398
27. Federal Government.....		.97077	54,000	52,421	77,397	75,134
28. State and Local Governments.....		1.08643	104,459	113,487	138,128	150,066
29. Gross Private Tri-County Investment.....		.01716	25,218	433	33,263	571
30. Households.....		.01361	715,175	9,734	943,291	12,838
Total Payments to Households by Final Demand Sectors.....				241,935		324,766
Total Payments to Households by Processing Sectors.....				903,920		1,186,449
Grand Total Payments to Households...				1,228,686		1,511,215

6A.3 Tri-County Employment and Population, 1958, Projected 1965, and Alternate Projection for 1970 and 1980

Year	Payments to Households	Productivity Index (+2% Per Year)	Adjusted Output (1) ÷ (2)	Hours Worked Index (Assumed)	Adjusted Output (3) ÷ (4)	Employment Index (5) + 711,090	Employment (6) x 90,400	Percent Unemployed	Total Labor Force (7) + 100% - (8)	Population (9) x 2.9638	Population Index 1958 = 100
	(\$000)		(\$000)		(\$000)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1958	711,090	1.0000	711,090	1.0000	711,090	1.000	90,400	11.8	102,500	303,790	100
1965	986,312	1.1486	858,708	.9500	903,903	1.271	114,900	5.0	120,900	358,000	118
1970	1,228,686	1.2681	968,919	.9250	1,047,480	1.473	133,200	7.5	144,000	427,000	141
1980	1,511,215	1.5457	977,690	.8750	1,117,360	1.571	142,000	7.5	153,500	455,000	150

Note: Definitions of BBER sectors will be found in the Appendix.

## APPENDIX A

### TABLE 1

POPULATION OF THE UNITED STATES, EAST NORTH CENTRAL REGION\*,  
AND MICHIGAN 1900-1955, WITH PROJECTIONS TO 1980  
(In Thousands of Persons)

	<u>United States</u>	<u>East North Central Region*</u>	<u>Michigan</u>
1900	75,995	15,986	2,421
1905	83,820	17,216	2,579
1910	91,972	18,251	2,810
1915	100,549	20,116	3,263
1920	105,711	21,476	3,668
1925	115,832	24,053	4,331
1930	122,775	25,297	4,842
1935	127,250	25,824	4,838
1940	131,669	26,626	5,256
1945	132,481	26,381	5,475
1950	150,697	30,399	6,372
1955	164,303	33,694	7,358
1960	181,154	37,118	8,355
1965	198,950	40,609	9,380
1970	219,474	44,415	10,483
1975	243,880	48,900**	11,800**
1980	272,557	54,200**	13,100**

\* Illinois, Indiana, Michigan, Ohio, and Wisconsin

\*\* Projections by the Bureau of Business and Economic Research, Michigan State University

SOURCES: 1900-1955, U. S. Department of Commerce, Statistical Abstract of the U. S., 1958. 1960-1980 Projection, U. S. Bureau of the Census, Current Population Reports - Population Estimates, Series P-25, No. 187, November 10, 1958; No. 160, August 9, 1957, (Series I)

TABLE 2  
 PERSONAL INCOME IN THE UNITED STATES, EAST NORTH CENTRAL  
 REGION\*, AND MICHIGAN, 1900- 1958, WITH PROJECTIONS TO 1980  
 (In millions of constant 1957 dollars)

	<u>United States</u>	<u>East North Central Region*</u>	<u>Michigan</u>
1900	65, 858		
1905	78, 694		
1910	94, 214		
1915	101, 636		
1920	113, 647		
1925	145, 497		
1930	149, 951	33, 842	6, 222
1935	137, 217	30, 542	5, 831
1940	173, 769	39, 431	7, 989
1945	261, 797	56, 498	11, 479
1950	272, 597	61, 349	13, 061
1955	327, 753	75, 052	16, 874
1957	345, 272	77, 559	16, 706
1958	346, 249	77, 906	16, 274
1960	385, 000	86, 600	18, 500
1965	465, 000	104, 600	22, 300
1970	560, 000	126, 000	26, 900
1975	668, 000	150, 300	32, 100
1980	800, 000	180, 000	38, 400

\* Illinois, Indiana, Michigan, Ohio, and Wisconsin

SOURCES: 1900- 1925, based on estimates of National Industrial Conference Board;  
 1930- 1950, U. S. Department of Commerce, Personal Income by States  
 Since 1929, A Supplement to the Survey of Current Business, 1956;  
 1955- 1958, Survey of Current Business, August, 1958

Note: The United States data from 1900- 1925 were deflated for price changes by the  
 Snyder Tucker General Price Index; data for all three areas from 1930- 1958  
 were deflated for price changes by the Implicit Price Deflators for Gross  
 National Product compiled by the U. S. Department of Commerce, Survey of  
 Current Business, July, 1958.

TABLE 3

VALUE ADDED BY MANUFACTURE OF CHEMICALS AND ALLIED PRODUCTS  
 IN THE UNITED STATES, EAST NORTH CENTRAL REGION\*,  
 AND MICHIGAN, 1899-1956, WITH PROJECTIONS TO 1980  
 (In thousands of constant 1957 dollars)

	<u>United States</u>	<u>East North Central Region*</u>	<u>Michigan</u>
1899	425, 462		
1904	596, 302		
1909	794, 349		
1914	920, 080		
1919	4, 660, 018		
1925	3, 329, 186		
1929	4, 046, 093	969, 025	240, 190
1935	2, 192, 940	579, 810	177, 079
1939	3, 572, 400	925, 346	235, 435
1947	5, 747, 678	1, 452, 902	304, 110
1950	8, 235, 271	1, 934, 264	451, 636
1954	9, 670, 276	2, 215, 107	508, 953
1956	11, 847, 169	2, 629, 016	573, 096
1960	15, 055, 000	3, 312, 100	752, 800
1965	20, 324, 300	4, 471, 300	975, 600
1970	27, 437, 400	5, 487, 400	1, 317, 000
1980	41, 155, 500	7, 408, 100	1, 975, 500

\* Illinois, Indiana, Michigan, Ohio, and Wisconsin

SOURCES: 1899-1956, U. S. Census of Manufactures, and Annual Survey of  
 Manufactures

Note: The figures for value added for all three areas from 1899 to 1956 have been  
 deflated by the Indexes of Wholesale Prices of Chemicals and Allied Products  
 compiled by the U. S. Department of Labor.  
 Data prior to 1939 are not strictly comparable.

TABLE 4  
 MOTOR VEHICLE PRODUCTION IN THE UNITED STATES,  
 1947- 1958 WITH PROJECTIONS TO 1980  
 (in thousands)

	<u>Passenger Cars</u>	<u>Commercial Vehicles</u>	<u>Motor Vehicles</u>
1947	3,530	1,285	4,815
1948	3,899	1,350	5,249
1949	5,092	1,160	6,252
1950	6,636	1,377	8,013
1951	5,311	1,451	6,762
1952	4,325	1,238	5,563
1953	6,132	1,216	7,348
1954	5,507	1,029	6,536
1955	7,950	1,254	9,204
1956	5,807	1,112	6,919
1957	6,120	1,100	7,220
1958	4,740	874	5,614
1959	5,500	1,100	6,600
1960	6,500	1,035	7,535
1965	7,360	1,095	8,455
1970	8,470	1,160	9,630
1975	9,840	1,215	11,055
1980	11,525	1,285	12,810

SOURCES: Automobile Manufacturers Association and Bureau of Business and Economic Research

TABLE 5  
 COMMERCIAL VEHICLE REGISTRATION, PRODUCTION, NET ADDITION, AND REPLACEMENT  
 IN THE UNITED STATES 1947-1958, WITH PROJECTIONS TO 1980

(in thousands)

Year	U. S. Civilian Population*	Registration	Civilian Population Per Commercial Vehicle	Production	Imports	Production and Imports	Exports	Total Domestic Sales	Net Addition to Registration	Replacement
1947	142,566	6,996	20.4	1,285	---	1,285	251	1,034	836	198
1948	145,168	7,735	18.8	1,350	1	1,351	203	1,148	739	409
1949	147,578	8,237	17.9	1,160	---	1,160	132	1,028	502	526
1950	150,202	8,862	16.9	1,377	---	1,377	151	1,226	625	601
1951	151,082	9,266	16.3	1,451	---	1,451	224	1,227	404	823
1952	153,366	9,484	16.2	1,238	---	1,238	163	1,075	218	857
1953	156,046	9,832	15.9	1,216	---	1,216	139	1,077	348	729
1954	159,086	10,082	15.7	1,029	---	1,029	195	834	250	584
1955	162,306	10,592	15.3	1,254	1	1,255	193	1,062	510	552
1956	165,341	10,982	15.0	1,112	3	1,115	206	909	390	519
1957	168,368	11,257	15.0	1,100	8	1,108	212	896	275	621
1958	171,433	11,458	15.0	874	15	889	179	710	201	509
1959 p	174,566	11,855	14.7	1,100	18	1,118	190	928	397	531
1960	179,161	12,105	14.7	1,035	20	1,055	200	855	250	605
1965	196,762	13,664	14.4	1,095	25	1,120	210	910	230	680
1970	217,060	15,394	14.1	1,160	30	1,190	220	970	250	720
1975	241,197	17,478	13.8	1,215	35	1,250	220	1,030	240	790
1980	269,559	19,967	13.5	1,285	35	1,320	220	1,100	240	860

p: preliminary

\* U. S. Civilian Population projections are based on U. S. Population Estimates, Series P-25, No. 187 (Series I)

SOURCES: U. S. Bureau of the Census, Current Population Reports, Series P-25, No. 209; U. S. Statistical Abstract; Automobile Manufacturers Association; and Bureau of Business and Economic Research

TABLE 6  
PASSENGER CAR REGISTRATION, PRODUCTION, NET ADDITION, AND REPLACEMENT  
IN THE UNITED STATES 1947-1958, WITH PROJECTIONS TO 1980

(in thousands)

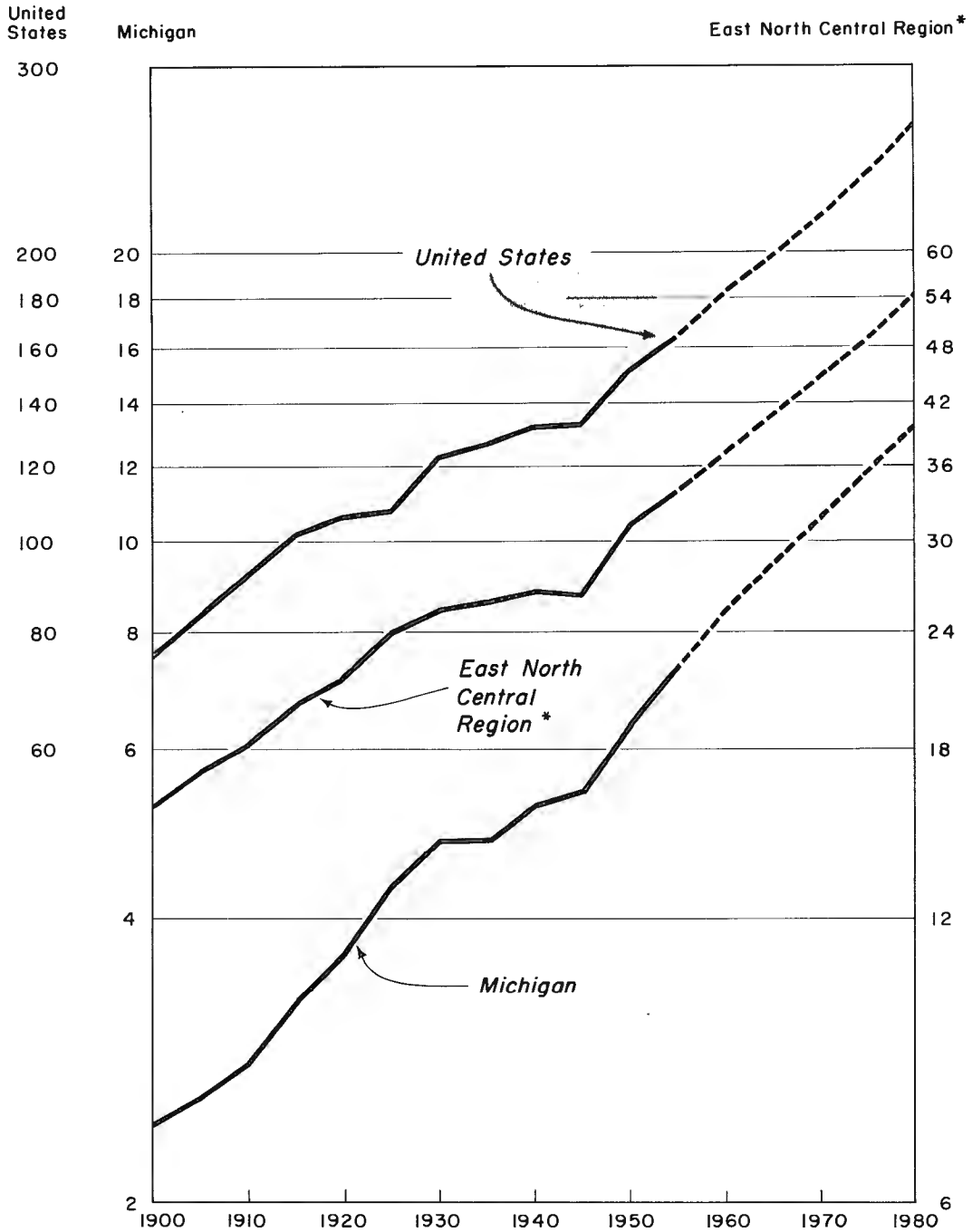
Year	U. S. Civilian Population*	Registration	Civilian Population Per Passenger Car	Production	Imports	Production and Imports	Exports	Total Domestic Sales	Net Addition to Registration	Replacement
1947	142,566	30,845	4.7	3,530	1	3,531	261	3,270	2,595	675
1948	145,168	33,351	4.4	3,899	28	3,927	233	3,694	2,506	1,188
1949	147,578	36,453	4.0	5,092	8	5,100	156	4,944	3,102	1,842
1950	150,202	40,334	3.7	6,636	21	6,657	153	6,504	3,881	2,623
1951	151,082	42,683	4.0	5,311	24	5,335	247	5,088	2,349	2,739
1952	153,366	43,818	3.5	4,325	33	4,358	167	4,191	1,135	3,056
1953	156,046	46,422	3.4	6,132	30	6,162	186	5,976	2,604	3,372
1954	159,086	48,461	3.3	5,507	35	5,542	207	5,335	2,039	3,296
1955	162,306	52,136	3.1	7,950	57	8,007	254	7,753	3,675	4,078
1956	165,341	54,201	3.0	5,807	108	5,915	193	5,722	2,065	3,657
1957	168,368	55,906	3.0	6,120	259	6,379	161	6,218	1,705	4,513
1958	171,433	56,871	3.0	4,740	378	5,118	13	5,105	965	4,140
1959 p	174,566	58,591	3.0	5,500	600	6,100	15	6,085	1,720	4,365
1960	179,161	61,779	2.9	6,500	500	7,000	20	6,980	3,188	3,792
1965	196,762	70,272	2.8	7,360	550	7,910	40	7,870	2,460	5,410
1970	217,060	80,392	2.7	8,470	600	9,070	70	9,000	2,810	6,190
1975	241,197	92,768	2.6	9,840	650	10,490	100	10,390	3,250	7,140
1980	269,559	107,823	2.5	11,525	700	12,225	150	12,075	3,775	8,300

p: preliminary

\* U. S. Civilian Population Projections are based on U. S. Population Estimates, Series P-25, No. 187 (Series I)

SOURCES: U. S. Bureau of the Census, Current Population Reports, Series P-25, No. 209; U. S. Statistical Abstract; Automobile Manufacturers Association; and Bureau of Business and Economic Research

Chart I  
 Population in the United States, East North Central Region\* and Michigan  
 1900-1958 with Projections to 1980 (millions of persons)

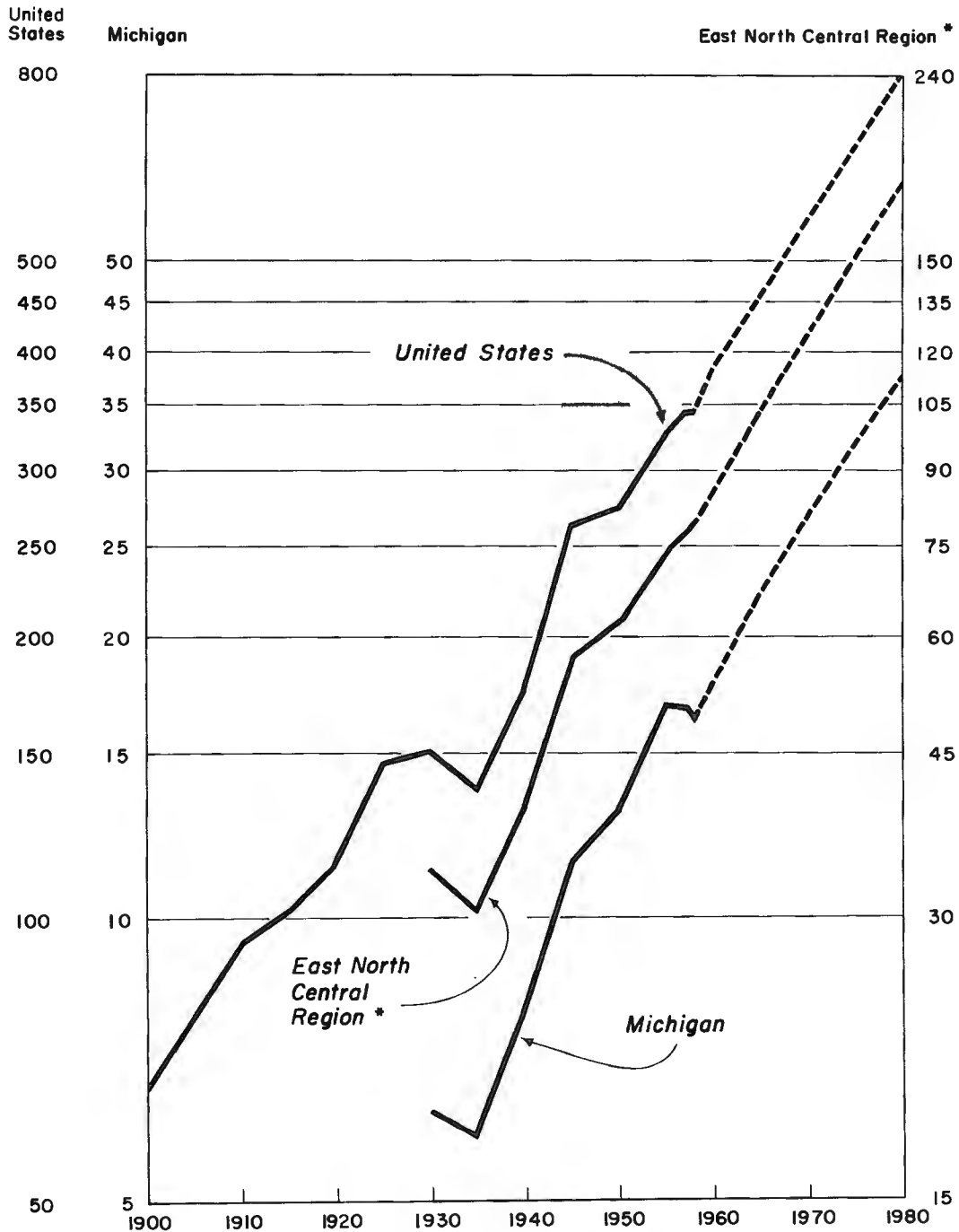


\* Illinois, Indiana, Michigan, Ohio, and Wisconsin

Sources: Statistical Abstract of the U.S., 1958. Projections from Current Population Reports - Population Estimates, Series P-25, No. 187, November 10, 1958; No. 160, August 9, 1957 (Series I)



**Chart II**  
**Personal Income in the United States, East North Central Region\* and Michigan**  
**1900-1958, with projections to 1980 (in millions of constant 1957 dollars)**

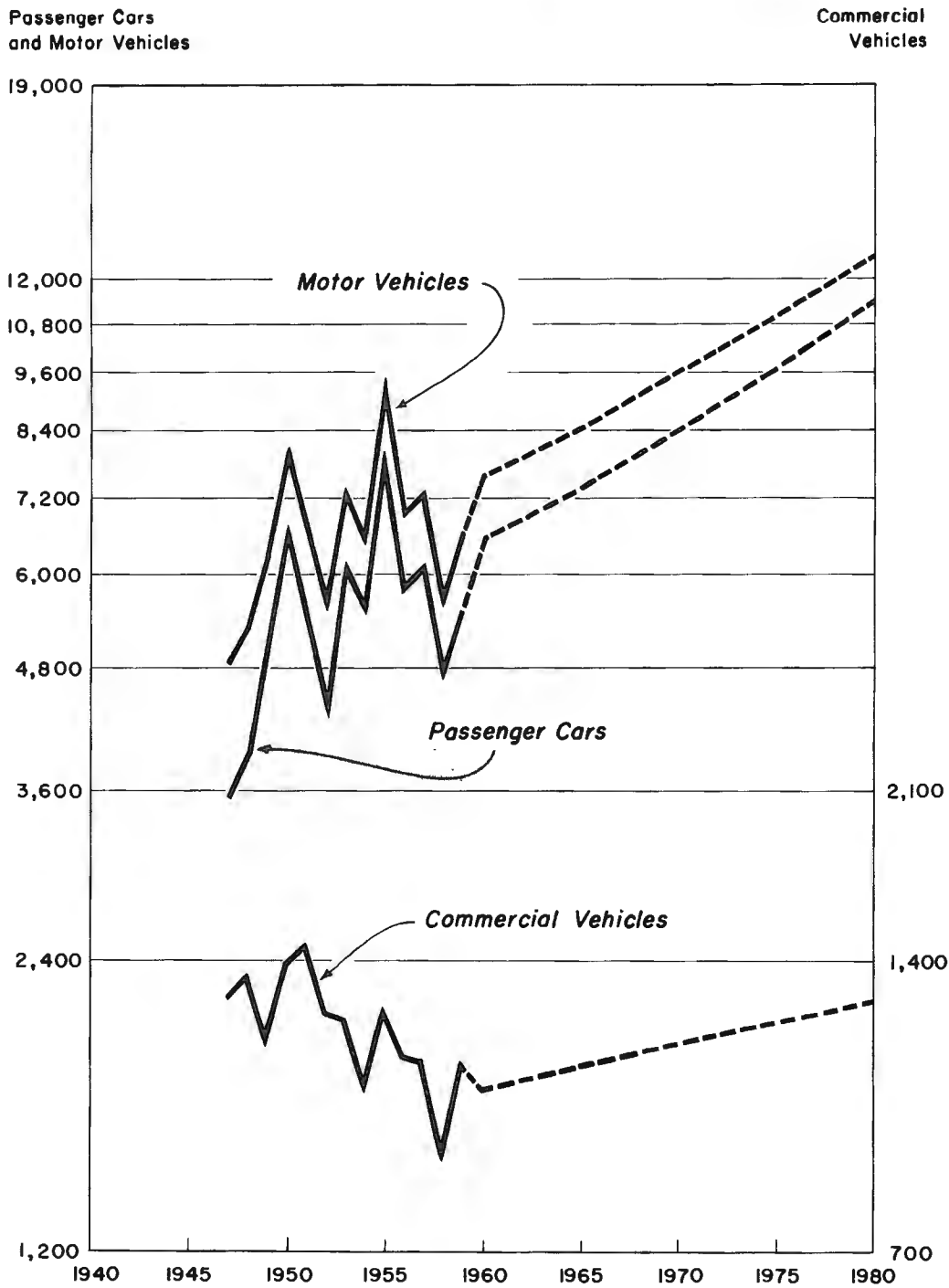


\*Illinois, Indiana, Michigan, Ohio, and Wisconsin

Sources of Data: 1900-1925, National Industrial Conference Board; 1930-1958, U.S. Department of Commerce

Chart III

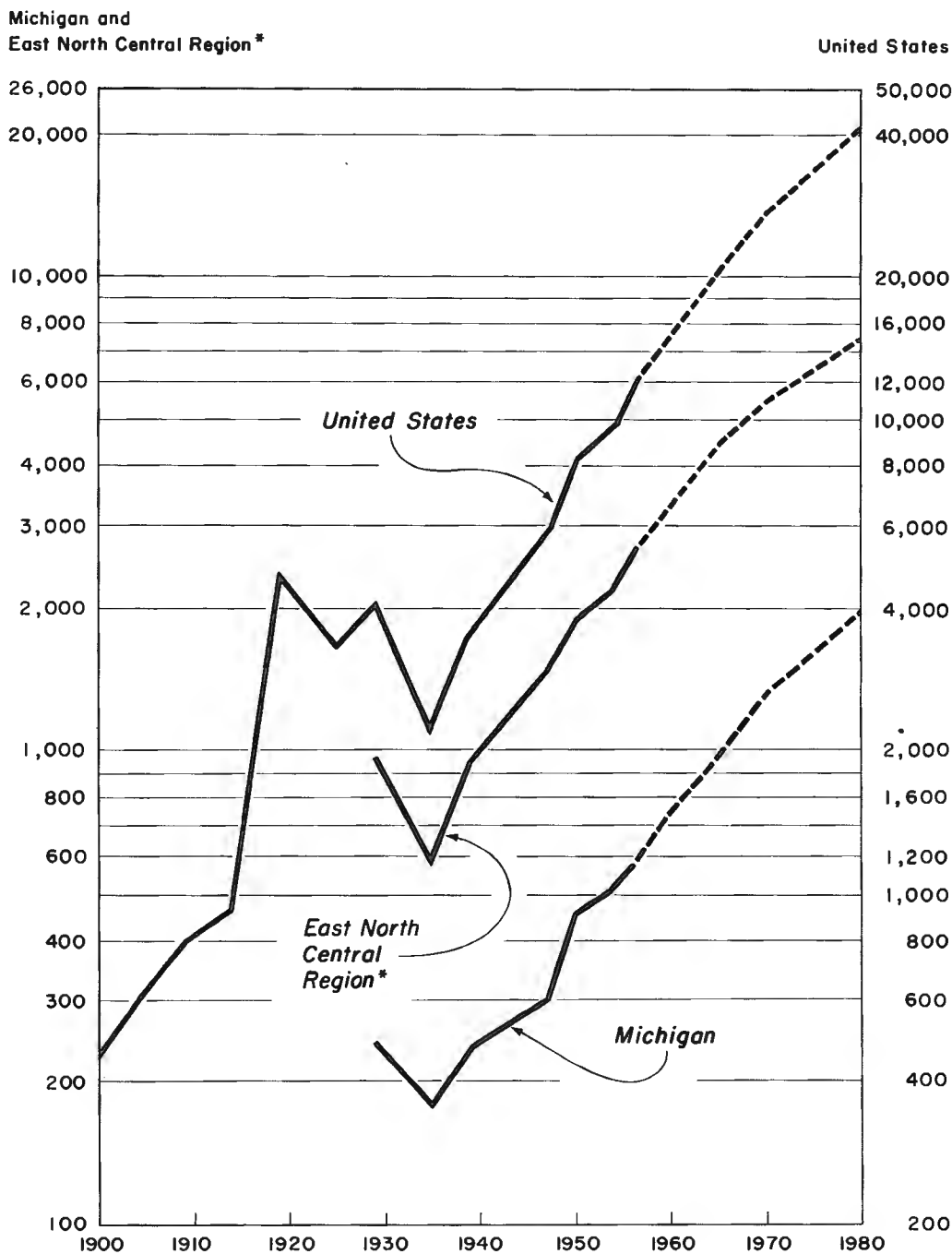
Motor Vehicle Production in the United States, 1947-1958  
with Projections to 1980 (in thousands)



Sources: Automobile Manufacturers Association and Bureau of Business and Economic Research

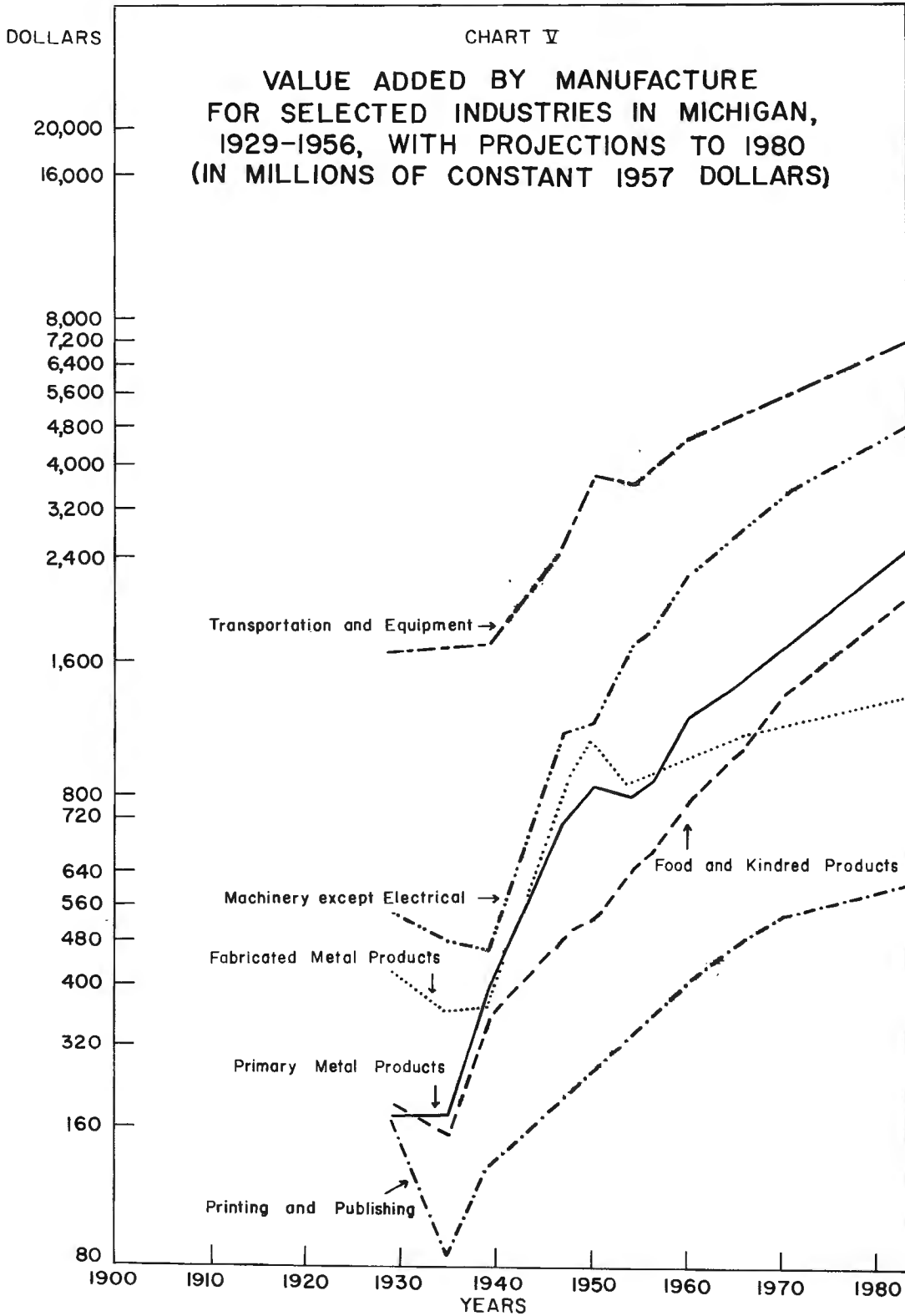
Chart IV

Value Added by Manufacture for Chemicals and Allied Products in the United States, East North Central Region\* and Michigan, 1899-1956, with Projections to 1980 (in millions of constant 1957 dollars)



\* Illinois, Indiana, Michigan, Ohio and Wisconsin

Sources of Data: 1899-1956, U.S. Census of Manufactures, and Annual Survey of Manufactures



SOURCES: 1929-1956, U.S. CENSUS OF MANUFACTURES, AND ANNUAL SURVEY OF MANUFACTURES

APPENDIX B

THE 1958 TRI-COUNTY INTERINDUSTRY RELATIONS STUDY  
SECTOR CLASSIFICATION SYSTEM

50 Sector (BBER) Classification With Component 200 Sector (EM)  
Detail and Component 450 Sector (I-O) Detail  
Further Classified by SIC Codes (1945 and 1949 edition)

(abbreviations explained at end of Appendix B)

BBER	EM	I-O	Sector Title	SIC
1			Livestock, Dairy, and Poultry	
	1		Meat Animals and products	
		1	Meat Animals	*
		4	Other livestock and products	*
	2		Poultry and eggs	
		2	Poultry and eggs	*
	3		Farm dairy products	
		3	Farm dairy products	*
2			Crops, Vegetables, Fruits, and Nuts, etc.	
	4		Food grains and feed crops	
		5	Food grains	*
		6	Feed crops	*
	7		Oil bearing crops	
		9	Oil bearing crops	*
	8		Vegetables and fruits	
		10	Vegetables	*
		11	Fruits	*
	9		All other agricultural	
		12	Tree nuts	*
		13	Legumes and grass seeds	*
		14	Sugar and sirup crops	*
		15	Miscellaneous crops	*
		16	Forest products	*
		17	Greenhouse and nursery products	*
		18	Agricultural services	*

\* Not individually comparable with SIC. Covers the entire production of agricultural products and closely related services, including that by establishments classified in SIC 01, 071, 0723, 0729, 08.

BBER	EM	I-O	Sector Title	SIC
3			Food and Kindred Products	
	21		Meat packing and wholesale poultry	
		2010	Meat packing	2011- 13, part 2014
		2015	Poultry, wholesale	2015
	22		Processed dairy products	
		2020	Processed dairy products	2021- 25
	23		Canning, preserving and freezing	
		2031	Canned sea food	2031
		2032	Cured fish	2032
		2033	Canning and preserving food	2033
		2034	Dehydrated fruits and vegetables	2034
		2035	Pickles and sauces	2035
		2037	Frozen food	2037
	24		Grain mill products	
		2041	Flour and meal	2041
		2042	Prepared animal feeds	2042
		2043	Cereal preparations	2043
		2044	Rice cleaning and polishing	2044
		2045	Blended and prepared flour	2045
	25		Bakery products	
		2051	Bread and other bakery products	2051
		2052	Biscuits, crackers and pretzels	2052
	26		Miscellaneous food products	
		2071	Confectionary products	2071
		2072	Chocolate-cocoa products	2072
		2073	Chewing gum	2073
		2081	Bottled soft drinks	2081
		2090	Liquid, frozen and dried eggs	2090
		2091	Leavening compounds	2091
		2092	Shortening and cooking oils	2092
		2093	Oleomargarine	2093
		2094	Corn products	2094
		2095	Flavorings	2095
		2096	Vinegar and cider	2096
		2097	Manufactured ice	2097
		2098	Macaroni and spaghetti	2098

BBER	EM	I-O	Sector Title	SIC
		2099	Food preparations, n. e. c.	2099
	27		Sugar	
		2061	Raw cane sugar	2061
		2062	Cane sugar refining	2062
		2063	Beet sugar	2063
4			Lumber and Furniture	
	36	2411	Logging	2411
	37		Sawmills, planing and veneer mills	
		2421	Sawmills and planing mills	2421
		2422	Veneer mills	2422
		2423	Shingle mills	2423
		2424	Cooperage stock mills	2424
		2425	Excelsior mills	2425
		2491	Wood preserving	2491
	39		Fabricated wood products	
		2431	Millwork plants	2431
		2433	Prefabricated wood products	2433
		2492	Lasts and related products	2492
		2493	Mirror and picture frames	2493
		2499	Wood products, n. e. c.	2499
	40		Wood containers and cooperage	
		2440	Wooden containers	2441- 44
		2445	Cooperage	2445
	41		Wood furniture	
		2510	Wood household furniture	2511- 13, 2519
		2521	Wood office furniture	2521
	42		Metal furniture	
		2514	Metal house furniture	2514
		2515	Mattresses and bedsprings	2515
		2522	Metal office furniture	2522
		2531	Public-building furniture	2531
		2532	Professional furniture	2532
		2591	Restaurant furniture	2591
	43		Partitions, screens, shades, etc.	
		2541	Partitions and fixtures, n. e. c.	2541, 2599
		2561	Window and door screens	2561
		2562	Window shades	2562
		2563	Venetian blinds	2563

BBER	EM	I-O	Sector Title	SIC
5	47	2700	Printing and Publishing Printing, publishing and allied industries	271-9 7331-32, 7351
6	50	2823	Chemicals and Allied Products Plastics materials	2823
	55	2840	Soap and related products	2841-43
	58	2870	Fertilizers	2871-72
7	30	2210	Miscellaneous Nondurable Products Spinning, weaving and dyeing Woolen and worsted manufactures	2232, 2262; part 2211, 2221 2223, 2241
		2220	Cotton and rayon textiles	2222, 2231, 2261; part 2211, 2221 2223, 2241
	31	2271	Special textile products Wool carpets and rugs	2271
		2273	Carpets and rugs, n. e. c.	2273
		2291	Felt goods, n. e. c.	2291
		2292	Lace goods	2292
		2293	Padding and upholstery filling	2293
		2294	Processed textile waste	2294
		2299	Textile goods, n. e. c.	2299
	33	2394	Canvas products	2394
	35		House furnishing and other non-apparel	
		2274	Hard-surface floor coverings	2274
		2295	Coated fabrics	2295
		2391	Curtains and draperies	2391
		2392	Housefurnishings, n. e. c.	2392
		2393	Textile bags	2393
		2399	Fabricated textile products, n. e. c.	2399
	62	2911	Petroleum products Petroleum refining	2911, 2992, 2999
	64	2951	Paving and roofing materials Paving mixtures	2951
		2952	Roofing felts and coatings	2952



BBER	EM	I-O	Sector Title	SIC
8			Primary Metals	
	79		Steel works and rolling mills	
		3312	Steel works	3312, 3393; part 3392
		3399	Primary metal industries	3399
	80		Iron foundries	
		3321	Iron foundries	3321-22
	87	3359	Nonferrous metal rolling, n. e. c.	3359
	89	3352	Aluminum rolling and drawing	3352
	91	3361	Nonferrous foundries	3361
	92	3391	Iron and steel forgings	3391
9			Fabricated Metal Products	
	95		Tools and general hardware	
		3422	Edge tools	3422
		3423	Hand tools, n. e. c.	3423
		3424	Files	3424
		3425	Hand saws and blades	3425
	96	3429	Hardware	3429
	98		Heating equipment	
		3432	Oil burners	3432
		3439	Heating and cooking apparatus	3439
	99		Structural metal products	
		3441	Structural metal products	3441
		3442	Metal doors, sash, etc.	3442
		3444	Sheet-metal work	3444
	100		Boiler shop products and pipe bending	
		3443	Boiler shop products	3443
		3592	Fabricated pipe	3592
	101	3463	Metal stampings	3462-63
	102		Metal coating and engraving	
		3465	Enameling and lacquering	3465
		3466	Galvanizing	3466
		3467	Engraving on metal	3467
		3468	Plating and polishing	3468
	104		Fabricated wire products	
		3481	Nails and spikes	3481
		3489	Wireworks, n. e. c.	3489
	107		Miscellaneous fabricated metal products	
		3492	Safes and vaults	3492

BBER	EM	I-O	Sector Title	SIC
		3499	Fabricated metal products	3499
	108	3493	Steel springs	3493
	109		Nuts, bolts and screw machine products	
		3494	Bolts, nuts, washers, etc.	3494
		3495	Screw machine products	3495
10			<b>Machinery Including Electrical</b>	
	111	3519	Internal combustion engines	3519
	112		Farm and industrial tractors	
		3521	Tractors	3521
		3565	Industrial trucks	3565
	113		Farm equipment	
		3522	Farm machinery	3522
	114	3531	Construction and mining machinery	3531
	115	3532	Oil field machinery and tools	3532
	116		Machine tools and metalworking machinery	
		3541	Machine tools	3541
		3542	Metalworking machinery	3542
	117		Cutting tools, jigs and fixtures	
		3543	Cutting tools	3543
	118		Special industrial machinery	
		3551	Food products machinery	3551
		3552	Textile machinery	3552
		3553	Woodworking machinery	3553
		3554	Paper industries machinery	3554
		3555	Printing trades machinery	3555
		3559	Special industry machinery	3559
	119	3561	Pumps and compressors	3561
	120		Elevators and conveyors	
		3562	Elevators and escalators	3562
		3563	Conveyors	3563
	122	3566	Power transmission equipment	3566
	126	3591	Valves and fittings	3591
	128	3599	Machine shops	3599
	133	3616	Electrical control apparatus	3616
	135		Electrical appliances	
		3581	Domestic laundry equipment	3581
		3583	Sewing machines	3583
		3584	Vacuum cleaners	3584

BBER	EM	I-O	Sector Title	SIC
		3589	Service and household machinery	3589
		3621	Electrical appliances	3621
	139		Radio and related products	
		3661	Radios	3661
11			Motor Vehicles	
	145		Motor vehicles	
		3717	Motor vehicles	3711-14
		9910	Motor vehicle replacement parts	
	147	3716	Automobile trailers	3716
12			Miscellaneous Durable Products	
	72	3250	Structural clay products	325
	73	3260	Pottery and related products	326
	74		Concrete and plaster products	
		3271	Concrete products	3271
		3272	Gypsum products	3272
		3274	Lime	3274
		3275	Mineral wool	3275
	75	3291	Abrasive products	3291
	76		Asbestos products	
		3292	Asbestos products	3292
		3293	Gaskets and insulation	3293
	77		Other miscellaneous non-metallic minerals	
		3294	Graphite and statuary goods	3294, 3296, 3298
		3295	Minerals, ground or treated	3295
		3297	Nonclay refractories	3297
	154		Optical, ophthalmic and photo equipment	
		3831	Optical instruments and lenses	3831
		3851	Ophthalmic goods	3851
		3861	Photographic equipment	3861
	155		Medical and dental instruments and supplies	
		3841	Surgical and medical instruments	3841
		3842	Surgical appliances	3842

BBER	EM	I-O	Sector Title	SIC
		3843	Dental equipment and supplies	3843
	159		Toys and sporting goods	
		3941	Games and toys	3941
		3942	Dolls	3942
		3943	Children's vehicles	3943
		3949	Sporting and athletic goods	3949
	160		Office supplies	
		3951	Pens and mechanical pencils	3951
		3952	Lead pencils and crayons	3952
		3953	Hand stamps and stencils	3953
		3954	Artists' materials	3954
		3955	Carbon paper and inked ribbons	3955
	161	3971	Plastic products	3971
	164		Miscellaneous manufactured products	
		3663	Phonograph records	3663
		3962	Artificial flowers	3962
		3963	Buttons	3963
		3964	Needles, pins and fasteners	3964
		3981	Brooms and brushes	3981
		3983	Matches	3983
		3984	Candles	3984
		3986	Jewelry and instrument cases	3986
		3987	Lamp shades	3987
		3988	Morticians' goods	3988
		3993	Signs and advertising displays	3993
		3994	Hair work	3994
		3995	Umbrellas, parasols and canes	3995
		3996	Tobacco pipes	3996
		3998	Models and patterns	3998
		3999	Miscellaneous products, n. e. c.	3999
13			Electric Power and Gas	
	167	4911	Electric light and power	4911, 4931, 496
	168		Natural, manufactured and mixed gas	
		4922	Natural gas transportation and distribution	4922-24
		4925	Manufactured gas production and distribution	4925-26

BBER	EM	I-O	Sector Title	SIC
14			Transportation and Communication	
	169	N167	Railroads	4011, 4013, 4021, 4041, 4742-43
	170	N168	Trucking	421
	171		Warehousing and storage	
		N169.1	Warehousing and storage	4221, 423-5, 428-9
		N169.2	Forwarding and arrangement of transportation	471-2
		N169.3	Stockyards	473
	174	N173	Air transportation	451-2, 458
	178		Local and highway transportation	
		N190.1	Local transit	4012, 411-5
		N190.2	Highway transportation	431-3, 438-9
	179		Telephone and telegraph	
		N191	Telephone	4811
		N192	Telegraph	482, 489
15			Wholesale Trade	
	176	N175.1	Wholesale trade	50, 512, 514; part 511, 513
16			Retail Trade	
	177	N176	Retail trade	52-57, 59
	180	5810	Eating and drinking places	5812-13
17			Finance and Insurance	
	181		Banking, finance and insurance	
		N196	Banking and finance	60-62, 67
		N197.1	Nonlife insurance	633-6, 639; part 632
		N197.2	Life insurance	631; part 632
		B197.3	Insurance agents and brokers	641; part 661
18			Real Estate and Rental	
	183		Real estate and rentals	
		N198.1	Nonfarm residential rents	* $\frac{1}{2}$

\* Not individually comparable with SIC

$\frac{1}{2}$  Includes all residential rents, including those paid to establishments classified in SIC 6513-14

BBER	EM	I-O	Sector Title	SIC
		N198.2	Nonfarm nonresidential rents	* <u>2/</u>
		N198.3	Real estate agencies	653-5; part 6561
		N199.1	Farm dwelling rents	* <u>1/</u>
		N199.2	Farm nonresidential rents	* <u>2/</u>
19			Personal Services and Amusements	
	182		Hotels	
		N200.1	Hotels	701, 7032, 704
		N200.2	Auto courts and tourist camps	7031
	184		Laundries and dry cleaning	
		N201.1	Laundries	721
		N201.2	Dry cleaning	722
	185		Other personal services	
		N202.1	Photographic studios	723
		N202.2	Barber and beauty shops	724
		N202.3	Shoe repair and hat cleaning	725
		N202.4	Funeral services and cemeteries	726, part 655
		N202.5	Pressing, alteration and garment repair	727
		N202.6	Miscellaneous personal services	729
	190		Motion pictures and other amusements	
		N208.2	Motion picture theatres	7831
		N208.3	Motion picture distribution	7812
		N209	Other amusements	79
20			Business Services	
	186		Advertising, including radio and television	
		N203	Advertising	731
		N207	Radio broadcasting	771
	187		Business services	
		N204.1	Credit and collection agencies	7321

\* Not individually comparable with SIC

1/ Includes all residential rents, including those paid to establishments classified in SIC 6513-14

2/ Includes all nonresidential rents, including those paid to establishments classified in SIC 6512, 6515-19

BBER	EM	I-O	Sector Title	SIC
		N204.2	Building maintenance services	734
		N204.3	Business services, n. e. c.	7361, 7399; part 5118
		N175.2	Wholesale sales offices and agents	part 513, part 5118
21			Repair Services	
	188		Auto repair services and garages	
		N205	Auto repair services	75
	189		Other repair services	
		N206.1	Electrical repair shops	7621
		N206.2	Watch, clock and jewelry repair	7631
		N206.3	Armature rewinding shops	7694
		N206.4	Miscellaneous repair services	761, 764, 7692, 7693, 7695-99
22			Medical and Other Professional Services	
	191		Medical, dental and other professional services	
		N210	Medical and health services	801-4, 807, 809
		N211	Miscellaneous professional services	737, 81, 891, 899, 0722; part 661, 7331
		8061	Hospitals	8061
23			Education and Nonprofit Institutions	
	192		Nonprofit institutions	
		N212	Schools and educational services, n. e. c.	824, 829
		N213	Nonprofit membership organizations	86, 8921
		8210	Education	821-3
24			Mining and Other	
	17	1310	Crude petroleum and natural gas	1312-15
	18		Stone, sand, clay and abrasives	
		1410	Dimension stone	141

BBER	EM	I-O	Row, Col.	Sector Title	SIC
		1420		Crushed and broken stone	1423-29
		1422		Crushed and broken limestone	1422
		1441		Sand and gravel	144
		1450		Clay, ceramic and refractory material	145
		1462		Natural abrasives	146
		3281		Cut-stone and stone products	3281
	265			Waste products, metal	
		5093.1		Waste materials, metal	
	266			Waste products, nonmetal	
		5093.2		Waste materials, nonmetal	
	267			Stockpile of by-products	
25	210	N244		Construction, Total	
	211	N246	<u>3/</u>	New construction	
	212	N247		Maintenance construction	
26	225	9100	R, C	Imports and Exports	
		9100.1	R	Noncompetitive imports	
		9101-2	C	Exports	
	226	9100.2	C	Competitive imports	
27	215		R, C	Federal Government	
		9010	R <u>4/</u>	Federal government (charges)	
		9013	C	Federal government (total purchases)	
		9010		Federal (materials and supplies)	
		9030		Federal (equipment)	

3/ The private construction portion of N246 is allocated in total to "Miscellaneous private capital formation" (9931). The public construction portion is allocated to the two government sectors (9010 and 9020).

4/ Detailed Federal Government Charges against Final Demand

9010	Federal Government
9011	Direct payments
9012	Corporate income tax
9015	Excise taxes
9015.1	On material purchases
9015.2	On transportation
9015.3	All other
9016	Social security taxes
9017	Duties on imports
9017.1	Noncompetitive imports
9017.2	Competitive imports



BBER	EM	I-O	Row, Col.	Sector Title	SIC
28	220			State and Local Government	
		9020	R <u>5/</u>	S and L government (charges)	
		9024	C	S and L government (total purchases)	
		9020		S and L (materials and supplies)	
		9040		S and L (equipment)	
29	205	9935	C <u>7/</u>	Gross Private Capital Formation	
		9930		Producers' durable equipment	
		9931		Miscellaneous private capital formation	
30	200			Households	
		9500	C	Households (as consumers)	
		9500	R <u>6/</u>	Household and other charges against private final demand	

5/ Detailed State and Local Government Charges against Final Demand

9020	State and Local Government
9021	Direct payments
9022	Corporate income tax
9025	Excise taxes
9025.1	On material purchases
9025.2	All other

6/ Detailed Household and Other Charges against Private Final Demand

9500	Households
9501	Factor costs
9501.1	Wages and salaries
9501.2	Contributions to private pension plans
9501.3	Royalties
9501.4	Interest
9501.5	Entrepreneurial income
9501.6	Corporate profits after taxes
9502	Conventional type of nonfactor charges
9502.1	Transfer payments
9502.2	Depreciation and amortization
9502.3	Capital outlays charged to current expenses
9502.4	Losses and accidental damages to capital
9503	Special type of nonfactor charges
9503.1	Business travel and entertainment
9503.2	Banking service cash charges to business
9503.3	Claim payments

THE 1958 TRI-COUNTY INTERINDUSTRY RELATIONS STUDY  
NON-COMPETITIVE INDUSTRIES

BBER	EM	I-O	Sector Title	SIC
31			Cotton and Tobacco, Farming, Fisheries, Hunting and Trapping	
	5	7	Cotton	*
	6	8	Tobacco	*
	10		Fisheries, hunting and trapping	
		19	Fisheries	091
		20	Hunting and trapping	0741
32			Metallic and nonmetallic mining	
	11		Iron ore mining	
		1011	Iron ores	1011
	12		Copper mining	
		1021	copper ores	1021
	13		Lead and zinc mining	
		1030	Lead and zinc ores	1032-34
	14	1051	Bauxite mining	1051
	15		Other mining (metals)	
		1040	Gold, silver, and miscellaneous metal ores	1042-44, 1062-64, 1069, 1081, 1092-94 1099
	16		Coal mining	
		1110	Anthracite coal	111
		1210	Bituminous coal	121
	19	1477	Sulfur	1477
	20		Other nonmetallic minerals	
		1472	Chemical and fertilizer mineral mining	1472, 1474, 1479
		1473	Fluorspar	1473
		1475	Phosphate rock	1475

<sup>7/</sup> This sector appears only as a column. The row normally considered as an offset, "Depreciation and other capital consumption allowances," appears as part of the "household" row (see 6/ above).

\* Not individually comparable with SIC. Covers the entire production of agricultural products and closely related services, including that by establishments classified in SIC 01, 071, 0723, 0729, 08.

BBER	EM	I-O	Sector Title	SIC
		1476	Rock salt	1476
		1490	Miscellaneous nonmetallic minerals	149
33			Alcoholic Beverages and Tobacco Manufactures	
	28		Alcoholic beverages	
		2082	Malt liquors	2082
		2083	Malt	2083
		2084	Wines and brandy	2084; part 2085
		2085	Distilled liquors	part 2085
	29		Tobacco manufactures	
		2111	Cigarettes	2111
		2121	Cigars	2121
		2131	Chewing and smoking tobacco	2131
		2141	Tobacco stemming and redrying	2141
34			Jute, Linen, Cordage and Twine, Apparel, Leather and Footwear	
	32		Jute, linen, cordage and twine	
		2297	Jute and cordage	2296-98
	34		Apparel	
		3992	Furs, dressed and dyed	3992
		2300	Apparel	225, 228, 231-8, 2395-98
	67	3111	Leather tanning and finishing	3111
	68		Other leather products	
		3121	Industrial leather belting	3121
		3150	Leather gloves	3151-52
		3161	Luggage	3161
		3171	Handbags and purses	3171
		3172	Small leather goods	3172
		3192	Saddlery, harness and whips	3192
		3199	Leather goods, n. e. c.	3199
	69		Footwear (except rubber)	
		3131	Footwear cut stock	3131
		3141	Footwear	3141
		3142	House slippers	3142

BBER	EM	I-O	Sector Title	SIC
35			Plywood	
	38		Plywood	
		2432	Plywood plants	2432
36			Paper and Pulp	
	44		Pulp mills	
		2611	Pulp mills	2611
	45		Paper and board mills	
		2612	Paper and paperboard mills	2612-13
	46		Converted paper products	
		2640	Paper products	264-9
37			Industrial Chemicals, Drugs, Paints, Vegetable and Animal Oils, Coke and By-Products	
	48		Industrial inorganic chemicals	
		2812	Alkalies and chlorine	2812
		2819	Inorganic chemicals	2811, 2819
	49		Industrial organic chemicals	
		2829	Organic chemicals	2822, 2829
	51		Synthetic rubber	2824
	52		Synthetic fiber	2825; part 2014
	53		Explosives and fireworks	
		2826	Explosives	2826
		3985	Fireworks and pyrotechnics	3985
	54		Drugs and medicines	2831-34
	56		Paints and allied products	
		2851	Paints, varnishes, etc.	2851, 2853
		2852	Inorganic color pigments	2852
	57		Gum and wood chemicals	
		2861	Hardwood distillation	2861
		2862	Softwood distillation and gum naval stores	2862-63
		2865	Natural dyeing and tanning materials	2865
	59		Vegetable oils	
		2881	Cottonseed oil mills	2881
		2882	Linseed oil mills	2882
		2883	Soybean oil mills	2883
		2884	Vegetable oil mills, n. e. c.	2884

BBER	EM	I-O	Sector Title	SIC
	60		Animal oils	
		2885	Marine animal oils	2885
		2886	Grease and tallow	2886
		2887	Fatty acids	2887
		2889	Animal oils, n. e. c.	2889
	61		Miscellaneous chemical industries	
		2891	Printing ink	2891
		2892	Essential oils	2892
		2893	Toilet preparations	2893
		2894	Glue and gelatin	2894
		2895	Carbon black	2895
		2896	Compressed and liquefied gas	2896
		2897	Insecticides	2897
		2898	Salt	2898
		2899	Chemical products, n. e. c.	2899
	63		Coke and products	
		2932	Coke and byproducts	2821, 2931-32
		2991	Fuel briquets	2991
38			Tires, Tubes and Miscellaneous Rubber Products	
	65	3011	Tires and inner tubes	3011
	66		Miscellaneous rubber products	
		3021	Rubber footwear	3021
		3031	Reclaimed rubber	3031
		3099	Rubber industries, n. e. c.	3099
39			Glass and Cement	
	70		Glass	
		3211	Flat glass and glass products	3211, 3231
		3221	Glass containers	3221
		3229	Pressed and blown glassware	3229
	71		Cement	
		3241	Cement, hydraulic	3241
40	78	3311	Blast Furnaces	3311, 3313
	81	3323	Steel foundries	3323
41			Primary and Secondary Nonferrous Metals	
	82	3331	Primary copper	3331
	83	3351	Copper rolling and drawing	3351; part 3392

BBER	EM	I-O	Sector Title	SIC
	84	3332	Primary lead	3332
	85	3333	Primary zinc	3333
	86		Primary metals, n. e. c.	
		3339	Primary nonferrous metals	3339
	88	3334	Primary aluminum	3334
	90	3341	Secondary nonferrous metals	3341
42			Tin Cans and Cutlery	
	93		Tin cans and other tin ware	
		3411	Tin cans	3411
	94	3421	Cutlery	3421
43			Fixtures, Engines, Machines and Equipment	
	97		Metal plumbing and vitreous fixtures	
		3431	Metal plumbing fixtures	3431
		3461	Vitreous-enameled products	3461
	103	3471	Lighting fixtures	3471
	110	3511	Steam engines and turbines	3511
	121	3564	Blowers and fans	3564
	123		Industrial machinery, n. e. c.	
		3567	Industrial furnaces and ovens	3567
		3568	Mechanical stokers	3568
		3569	General industrial machinery	3569
	124		Commercial machines and equipment, n. e. c.	
		3571	Computing machines and cash registers	3571
		3572	Typewriters	3572
		3576	Scales and balances	3575-76
		3579	Office and store machines	3579
		3582	Laundry machinery	3582
		3586	Measuring and dispensing pumps	3586
		3991	Beauty and barber shop equipment	3991
		3997	Soda fountain and bar equipment	3997
	125		Refrigeration equipment	
		3585	Refrigeration machinery	3585
	127	3593	Ball and roller bearings	3593

BBER	EM	I-O	Sector Title	SIC
44			Metal Barrels and Foil	
	105	3491	Metal barrels, drums, etc.	3491
	106		Tubes and foils	
		3496	Collapsible tubes	3496
		3497	Metal foil	3497
45			Electrical Instruments and Equipment	
	129		Wiring devices and graphite products	
		3611	Wiring devices	3611
		3612	Carbon and graphite products	3612
	130		Electrical measuring instruments	
		3613	Electrical measuring instruments	3613
	131	3614	Motors and generators	3614
	132	3615	Transformers	3615
	134		Electrical welding apparatus	
		3617	Electrical welding apparatus	3617
		3619	Electrical industrial apparatus	3619
	136		Insulated wire and cable	
		3631	Insulated wire and cable	3631; part 3392
	137	3641	Engine electrical equipment	3641
	138		Electric lamps	
		3651	Electric lamps	3651
		3699	Electrical products, n. e. c.	3699
	140		Tubes	
		3662	Electronic tubes	3662
	141		Communication equipment	
		3664	Telephone and telegraph equipment	3664
		3669	Communication equipment	3669
	142	3691	Storage batteries	3691
	143	3692	Primary batteries	3692
	144		X-Ray apparatus	
		3693	X-ray and therapeutic apparatus	3693
46			Transportation Equipment except Motor Vehicles	
	146	3715	Truck trailers	3715

BBER	EM	I-O	Sector Title	SIC
	148		Aircraft and parts	
		3721	Aircraft	3721
		3722	Aircraft engines	3722
		3723	Aircraft propellers	3723
		3729	Aircraft equipment	3729
	149		Ships and boats	
		3731	Shipbuilding and repairing	3731
		3732	Boat building and repairing	3732
	150		Locomotives	
		3741	Locomotives and parts	3741
	151		Railroad equipment	
		3742	Railroad and streetcars	3742
	152		Motorcycles and bicycles	
		3751	Motorcycles and bicycles	3751
		3799	Transportation equipment, n. e. c.	3799
47			Instruments, Watches, Clocks, Silverware and Parts	
	153		Instruments, etc.	
		3811	Scientific instruments	3811
		3821	Mechanical measuring instruments	3821
	156		Watches and clocks	
		3871	Watches and clocks	3871
		3872	Watchcases	3872
	157		Jewelry and silverware	
		3911	Jewelry, precious metals	3911
		3912	Jewelers' findings	3912
		3913	Lapidary work	3913
		3914	Silverware and plated ware	3914
		3961	Costume jewelry	3961
	158		Musical instruments and parts	
		3931	Pianos	3931
		3932	Organs	3932
		3933	Piano and organ parts	3933
		3939	Musical instruments	3939
48			Cork Products, Motion Picture Production, Small Arms and Ammunition	
	162	3982	Cork products	3982



<u>BBER</u>	<u>EM</u>	<u>I-O</u>	<u>Row, Col.</u>	<u>Sector Title</u>	<u>SIC</u>
	163			Motion picture production	
		N208.1		Motion picture production and service	7811, 7821
	951	1951		Small arms	
	961	1961		Small arms ammunition	
49				Water and Pipeline Transportation	
	172			Overseas transportation	
		N170		Ocean transportation	441, 4421; part 4453-54, 4462-63, 4469
	173	N171		Other water transportation	4422-23, 443-4, 4452; part 4453- 54, 4462-63, 4469
	175			Pipeline transportation	
		N174		Pipeline transportation (oil)	461
50	225			Foreign Imports (noncompetitive)	
		9100.1	R	Noncompetitive imports, foreign port value	

#### Explanation of Abbreviations

BBER	Bureau of Business and Economic Research
EM and I-O	Bureau of Labor Statistics, U. S. Department of Labor, designations for Emergency Model and Input-Output Model, respectively. The I-O classification consisted of 450 sectors, which were combined into 200 sectors to form the EM system.
n. e. c.	not elsewhere classified
SIC	Standard Industrial Classification

APPENDIX C

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TRI-COUNTY REGIONAL ECONOMIC STUDY

ALL INFORMATION GIVEN IN THIS SURVEY WILL BE HELD STRICTLY CONFIDENTIAL. Individual company figures will be aggregated with those of other companies in the same industry to avoid disclosure.

Do you wish to have this questionnaire returned after necessary tabulations and analyses have been made?

Yes \_\_\_\_\_ No \_\_\_\_\_

Firm name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_, \_\_\_\_\_  
(Name) (Title)

If this is a branch plant, please give address of home office.

\_\_\_\_\_  
\_\_\_\_\_

Examination of all of the attached material is suggested before completion of any of the items; this will aid in visualizing the nature of the material requested.

The Tri-County Area consists of Clinton, Eaton and Ingham Counties, Michigan. Wherever possible, give exact figures; where exact data are not available, please estimate. Report figures for calendar year if possible or report figures for fiscal year if necessary. If fiscal year is reported, please give date fiscal year ended. \_\_\_\_\_

1. How many establishments does this company operate in the Tri-County Area? \_\_\_\_\_
2. In what year did this firm begin operations in the Tri-County Area? \_\_\_\_\_
3. Please give total employment and total payrolls (wages, salaries and bonuses) for 1958, 1954, and 1947 in the Tri-County Area.

	Employment (March 15)		Payroll (\$000) (Annual Total)
	<u>Male</u>	<u>Female</u>	
1958	_____	_____	_____
1954	_____	_____	_____
1947	_____	_____	_____



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II

SCHEDULE OF NONMATERIAL INPUTS, 1958

Include current expenses of a nonmaterial nature.

Please list net purchases or receipts from the following economic sectors for the year 1958.

Economic Sector	Amount Purchased (\$000)
Transportation of materials _____	
Communication _____	
Electric Light and Power _____	
Gas _____	
Water _____	
Sanitary _____	
Finance _____	
Insurance _____	
Real Estate and Rental _____	
Personal Services and Amusements _____	
Business Services _____	
Repair Services _____	
Medical and Other Professional Services _____	
Federal Government _____	
State Government _____	
Local Government _____	
Households	
a. Wages and Salaries _____	
b. Employee Insurance _____	
c. The sum of profits, depreciation, contributions to private pension plans, travel and entertainment expenses, etc. _____	
Other Nonmaterial Inputs (please describe) _____	
_____	
_____	
Total	(B) \$

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III

SCHEDULE OF CHARGES TO CAPITAL ACCOUNTS, 1958

Please list net purchases or receipts of items constructed or installed in the Tri-County Area and charged to capital account for the year 1958. Value new structures and additions to plant on an accrual basis prorated according to work put in place.

Description	Amount Purchased (\$000)
New structures and additions to plant (incl. major alterations, capitalized repairs and improvements). Please describe. _____	
New machinery and new equipment* (incl. capitalized repairs and improvements). Please describe. _____	
Total	

\* Identify each purchase with the code defined at the top of Schedule I.



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4. Please estimate your net capital investment in plant and equipment at the end of the year 1958,

Net Capital Investment  
(\$000)

December 31, 1958 \_\_\_\_\_

5. Please list your products in order of importance and give net sales for each in 1958.

Product	Net Sales (1958) (\$000)
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	
6. All other _____	
Total	

6. Please indicate expectations for the future rate of growth of this company as compared with the past decade.

Inside Tri-County Area

Greater growth \_\_\_\_\_  
Same growth \_\_\_\_\_  
Less growth \_\_\_\_\_  
No growth \_\_\_\_\_  
Decline \_\_\_\_\_

Outside Tri-County Area

Greater growth \_\_\_\_\_  
Same growth \_\_\_\_\_  
Less growth \_\_\_\_\_  
No growth \_\_\_\_\_  
Decline \_\_\_\_\_  
No operations  
outside Tri-County \_\_\_\_\_

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SUPPLEMENTARY SCHEDULE I

SCHEDULE OF MATERIAL INPUTS: FORCE ACCOUNT CONSTRUCTION, 1958

Include purchases of materials that were charged to force account construction; i. e., construction accomplished by this firm for its own use. Equipment which upon installation becomes an integral part of a structure should be included; but production equipment and any facility not a component part of a structure are excluded. Identify each purchase with the following code:

"PP" if the purchase was from the producer and did not include transportation charges

"DC" if the purchase was from the producer and included transportation charges

"W" if the purchase was through a wholesaler

"R" if the purchase was through a retailer

Please list your consumption of commodities that were charged to force account construction for the year 1958. Identify using the name of the commodity.

Commodity	Amount Consumed (\$000)
Total	\$





## APPENDIX D

### BIBLIOGRAPHY

The following references are grouped under four classifications:

- I. Books and Pamphlets; II. Government Publications; III. Articles;
- IV. Miscellaneous

#### I. Books and Pamphlets

- Alexander, John. An Economic Base Study of Madison, Wisconsin. Madison: Department of Geography, University of Wisconsin, 1953.
- Anderson, Rudolph E. The Story of the American Automobile, Highlights and Sidelights. Washington, D.C.: Public Affairs Press, 1950.
- Answers to Questions of Current Interest in Lansing Township and the City of Lansing. Lansing: Merger Studies Committee of the Chamber of Commerce of Greater Lansing, October, 1958.
- Automobile Facts and Figures. Detroit: Automobile Manufacturers Association, 1958.
- Beegle, J. Allan, and Halsted, Donald. Michigan's Changing Population. Special Bulletin No. 415. East Lansing: Michigan State University, June, 1957.
- Beegle, J. Allan, and Thaden, J. F. Population Change in Michigan with Special Reference to Rural-Urban Migration, 1940-1950. Special Bulletin No. 387. East Lansing: Michigan State University, October, 1953.
- Blair, Lyle, and Kuhn, Madison. A Short History of Michigan State. East Lansing: Michigan State College Press, 1955.
- Blawie, James and Marilyn. The Michigan Township Board - Its Powers and Duties. East Lansing: Governmental Research Bureau, Michigan State University, 1957.
- Broadcasting Yearbook, Issue 1958. Washington, D. C.: Broadcasting Publications, Inc., 1958.
- Carr, J. L., and Stirmer, J. E. Willow Run: A Study of Industrialization and Cultural Inadequacy. Harper Social Science Series. New York: Harper and Brothers, 1952.
- Chase, L. A. Rural Michigan. New York: The Macmillan Co., 1922.
- Chenery, Hollis B., and Clark, Paul G. Interindustry Economics. New York: John Wiley and Sons, Inc., 1959.
- Consumers Markets. Vol. XXXI, Part III. Chicago: Standard Rate and Data Service, Inc., 1949-1950.
- Daboll, Judge S. Clinton County, Michigan: Past and Present. Chicago: The S. J. Clark Publishing Co., 1906.

- Data on Lansing, Michigan. Jackson: Area Development Department, Consumers Power Company, 1958.
- Dixon, Ramon B. Michigan Political Handbook. East Lansing: Inside Michigan Publishers, Inc., n. d.
- Durant, Samuel W. History of Ingham and Eaton Counties. Philadelphia: D. W. Ensign and Co., 1880.
- Eaton County Challenge---Broader Horizons. Charlotte, Michigan: Eaton County Long Range Planning Committee, August, 1958.
- Economic Factors for Planning Rockford and Winnebago County, Illinois. Washington, D. C.: Albert E. Dickens and Co., February, 1957.
- Economic Growth in the United States - Its Past and Future. New York: The Research and Policy Committee of the Committee for Economic Development, February, 1958.
- Electric Utility Industry Statistics in the United States for the Year 1958. No. 26. New York: Edison Electric Institute, May, 1959.
- Ellis, Franklin. Shiawassee and Clinton Counties, Michigan: History. Philadelphia: D. W. Ensign and Co., 1880.
- Evans, W. Duane, and Hoffenberg, Marvin. The Interindustry Relations Study for 1947. Reprinted from the Review of Economics and Statistics, Vol. XXXIV, No. 2. Harvard University Press, May, 1952.
- Fuller, George N. Economic and Social Beginnings of Michigan. Lansing: Wynkoop Hallenbeck Crawford Co., State Printers, 1916.
- \_\_\_\_\_. Historic Michigan. Lansing: National Historical Association, 1924.
- Garland, John H. (ed.). North American Midwest. New York: John Wiley and Sons, Inc., 1955.
- Gila County Economic Survey. Tempe, Arizona: Bureau of Business Services, Arizona State College, May, 1955.
- Gold, Robert. Manufacturing Structure and Pattern of the South Bend, Mishawaka Area. Department of Geography Research Paper, No. 36. Chicago: University of Chicago, 1954.
- Hayes, George W. Michigan State Gazetteer and Business Directory. Detroit: F. Raymond and Co., 1860, 1865.
- Henshaw, Richard C., and Dale, Alfred G. Resources for Tomorrow, The Texas Economy to 1975. Austin: The Texas Council of College Presidents, 1956.
- Hill, Elton B. and Mawby, Russel G. Types of Farming in Michigan. Special Bulletin 206. East Lansing: Michigan State College, 1954.
- Hurley, Morris E. and Cundiff, Edward W. Economic Development in Oswego County. Special Report Series No. 6. Syracuse: Business Research Center, Syracuse University, October, 1956.
- Ingham County's Changing Scene. Mason, Michigan: Cooperative Extension Service Advisory Board, Ingham County, Winter, 1957.

- Institute for Urban Studies. Accelerated Growth in A Metropolitan Fringe Area. Vol. I, Summary Report; Vol. II, Project Report. Philadelphia: University of Pennsylvania, 1954.
- Institutional Planning for Higher Education in Michigan. Staff Study No. 11. Lansing: The Survey of Higher Education in Michigan, July, 1958.
- James, Preston E. and Jones, Clarence (eds.). American Geography, Inventory and Prospect. Syracuse: Association of American Geographers, Syracuse University Press, 1954.
- Journal of Regional Science. Vol. I, No. 1. Philadelphia: The Regional Science Research Institute, Summer, 1958.
- Journal of the American Institute of Planners. Vol. XXIV, No. 4. Berkeley: American Institute of Planners, 1958.
- Kirksey, C. D. An Interindustry Study of the Sabine - Neches Area of Texas. Austin: Bureau of Business Research, The University of Texas, 1959.
- Leontief, Wassily W. The Structure of the American Economy, 1919-1929. Cambridge: Harvard University Press, 1941.
- \_\_\_\_\_. The Structure of the American Economy, 1919-1939. New York: Oxford University Press, 1951.
- \_\_\_\_\_. Studies in the Structure of the American Economy. New York: Oxford University Press, 1953.
- Lewis, Ferris E. Michigan Yesterday and Today. Hillsdale: Hillsdale School Supply, 1956.
- Luck, David J. Lansing Air Traffic Potential Study. East Lansing: Bureau of Business Research, Michigan State University, February, 1957.
- Market Guide. New York: The Editor and Publisher Co., Inc., 1959.
- McCracken, Paul W., Lindholm, Richard, and Seltzer, Lawrence H. The Michigan Economy to 1970, A Study in Growth. Ann Arbor: Michigan Council of State College Presidents, 1955.
- McElroy, Elam E. Milwaukee Looks Ahead. Facts and Forecasts for the Milwaukee Metropolitan Area, Now - 1960 - 1965. Business Research Division, Milwaukee Association of Commerce, December, 1957.
- Merger Studies, 1958 Progress Report. Lansing: Chamber of Commerce of Greater Lansing, December, 1958.
- Michigan Newspaper Directory and Rate Book. East Lansing: Michigan Press Association, 1958.
- Michigan State Plan for Hospital and Medical Facilities Construction, Fiscal Year 1957-58. Lansing: Office of Hospital Survey and Construction, 1958.
- Michigan Statistical Abstract. 2nd edition. East Lansing: Bureau of Business and Economic Research, Michigan State University, 1958.
- Michigan Today. Lansing: Eugene B. Elliot, 1938.
- National Bureau of Economic Research. Input-Output Analysis: An Appraisal. Studies in Income and Wealth, Vol. XVIII. Princeton: Princeton University Press, 1955.

- \_\_\_\_\_. Input-Output Analysis Technical Supplement. Conference on Research in Income and Wealth. New York: National Bureau of Economic Research, 1954.
- Neff, Philip, and Williams, Robert M. The Industrial Development of Kansas City. Kansas City: Federal Reserve Bank of Kansas City, February, 1958.
- Netherlands Economic Institute. Input-Output Relations. Proceedings of a Conference on Inter-Industrial Relations Held at Driebergen, Holland. Leiden: H. E. Stenfert Droese N. V., 1953.
- Newspaper Rates and Data with Consumer Market Data and Media/Market Maps. Vol. XL, No. 10. Evanston, Illinois: Standard Rate and Data Service, Inc., October, 1958.
- Pealy, Robert H. (ed.). Study Kit on Michigan Local Government. Third revised edition. Ann Arbor: The University of Michigan Press, 1958.
- Perloff, Harvey S. Regional Studies at U. S. Universities. A Survey of Regionally Oriented Research and Graduate Education Activities. Washington, D. C.: Resources of the Future, Inc., May, 1957.
- Possibilities for Industrial Expansion, Austin, Texas. Austin: Bureau of Business Research, The University of Texas, September, 1957.
- Preliminary Report of the Meridian Township Area Sub-Committee. Lansing: Merger Studies Committee of the Chamber of Commerce of Greater Lansing, October, 1958.
- Quaife, Milo M. Condensed Historical Sketches for Each of Michigan's Counties. Detroit: The J. L. Hudson Company, 1940.
- Quaife, Milo M., and Glazer, Sidney. Michigan: From Primitive Wilderness to Industrial Commonwealth. New York: Prentice-Hall, Inc., 1948.
- A Regional Interindustry Study of Maryland. College Park: Bureau of Business and Economic Research, University of Maryland, September, 1954.
- Sales Management. Vol. LXXXII, No. 10. Philadelphia: Bill Brothers Publishing Corp., May, 1959.
- Spot Radio Rates and Data with Consumer Market Data and Media/Market Maps. Vol. XL, No. 12. Evanston, Illinois: Standard Rate and Data Service, Inc., December, 1958.
- Spot Television Rates and Data with Consumer Market Data and Media/Market Maps. Vol. XL, No. 12. Evanston Illinois: Standard Rate and Data Service, Inc., December, 1958.
- Stigler, George J. Trends in Employment in the Service Industries. National Bureau of Economic Research, No. 59, General Series. Princeton: Princeton University Press, 1956.
- Strange, Daniel. Pioneer History of Eaton County, 1833-1866. Charlotte, Michigan: Eaton County Pioneer and Historical Society, 1923.
- Thaden, J. F. The Lansing Region and Its Tributary Town-Country Communities. Special Bulletin No. 302. East Lansing: Agricultural Experiment Station, Michigan State College, 1940.
- Water for the Future. Vol. II. Economic Potential of the Texas Gulf Basin. Austin: Bureau of Business Research, The University of Texas, n. d.

- The W. E. Upjohn Institute for Community Research: A Review of the First Decade and a Preview of the Second. Kalamazoo: The Upjohn Institute, 1957.
- Wilson, Andrew W. Albuquerque Economic Supports Analysis. Tucson: City of Albuquerque Planning Committee, April, 1958.
- WPA. Michigan, A Guide to the Wolverine State. New York: Oxford University Press, 1941.

## II. Government Publications

- An Analysis of the Receipts and Expenditures of the Michigan Public Schools. Bulletin No. 1011, revised. Lansing: Superintendent of Public Instruction, 1948-1957.
- Annual Report. Lansing: Michigan Department of Revenue, 1948-1958.
- Annual Report Motor Vehicle Highway Fund. Lansing: Michigan State Highway Department, 1958.
- Annual Report 1958 Reflecting Comparative Revenue Years, Refunds, and Distribution of Net Collections. Lansing: Administrative Division, Motor Fuel Tax Section, Michigan Department of State, 1958.
- A. S. C. Michigan Annual Report, 1958. Lansing: U. S. Department of Agriculture, Agricultural Stabilization and Conservation, 1958.
- Average 24 Hour Commercial Traffic On the Trunkline System, 1957. Lansing: Michigan State Highway Department, Traffic Division in Cooperation with Bureau of Public Roads, U. S. Department of Commerce, April, 1958.
- Average 24 Hour Traffic Flow on the Trunkline System, 1957. Lansing: Michigan State Highway Department, Planning and Traffic Division in Cooperation with U. S. Department of Commerce, Bureau of Public Roads, July, 1957.
- Bank of Montreal. The Service Industries. Montreal, Canada: Royal Commission on Canada's Economic Prospects, 1956.
- The Budget of the U. S. Government for the Fiscal Year ending June 30, 1958. Washington, D. C.: U. S. Government Printing Office, 1957.
- Beukema, John C. A Study of the Factors Influencing the Development of Michigan's Northern Lower Peninsula. Lansing: Research Division, Michigan Economic Development Department, November, 1954.
- Calef, W. C., and Daoust, C. What Will New Industry Mean to My Town? Washington, D. C.: U. S. Department of Commerce, April, 1955.
- The Farm Income Situation. Washington, D. C.: Agricultural Marketing Service, U. S. Department of Agriculture, September, 1958.
- Financial Reports of Michigan County Government. Lansing: County Audit Division, Auditor General's Department, Annual Reports, 1948-1957.
- Financial Report for the Month of June, 1958 and for the Fiscal Year Ending June 30, 1958. Lansing: Michigan Liquor Control Commission, 1958.
- Financial Report of the State of Michigan, Parts I and II. Lansing: Auditor General, 1948-1958.

- Financing Public School Building Construction for Michigan. Lansing: Department of Public Instruction, 1958.
- Giroux, P. R. Summary of Ground-Water Conditions in Michigan, 1956. Lansing: Department of Conservation, 1957.
- History of Michigan Highways and the Michigan State Highway Department. Lansing: Michigan State Highway Department, Highway Information Services, October, 1958.
- Internal Revenue Service. Annual Report. Washington, D. C.: Government Printing Office, 1958.
- . Individual Income Tax Returns for 1956. Washington, D. C.: Government Printing Office, 1958.
- Labor Force and Employment Estimates. Detroit: Michigan Employment Security Commission, 1949-1958.
- Land, The Yearbook of Agriculture, 1958. Washington, D. C.: U. S. Department of Agriculture, 1958.
- Michigan Agricultural Statistics. Lansing: Michigan Department of Agriculture, 1946-1959.
- Michigan Health Statistics, Annual Statistical Report. Lansing: Michigan Department of Health, 1955-1956.
- Michigan Health Statistics, 1955 and 1956. Lansing: Michigan Department of Health, 1956.
- Michigan Tax Study, Staff Papers--1958. Lansing: Legislative Committee, House of Representatives, 1958.
- Michigan's Labor Market. Detroit: Michigan Employment Security Commission, 1949-1959.
- Modern Highways for Michigan. Lansing: Michigan State Highway Department and the U. S. Department of Commerce, Bureau of Public Roads, 1955.
- National Defense Education Act of 1958, Public Law 85-864. Lansing: Department of Public Instruction, 1958.
- The New England Economy. A Report to the President Transmitting a Study Initiated by the Council of Economic Advisers and Prepared by its Committee on the New England Economy. Washington, D. C.: U. S. Government Printing Office, June, 1951.
- 1958 Annual Report. Detroit: Michigan Employment Security Commission, 1959.
- Office of the Secretary of Defense. Military Supply, Service and Construction Prime Contract Awards of \$10,000 or More in Areas and Industries Having a Substantial Labour Surplus, Quarterly report. Washington, D. C.: Government Printing Office, May, 1959.
- Report of the Michigan State Tax Commission and the State Board of Assessors. Lansing: Michigan State Tax Commission and the State Board of Assessors, 1948-1958.
- Roterus, Victor. The Economy of the Cincinnati Metropolitan Area. Cincinnati: City Planning Commission, n. d.

- Russel, John Dale. Higher Education in Michigan; Final Report of the Survey of Higher Education in Michigan. Lansing: Legislative Study Committee on Higher Education, 1958.
- Schools and the Lansing Community. Lansing: Lansing Community Area School Study Committee, n. d.
- Seventh Annual Progress Report. Lansing: State Highway Commissioner, 1958.
- Seventieth Annual Report of the Commissioner. Lansing: State Banking Department, 1957-1958.
- Summary Annual Statistical and Financial Reports of the School Districts, Form C. Lansing: State Superintendent of Public Instruction, 1948-1958.
- Summary of Michigan Advantages for Industry. Michigan Survey Bulletin No. 2. Lansing: Michigan Economic Development Department, September, 1956.
- Supplement to the Sixth Annual Progress Report For the State Highway Department. Lansing: County Road Commissions, Incorporated Cities and Villages, State Highway Commissioner, 1958-1959.
- This is Michigan. Lansing: Michigan Economic Development Department, 1958.
- Twenty-Seventh Biennial Report. Lansing: State Highway Commissioner, 1959.
- U. S. Bureau of the Budget. Standard Industrial Classification Manual. Washington, D. C.: Government Printing Office, 1957.
- U. S. Bureau of the Census. Annual Report on the Labor Force, 1957. Series P-50, No. 85. Washington, D. C.: Government Printing Office, June, 1958.
- \_\_\_\_\_. Annual Survey of Manufactures. Washington, D. C.: Government Printing Office, 1945, 1951-1956.
- \_\_\_\_\_. Census of Agriculture, Michigan. Part VI. Washington, D. C.: Government Printing Office, 1950, 1954.
- \_\_\_\_\_. Census of American Business. Vol. I-N. Washington, D. C.: Government Printing Office, 1933.
- \_\_\_\_\_. Census of Business - Retail Trade, Michigan. Washington, D. C.: Government Printing Office, 1948, 1954.
- \_\_\_\_\_. Census of Business - Selected Service Trades, Michigan. Washington, D. C.: Government Printing Office, 1948, 1954.
- \_\_\_\_\_. Census of Business - Service Establishments. Vol. III. Washington, D. C.: Government Printing Office, 1939.
- \_\_\_\_\_. Census of Business - Wholesale Trade, Michigan. Washington, D. C.: Government Printing Office, 1948, 1954.
- \_\_\_\_\_. Census of Manufactures. Washington, D. C.: Government Printing Office, 1929-1954.
- \_\_\_\_\_. Census of Manufacturing - Michigan. Washington, D. C.: Government Printing Office, 1948, 1954.
- \_\_\_\_\_. Census of Mineral Industries - Michigan. Washington, D. C.: Government Printing Office, 1948, 1954.
- \_\_\_\_\_. Census of Population, Michigan General Characteristics. P-B22, Vol. II, Part XXII, Chapter B. Washington, D. C.: Government Printing Office, 1940, 1950.



- \_\_\_\_\_. Census of Population. P-A22, Vol. I, Chapter 22, Michigan. Washington, D. C.: Government Printing Office, 1930, 1940, 1950.
- \_\_\_\_\_. County and City Data Book, Statistical Abstract Supplement. Washington, D. C.: Government Printing Office, 1949, 1952, 1956.
- \_\_\_\_\_. Current Population Reports, Population Estimates: Illustrative Projections of the College-Age Population, by States, 1958 to 1973. Series P-25, No. 132. Washington, D. C.: Government Printing Office, February, 1956.
- \_\_\_\_\_. Current Population Reports, Population Estimates: Illustrative Projections of the Population by States, 1960, 1965, and 1970. Series P-25, No. 160. Washington, D. C.: Government Printing Office, August, 1957.
- \_\_\_\_\_. Current Population Reports, Population Estimates: Illustrative Projections of the Population of the United States, by Age and Sex, 1960 to 1980. Series P-25, No. 187. Washington, D. C.: Government Printing Office, November, 1958.
- \_\_\_\_\_. Industry Descriptions: 1954 Census of Manufactures. Bulletin MC-301. Washington, D. C.: Government Printing Office, 1957.
- \_\_\_\_\_. Statistical Abstract of the United States. Washington, D. C.: Government Printing Office, 1949 - 1958.
- U. S. Bureau of Labor Statistics. Employment and Earnings, Annual Supplement Issue. Vol. V, No. 1. Washington, D. C.: Government Printing Office, July, 1958.
- \_\_\_\_\_. Employment and Earnings. Vol. V, No. 7. Washington, D. C.: Government Printing Office, January, 1959.
- \_\_\_\_\_. General Explanations of the 200 Sector Tables; The 1947 Interindustry Relations Study. Report No. 33. Washington, D. C.: Government Printing Office, June, 1953.
- \_\_\_\_\_. Industry Reports: General Explanations, The 1947 Interindustry Relations Study. Report No. 9. Washington, D. C.: Government Printing Office, March, 1953.
- \_\_\_\_\_. Industry Reports: Manufacturing Methodology, The 1947 Interindustry Relations Study. Report No. 10. Washington, D. C.: Government Printing Office, March, 1953.
- \_\_\_\_\_. Industry Reports: The Organic Chemistry Industry: A Manufacturing Sector in the 1947 Interindustry Relations Study. Report No. 35. Washington, D. C.: Government Printing Office, 1953.
- \_\_\_\_\_. The 1947 Interindustry Relations Study, Industry Classification Manual. Washington, D. C.: Government Printing Office, March, 1953.
- U. S. Department of Health, Education and Welfare. County Business Patterns. Washington, D. C.: Government Printing Office. First Quarter, 1953, 1956.
- \_\_\_\_\_. 8th Annual Report of the U. S. Commissioner of Education. Washington, D. C.: Government Printing Office, 1959.
- Water Conditioning Plant. Lansing: Lansing Board of Water and Light, August, 1952.

Yearly Motor Vehicle Registration Report. Lansing: Michigan Department of State, 1948 - 1958.

### III. Articles

- Bureau of Business and Economic Research, University of Maryland. "Carroll County, An Economic Survey," Studies in Business and Economics, Vol. XII, No. 2, College Park, September, 1958.
- \_\_\_\_\_. "Estimating Maryland Government and Business Potentials," Studies in Business and Economics, Vol. VIII, No. 4, College Park, 1955.
- \_\_\_\_\_. "A Regional Inter-Industry Study of Maryland," Studies in Business and Economics, Vol. VIII, No. 2, College Park, 1954.
- \_\_\_\_\_. "Some Relationships Between U. S. Consumption and Natural Resources, 1899, 1947, 1954," Studies in Business and Economics, Vol. XII, No. 1, College Park, June, 1958.
- Long, Norton. "Businessmen's Stake in Regional Planning," Harvard Business Review, July-August, 1958.
- Seyfried, Warren R. "Employment - The Key to Community Growth," Business Review, Vol. XVII, No. 5, College of Business Administration, University of Washington, February, 1958.
- "What Happens When A Community Gains Manufacturing Jobs," Monthly Review, Federal Reserve Bank of Boston, March, 1955.

### IV. Miscellaneous

- Actioneer. Lansing: Chamber of Commerce of Greater Lansing, May, 1956 - March, 1959.
- Annual Report of the Continuing Education Service, 1958-1959. East Lansing: Michigan State University, 1958.
- Audit Report - Newspaper. Lansing, Michigan: The State Journal, 1959.
- Current Fund Income and Expenses. Olivet, Michigan: Olivet College, Business Office, 1954-1959.
- Enrollment Report. East Lansing: Office of the Registrar, Michigan State University, 1947-1958.
- Financial Reports. East Lansing: Michigan State University, 1956-1958.
- Know Your State. Detroit: League of Women Voters of Michigan, n. d.
- Lansing Community College, Catalog No. 3, 1959-1960. Lansing: Lansing Community College, 1959.
- May, Francis Barns. "An Interindustry Relations Analysis of the Texas Economy for 1947." Unpublished doctoral dissertation, The University of Texas, 1957.
- Milestones in One Hundred Years of Newspaper Life. Lansing: The State Journal, 1955.
- Olivet College Bulletin, 1959-1960. Vol. LIX, No. 1. Olivet, Michigan: Olivet College, Spring, 1959.
- Your Tomorrow. Vol. I. Lansing: Lansing Business University, August, 1958.

