ANNUAL REPORT

1966

federal reserve bank of cleveland

To the Banks in the Fourth Federal Reserve District:

We are pleased to present the Annual Report of the Federal Reserve Bank of Cleveland for 1966. On behalf of the Directors, Officers, and staff, we extend our sincere thanks to the agricultural, business, and financial community of the Fourth District for giving generously of time and effort in helping us to carry out our responsibilities.

This Annual Report contains a "Profile of Manufacturing Activity in the Fourth Federal Reserve District." It seems particularly appropriate to present such an analysis because of the importance of manufacturing in the economic life of the region. As the article points out, nearly 40 percent of all nonagricultural employment in the District is in manufacturing. Workers in manufacturing industries represent about 10 percent of all such workers in the nation; value added by manufacturing plants accounts for more than 11 percent of the nation's value added by manufacturing; capital spending by manufacturing industries in the District is more than 10 percent of that in the U. S. as a whole.

The Fourth District has long been one of the leading manufacturing regions of the country. Many factors determine the industrial position of a region. These include resource availability, technological changes, population shifts, and industrial location. If manufacturing firms are receptive to change, are innovative, and are aggressive, the District will maintain its record of long-term economic growth. But the task will not be easy. Hopefully, the information provided in this Annual Report will promote understanding of the determinants of future growth.

Joseph B. Hall — CHAIRMAN OF THE BOARD

W. Braddock Hickman — PRESIDENT

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Manufacturing activity has expanded markedly since 1961 in both the United States and the Fourth Federal Reserve District, thus providing much of the thrust in the nation's recent economic performance. The ability of manufacturing activity to contribute importantly to economic performance reflects the size of the manufacturing sector in the economy. About 30 percent of all persons employed in nonagricultural pursuits in the nation are employed in manufacturing. Value added by manufacture accounts for about one-third of the Gross National Product. Profits of manufacturing corporations represent nearly 30 percent of total corporate profits. Capital spending by manufacturing firms accounts for about 40 percent of total capital spending.

The Fourth Federal Reserve District, in relative terms, is more highly industrialized than is the nation as a whole, with nearly 40 percent of all nonagricultural workers in the District employed in manufacturing industries. Putting it another way, workers in manufacturing industries in the Fourth District account for

PROFILE of MANUFACTURING ACTIVITY in the FOURTH FEDERAL RESERVE DISTRICT

about 10 percent of all such workers in the nation as contrasted to the District's 8-percent share of all nonagricultural workers. Value added by manufacturing plants located in the Fourth District represents more than 11 percent of the nation's value added by manufacture, and capital spending by manufacturing industries in the District is more than 10 percent of that in the U. S. as a whole.

OVERVIEW OF MANUFACTURING ACTIVITY: U.S. AND FOURTH DISTRICT

A broad survey of manufacturing activity in the nation provides a useful backdrop against which to view manufacturing in the District.

In the United States. In 1964, there were 17.3 million persons employed in manufacturing industries. (See Chart 1.) (The use of 1964 is dictated by the fact that it is the most recent year for which value-added data are available.) These persons, of whom 12.4 million were production workers, turned out goods that carried a value added of $206 billion, or $11,919 per employee ($16,613 per production worker). The number of persons employed in manufacturing in 1964 was about 10 percent greater than in 1954, although the number of production workers was about the same in both years. Value added by manufacture per employee in 1964 was 59 percent greater than in 1954, when it had amounted to $7,480; part of this increase, of course, reflected a rise in the general price level. The fact that virtually all of the increase in the number of employees in manufacturing was in so-called nonproduction workers is symptomatic of changing industrial techniques and labor market requirements.

Although total manufacturing employment in the U. S. approached 19 million in 1966, it has not increased as fast as nonmanufacturing employment. In 1966, manufacturing employment accounted for about 30 percent of total nonagricultural employment as compared with 35 percent in 1953 when the previous postwar peak in manufacturing employment was reached.

New capital expenditures by manufacturing industries amounted to $113 billion during 1954-64 inclusive, divided almost equally between durable goods and nondurable goods industries. As of 1964, total capital investment by manufacturing industries approximated $280 billion, or an average of $16,200 per employee ($22,600 per production worker). Seven industries exceeded the all-manufacturing average of capital investment per employee in 1964. These were, in descending order, petroleum (including refining, extraction, and pipeline transportation), tobacco, chemicals, primary metals, motor vehicles, instruments, and food and kindred products.

Four of the seven industries are producers of nondurable goods, and the first two — petroleum and tobacco — have shown steady declines in the number employed since 1954. In contrast, in two of the industries — chemicals and instruments — employment has expanded almost uninterruptedly since 1954, despite large-scale capital investment. The primary metals and motor vehicles industries have experienced marked cyclical patterns in both capital spending and employment superimposed on an upward secular trend. Employment in the food

industry declined slightly during 1954-64, while annual expenditures for new plant and equipment nearly doubled.

In the Fourth District. Manufacturing employment in the Fourth District accounts for about one-tenth of that in the nation, and District value added accounts for about one-ninth of the U. S. total. Patterns and trends in Fourth District manufacturing activity often have been at variance with those in the U. S. Recently, a sharper increase has occurred in manufacturing activity in the Fourth District, reflecting in particular the cyclical expansion of the durable goods industries, including primary metals, fabricated metal products, machinery, and transportation equipment, which are major components of Fourth District manufacturing. Thus, during 1963-65 manufacturing employment in the Fourth District rose by 6.8 percent as compared with a national increase of 6.2 percent. (See Table I.) Even more favorably, during 1963-64 value added by manufacture in the District increased by 11.4 percent as compared with an increase of 7.8 percent for the U. S. (See Table II.)

Despite the recent excellent showing by the District, longer-run comparisons indicate that it has not been able to hold its own in relation to the U. S. in either manufacturing employment or value added by manufacture. (See Tables I and II.)

In value added by manufacture, the Fourth District accounted for 13.3 percent of the U. S. total in 1954 and 11.2 percent in 1964. Within the District, Ohio achieved a modest rise in its relative share of employment but slipped in its share of value added by manufacture. The Fourth District portion of Pennsylvania receded slightly on both scores (employment and value added). Only the Fourth District portion of Kentucky posted net gains, albeit small ones, in its shares of manufacturing employment and value added by manufacture. (See Tables I and II.)

MANUFACTURING EMPLOYMENT AND VALUE ADDED: BY INDUSTRY

Recent changes in employment and value added in both the nation and the Fourth District are shown in Chart 2. As the chart indicates, during 1958-63 value added by all manufacturing industries increased in both the nation and the Fourth District. The average annual gain in the U. S. was 6.9 percent, with larger-than-average increases shown by chemicals, petroleum and coal products, rubber and

Table I.

MANUFACTURING EMPLOYMENT
United States and Fourth District
Selected Years

	Thousands of Persons				Percent Change					As Percent of United States			
	1954	1958	1963	1965*	1954-58	1954-65	1958-63	1958-65	1963-65	1954	1958	1963	1965
United States	16,099	16,025	17,065	18,122	−0.5%	+12.6%	+ 6.5%	+13.1%	+ 6.2%	100.0%	100.0%	100.0%	100.0%
Fourth District*	1,666	1,693	1,711	1,828	+1.6	+ 9.7	+ 1.1	+ 8.0	+ 6.8	10.3	10.6	10.0	10.1
Ohio	1,162	1,199	1,240	1,317	+3.2	+13.3	+ 3.4	+ 9.8	+ 6.2	7.2	7.5	7.3	7.3
Pennsylvania (4th District portion)	436	428	400	433	−1.8	− 0.7	− 6.1	+ 1.2	+ 7.7	2.7	2.7	2.4	2.4
West Virginia (4th District portion)*	35	33	30	31	−5.7	−11.4	− 9.0	− 6.0	+ 3.3	0.2	0.2	0.2	0.2
Kentucky (4th District portion)*	33	33	41	48	-0-	+45.5	+24.3	+45.5	+17.1	0.2	0.2	0.2	0.3

*Partly estimated.
NOTE: Totals may not be additive due to rounding.
Source: U. S. Department of Labor

plastics, nonelectrical machinery, electrical machinery, transportation equipment, and instruments. The average annual gain in the District was 6.7 percent, almost equal to that in the nation, with larger-than-average gains registered by chemicals, rubber and plastics, nonelectrical machinery, transportation equipment, instruments, and the miscellaneous category. Transportation equipment was the outstanding performer in the District.

During 1958-65, the average annual percent increase in manufacturing employment amounted to 1.9 percent in the U. S. and 1.1 percent in the District. Within the total, however, patterns were mixed, including increases as well as decreases. For example, the largest rate of decline in employment in the U. S. during 1958-65 was in petroleum and coal products (at an average annual rate of 2.7 percent); the largest decrease in the District during the same period was an average annual rate of 1.7 percent in the furniture and fixture grouping. It is interesting to note the contrasting circumstances of these two declines. In the case of petroleum and coal products, the reason for decreased employment in the U. S. can be ascribed generally to technical changes, including automation. In the case of the decrease in District employment in furniture and fixtures (in the face of an average annual increase of 2.7 percent in employment nationally), there was apparently a geographic relocation of the production facilities of the industry.

Those industries in the nation whose average annual rates of increase in employment during 1958-65 exceeded the average for all manufacturing include: apparel, furniture and fixtures, paper, chemicals, rubber and plastics, fabricated metal products, nonelectrical machinery, electrical machinery, and instruments. The average annual increases in employment in several of these industries (including rubber and plastics, nonelectrical machinery, and electrical machinery) were twice the national average. Employment increased by 1.1 percent in the District, with larger-than-average gains in paper, rubber and plastics, fabricated metal products, nonelectrical machinery, electrical machinery, and instruments. The annual average rate of increase in the instruments industry was three times the District average.

Table III shows employment and value added for selected industries in the Fourth District as a percent of U. S. totals in 1958 and 1963 (tobacco is excluded

Table II.

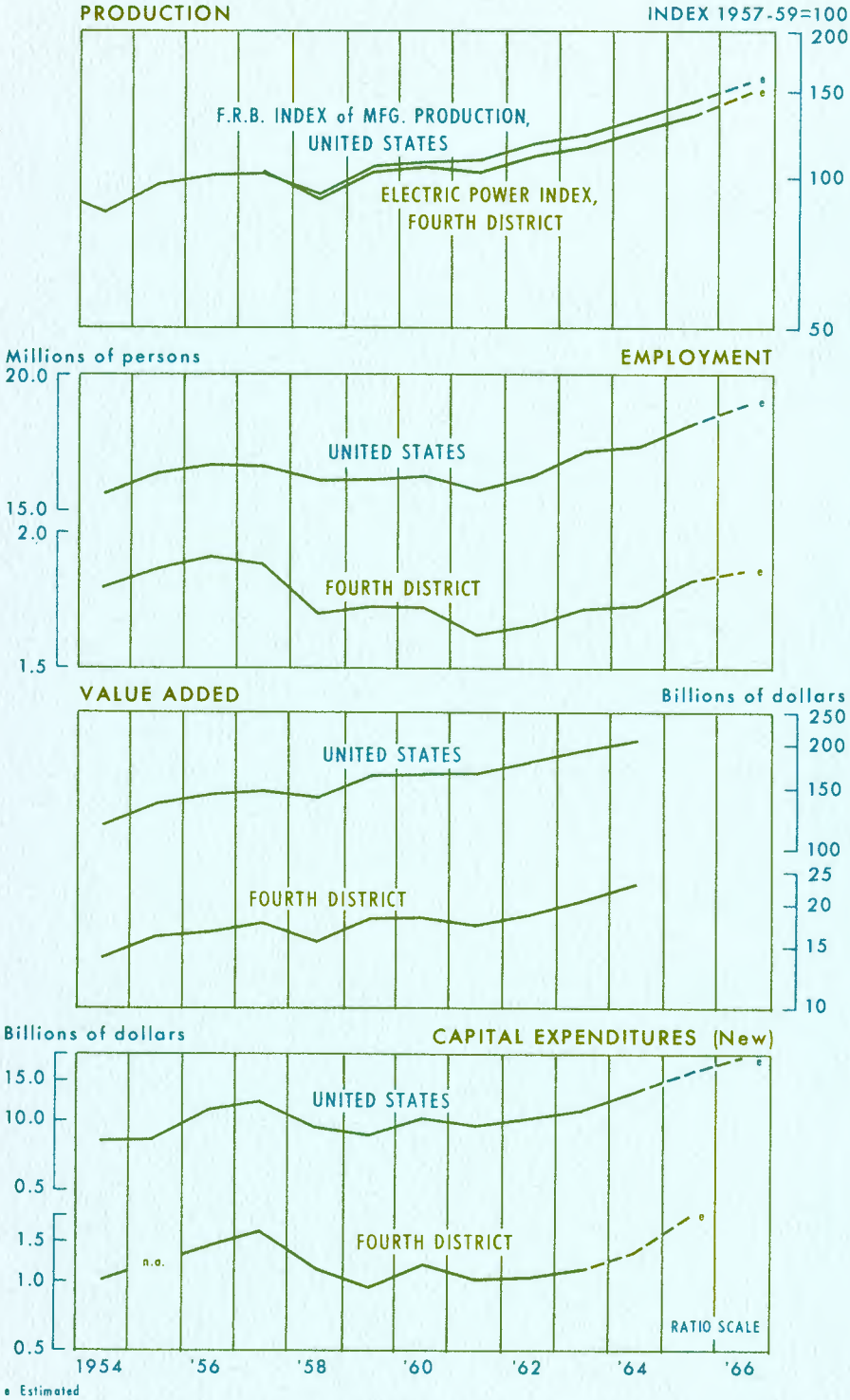
VALUE ADDED BY MANUFACTURE
United States and Fourth District
Selected Years

	Millions of Current Dollars				Percent Change					As Percent of United States			
	1954	1958	1963	1964	1954-58	1954-64	1958-63	1958-64	1963-64	1954	1958	1963	1964
United States	$117,032	$141,500	$191,035	$205,963	+20.9%	+76.0%	+35.0%	+45.6%	+ 7.8%	100.0%	100.0%	100.0%	100.0%
Fourth District*	15,617	15,884	20,711	23,063	+ 1.7	+47.7	+32.6	+45.2	+11.4	13.3	11.2	10.8	11.2
Ohio	11,473	11,473	15,506	16,307	-0-	+42.1	+35.1	+42.1	+ 5.1	9.8	8.1	8.1	7.9
Pennsylvania (4th District portion)	3,503	3,742	4,281	5,806	+ 6.8	+65.7	+14.4	+55.1	+35.6	3.0	2.6	2.2	2.8
West Virginia (4th District portion)*	383	362	456	n.a.	- 5.8	n.a.	+26.0	n.a.	n.a.	0.3	0.3	0.2	n.a.
Kentucky (4th District portion)*	258	307	468	n.a.	+19.0	n.a.	+52.4	n.a.	n.a.	0.2†	0.2	0.2†	n.a.

*Partly estimated.
†As percent of U. S., value added in Kentucky was 0.220 percent in 1954 and 0.245 percent in 1963.
n.a. Figures for value added are available only through 1964, and then only for the U. S., Ohio (entire State), and Pennsylvania (by counties). 1964 data for the Fourth District portions of West Virginia and Kentucky are estimated for deriving a Fourth District total.
NOTE: Totals may not be additive due to rounding.
Sources: U. S. Department of Commerce and Department of Internal Affairs, State of Pennsylvania

Chart 1.

SELECTED SERIES on MANUFACTURING ACTIVITY



e Estimated

n.a. Not available

Sources of data: Board of Governors of the Federal Reserve System; Federal Reserve Bank of Cleveland; U.S. Department of Labor; U.S. Department of Commerce; Department of Development, State of Ohio; Department of Internal Affairs, Commonwealth of Pennsylvania

since employment in the manufacturing segment of that industry was less than 1 percent of the U. S. and District totals). The data in Table III are from the Census of Manufactures, 1958 and 1963, which provides certain breakouts that are not available from the data used in Chart 2. Generally, the Fourth District's share of total manufacturing employment in the nation dipped between 1958 and 1963, with losses of 1 percentage point or more in furniture and fixtures, chemicals, rubber and plastics, stone-clay-glass, primary metals, fabricated metals, electrical machinery, and the aircraft and parts portion of transportation equipment. (For the entire transportation equipment grouping, however, there was a slight gain in the Fourth District's employment share as increased employment in the production of motor vehicles more than offset a loss in the aircraft category.)

In five of the industries where the share was reduced by more than 1 percentage point, Fourth District employment accounts for more than 10 percent of the national total and the employment losses were accordingly substantial. The relevant data may be summarized as follows:

	Fourth District Employment as Percent of United States	
Industry	1958	1963
Rubber and plastics	24.8%	21.6%
Stone, clay, and glass	16.5	14.7
Primary metals	27.5	25.5
Fabricated metals	15.3	14.2
Electrical machinery	12.7	10.2

Two of these industries can be characterized as "growth industries," in the sense that, between 1958 and 1963, nationwide employment increased nearly

20 percent in rubber and plastics and more than 31 percent in electrical machinery. In the case of rubber and plastics, total employment in the District in actual numbers increased by more than 3,000 between 1958 and 1963, despite the reduction in the share of the U. S. total. In that industry, there was a substantial reduction in one of the "old-line" segments, tires and inner tubes; practically all of the total national decrease in employment in that segment was concentrated in the Fourth District. On the other hand, the District gained over 6,000 employees in the fastest growing segment of the industry, plastics. In stone, clay, and glass products, the District drop was largely concentrated in one category — structural clay products.

There was an increase of some 23,000 employees in the primary metal industries in the U. S. between 1958 and 1963 —14,000 in the nonferrous segment and 9,000 in the ferrous category. In contrast, in the Fourth District there was a drop of more than 7,000 in the ferrous sector while the nonferrous sector held steady. The result was a smaller relative share of national employment in both categories. Significantly, however, the District's share of value added in the primary metal industries did not decline as much as employment, suggesting either increased efficiency in production or changes in product mix, or both.

While the District's share of the nation's total employment in the electrical machinery industry fell during 1958-63, the decline conceals a gain in a subgroup of the industry that was the largest percent increase recorded by the District

Table III. MANUFACTURING EMPLOYMENT AND VALUE ADDED BY MANUFACTURE
Fourth District as Percent of United States
Selected Industries
1958 and 1963

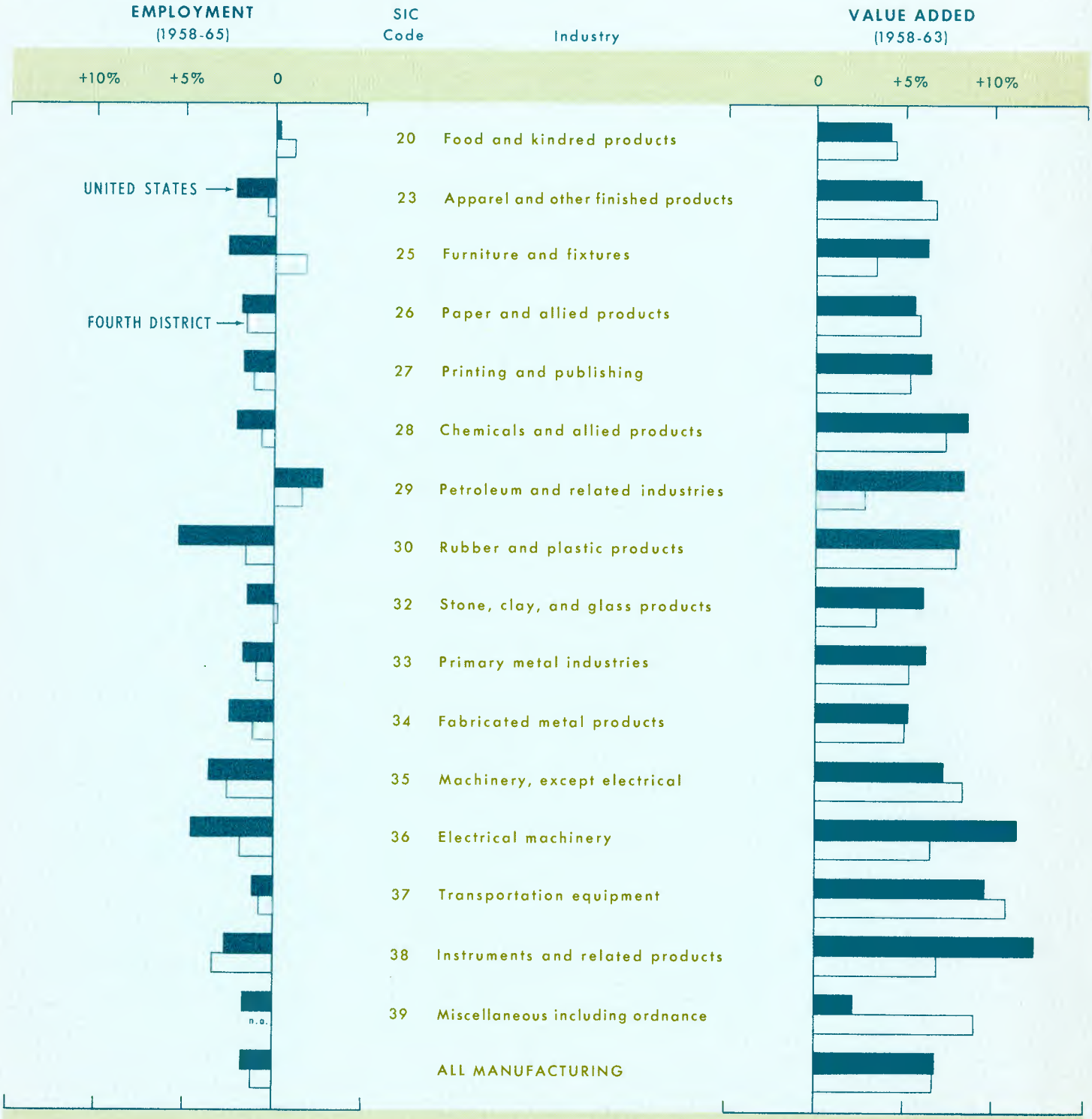
SIC Code	Industry	Employment		Value Added	
		1958	1963	1958	1963
20	Food and kindred products	6.8%	6.2%	6.6%	6.5%
22	Textile mill products	1.2	1.0	1.6	1.5
23	Apparel and other finished products	2.2	1.8	2.5	2.5
24	Lumber and wood products	1.8	1.8	2.2	2.0
25	Furniture and fixtures	6.6	5.4	8.0	6.9
26	Paper and allied products	7.8	7.6	7.2	7.2
27	Printing and publishing	8.6	7.9	8.4	7.8
28	Chemicals and allied products	8.2	7.1	7.1	6.7
29	Petroleum and related industries	5.2	5.4	6.6	5.2
30	Rubber and plastic products	24.8	21.6	24.6	23.7
31	Leather and leather products	3.5	3.2	3.7	3.5
32	Stone, clay, and glass products	16.5	14.7	15.7	13.9
33	Primary metal industries	27.5	25.5	27.0	25.5
	Ferrous	32.3	30.6	32.2	31.5
	Nonferrous	15.3	13.0	14.7	13.0
34	Fabricated metal products	15.3	14.2	15.9	15.1
35	Machinery, except electrical	14.7	14.0	14.5	14.7
36	Electrical machinery	12.7	10.2	14.4	11.9
	Communication equipment	2.1	4.0	1.4	3.6
37	Transportation equipment	11.5	11.6	12.0	12.4
	Motor vehicles	16.2	17.7	15.5	16.4
	Aircraft	8.8	7.6	9.2	7.3
38	Instruments and related products	4.9	4.3	4.2	3.5
39	Miscellaneous including ordnance	5.2	5.3	4.6	6.0

Source: U. S. Department of Commerce

Chart 2.

AVERAGE ANNUAL PERCENT CHANGE in EMPLOYMENT and VALUE ADDED

Selected Manufacturing Industries



n.a. Not available

Sources of data: U.S. Department of Commerce and U.S. Department of Labor

Table IV. MANUFACTURING EMPLOYMENT AND VALUE ADDED BY MANUFACTURE
Fourth District
Selected Years

	Employment (thousands of persons)			Value Added (millions of dollars)			As Percent of Fourth District: Employment		As Percent of Fourth District: Value Added	
	1958	1963	Percent Change	1958	1963	Percent Change	1958	1963	1958	1963
District Total	1,693	1,711	+ 1.1%	$15,884	$20,711	+30.4%	100.0%	100.0%	100.0%	100.0%
9 Major SMSA's*	1,191	1,156	− 2.9	11,080	13,803	+26.6	70.3	67.6	69.8	66.6
All Other SMSA's†	177	201	+13.6	1,766	2,761	+56.3	10.5	11.7	11.1	13.3
Nonmetropolitan Area Counties†	325	354	+ 8.9	3,038	4,147	+36.5	19.2	20.7	19.1	20.0

*Canton is included among the major SMSA's for purposes of the Census of Manufactures, where the basic criterion is the number of persons employed in manufacture. In terms of total population, Canton is ranked among the smaller SMSA's, that is, those with less than 500,000 population.

† For all other SMSA's and nonmetropolitan counties only limited data are available. The basic criteria for inclusion are number of persons employed in a given industry (500 or more), and the avoidance of disclosure. Counties in Fourth District SMSA's that lie outside the District's boundaries have been excluded. There are 16 counties within the Fourth District in the 11 smaller SMSA's.

NOTE: Totals may not be additive due to rounding.

Source: U. S. Department of Commerce

in any of the selected industries. With District employment in the communication equipment sector of the electrical machinery industry increasing from 4,000 to 15,000, the District's share rose from 2.1 percent of the national total to 4.0 percent. The District's share of value added in that industry also increased, from 1.4 percent to 3.6 percent of the national total. One of the largest absolute gains in employment in the District was in motor vehicles (28,000), which raised the District's share of the national total by 1.5 percentage points. The District's share of value added in that industry increased somewhat less.

In short, during 1958-63 the Fourth District's share of total manufacturing employment increased in four industrial categories, and the District's share of value added increased in five categories. (See Table III.) Industries where value added increased more than employment included: communication equipment, transportation equipment, and the miscellaneous category. Value added rose in the nonelectrical machinery industry despite a decrease in employment.

In an advanced industrial region such as the Fourth District, it is necessary that substantial capital expenditures be made to modernize or replace obsolete facilities, as well as to introduce new and expanded facilities to satisfy increased demand for existing products or permit the production of new ones. New capital spending by manufacturing industries in the U. S. in 1963 was $11.1 billion, of which nearly $1.2 billion, or 10.6 percent, was spent in the Fourth District. This percentage is virtually the same as the District's share of value added (10.8 percent) and employment (10.0 percent) in that year.

Preliminary figures on capital spending by manufacturing industries in 1964 and 1965 are available for only two major components of the Fourth District — the State of Ohio and the 19 counties of western Pennsylvania that lie within the District. The data show that capital spending in Ohio in 1963 amounted to $856 million; in 1964, it amounted to $1,085 million, and in 1965, to $1,572 million. Capital expenditures for the Fourth District portion of Pennsylvania rose from $284 million in 1963 to $357 million in 1965. These increases were reasonably consistent with those experienced in the U. S. as a whole.

MANUFACTURING ACTIVITY: FOURTH DISTRICT SMSA's

Data on manufacturing activity by industry are available for the major Standard Metropolitan Statistical Areas (SMSA's). (As used here, a major SMSA is one with a high concentration of

manufacturing employment.) There are nine major SMSA's in the Fourth District: Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Pittsburgh, Toledo, and Youngstown-Warren. Table IV summarizes data for the Fourth District as a whole, the nine major SMSA's, the smaller SMSA's, and the nonmetropolitan counties. Table V provides similar data for areas within Ohio and those parts of Pennsylvania, West Virginia, and Kentucky within the Fourth District.

Perhaps the most interesting point revealed by the data in Tables IV and V is the large relative gains in both employment and value added achieved by the smaller SMSA's and the nonmetropolitan counties of the District. Two factors should be taken into account in interpreting this showing. First, the major centers account for two-thirds of total manufacturing employment and value added; it is easier for small centers to score large percentage gains than large centers. Second, the major SMSA's, particularly Cleveland and Pittsburgh, are heavily oriented toward metals and machinery. The demand for such producers' goods tends to accelerate after a cyclical expansion period is well under way, so that data for 1965 and 1966 would make such centers "look better" than they do when 1963 figures are used. Unfortunately, only partial data for value added are available after 1963, and comparable employment data for all areas are not yet available for 1966. Thus, data for 1958 and 1963 have been used to maintain comparability.

Charts 3 and 4 show the behavior of the most recent series on manufacturing employment and value added for the U. S., the Fourth District, and major SMSA's of the District. Table VI shows percent changes for the same areas. While the District as a whole lagged be-

Table V. **MANUFACTURING EMPLOYMENT AND VALUE ADDED BY MANUFACTURE**
Subareas of the Fourth District
Selected Years

	Employment					Value Added				
	Thousands of Persons		Percent Change	As Percent of Subarea Totals		Millions of Dollars		Percent Change	As Percent of Subarea Totals	
	1958	1963	1958-63	1958	1963	1958	1963	1958-63	1958	1963
Ohio Total	1,199	1,240	+ 3.5%	100.0%	100.0%	$11,473	$15,506	+ 35.2%	100.0%	100.0%
8 Major SMSA's	885	884	-0-	73.8	71.3	8,458	10,924	+ 29.2	73.7	70.5
All Other SMSA's	85	107	+25.9	7.1	8.6	865	1,561	+ 80.5	7.5	10.1
Nonmetropolitan Area Counties	229	249	+ 8.7	19.1	20.1	2,150	3,021	+ 40.5	18.7	19.5
Pennsylvania Total (4th District portion)	428	400	− 6.5	100.0	100.0	3,742	4,281	+ 14.4	100.0	100.0
1 Major SMSA (Pittsburgh)	306	272	−11.1	71.5	68.0	2,622	2,879	+ 9.8	70.1	67.2
All Other SMSA Counties	38	40	+ 5.3	8.9	10.0	322	432	+ 34.2	8.6	10.1
Nonmetropolitan Area Counties	84	88	+ 4.8	19.6	22.0	798	970	+ 21.6	21.3	22.7
Kentucky Total (4th District portion)	33	41	+24.2	100.0	100.0	307	468	+ 52.4	100.0	100.0
Metropolitan Area Counties	22	25	+13.6	66.7	61.0	228	336	+ 47.4	74.3	71.8
Nonmetropolitan Area Counties	11	16	+45.4	33.3	39.0	79	132	+ 62.5	25.7	28.2
West Virginia Total (4th District portion)	33	30	−10.2	100.0	100.0	362	456	+ 26.0	100.0	100.0
Metropolitan Area Counties	32	29	−10.5	97.0	96.6	351	432	+ 23.1	97.0	94.7
Nonmetropolitan Area Counties	1	1	-0-	3.0	3.3	11	24	+118.2	3.0	5.3

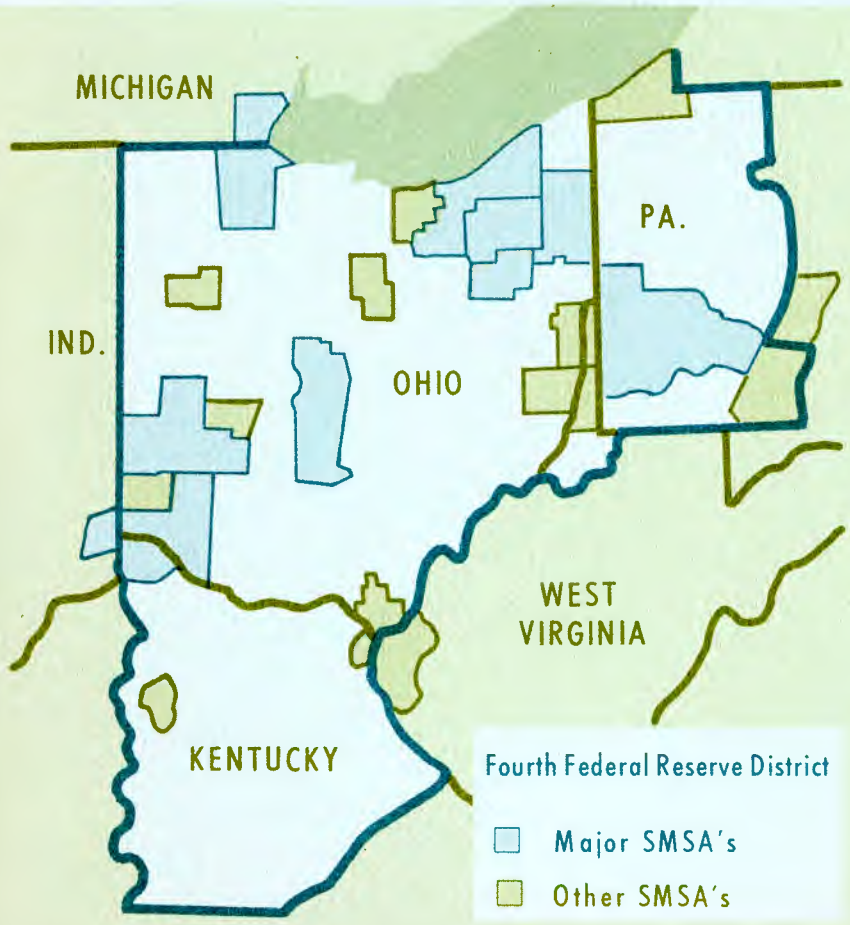
NOTE: Totals may not be additive due to rounding.
Source: U. S. Department of Commerce

hind the nation in both manufacturing employment (1958-65) and value added (1958-63), the Dayton, Toledo, and Canton SMSA's outperformed the nation in employment, and Dayton and Columbus did so in value added. Reflecting the predominance of durable goods in the Fourth District, and the favorable showing of this sector in 1964, value added in the District during 1958-64 increased by about the same rate (45.2 percent) as that in the nation (45.6 percent). During 1958-63, Pittsburgh gained only 9.8 percent in value added as compared with 35.0 percent for the U. S.; but when 1964 is included, Pittsburgh's performance jumped to 24.8 percent (1958-64) as compared with 45.6 percent for the nation. (Note: detailed tabulations of percent changes in employment and value added by industry during 1958-63 for Ohio and the major SMSA's of the Fourth District are available upon request to the Research Department of this Bank.)

MANUFACTURING ACTIVITY IN THE FOURTH DISTRICT: BY FIRM

There are more than 21,000 manufacturing establishments in the Fourth District. The majority are small, employing fewer than 20 persons. At the other extreme are large plants of industrial giants such as Gulf Oil, Westinghouse Electric, Goodyear Tire and Rubber, Procter & Gamble, United States Steel, and Aluminum Company of America, to name only a few. Of the 1,000 largest manufacturing firms in the U. S., 118 are headquartered in the Fourth District. (See Appendix for discussion of sources used.)

Table VII shows the distribution of the 1,000 largest manufacturing firms in the U. S., by industry, and the number of firms in each industry that are headquartered in the Fourth District. In addition to the 118 companies headquartered



Source of data: U. S. Department of Commerce

Table VI. PERCENT CHANGE IN MANUFACTURING EMPLOYMENT AND VALUE ADDED BY MANUFACTURE United States, Fourth District, and Major SMSA's* in the Fourth District

	Employment 1958-65	Value Added† 1958-63
United States	+12.2%	+35.0%
Fourth District‡	+ 8.0	+30.5
Cleveland	+ 8.5	+32.1
Pittsburgh	− 6.9	+ 9.8
Cincinnati	− 0.6	+30.0
Dayton	+19.6	+44.5
Akron	+ 7.0	+25.3
Youngstown-Warren	+ 6.6	+23.6
Columbus	+10.0	+41.5
Toledo	+16.7	+27.7
Canton	+13.7	+33.5

*Counties in Fourth District SMSA's that lie outside the District's boundaries have been excluded.

†Only partial value added data are available for 1964. During 1958-64, value added in the U. S. increased by 45.6%, in the Fourth District by 45.5% (estimated), and in Pittsburgh by 24.8%.

‡Partly estimated.

Sources: U. S. Department of Commerce and Department of Internal Affairs, State of Pennsylvania

LOCATIONS of FOREIGN FACILITIES of INDUSTRIAL

SIC Code	Industry	Africa	Australia and New Zealand	Canada
20	Food and kindred products		1	2
23	Apparel and other finished products			
26	Paper and allied products			
27	Printing and publishing			2
28	Chemicals and allied products	4	2	10
29	Petroleum and related industries	7	3	30
30	Rubber and plastic products	7	3	3
31	Leather and leather products			
32	Stone, clay, and glass products	2	3	11
33	Primary metal industries	3	3	21
34	Fabricated metal products	1	1	6
35	Machinery, except electrical	12	7	19
36	Electrical machinery	1	1	6
37	Transportation equipment	2	3	14
38	Instruments and related products			1

FIRMS HEADQUARTERED in the FOURTH DISTRICT

Caribbean Region	Europe	India, Pakistan, and Ceylon	Japan and Philippines	Middle East	Non-Communist Southeast Asia	South America
4	6					1
1	1					
1	1					1
18	25		2	2	1	6
12	10	1	1	5		13
5	15	5	2	1	2	6
1						
5	19		2			13
7	23		2	1		17
6	14					4
17	59		4	4	3	12
2	14		1			2
4	12	2	2			11
	6					

in the District, there are 295 other firms among the 1,000 largest that have production or research facilities, or both, located in the District. Of the 118 firms headquartered within the Fourth District, 76 are located in Ohio, 40 in western Pennsylvania, and one each in West Virginia and eastern Kentucky. The 118 firms accounted for nearly one-fourth of total manufacturing employment in the Fourth District in 1964, and District employment represented 25 percent of their total employment.

The 118 firms headquartered in the Fourth District cover all of the major industrial classifications with the exception of tobacco, textiles, and lumber. (Some of the firms in those industries headquartered elsewhere carry on limited operations within the District; such firms employ slightly more than 2,000 persons in the District.) The 118 companies headquartered in the District had total sales in 1964 of $40.9 billion and held assets aggregating $38.0 billion. As such, the 118 firms accounted for 13.8 percent of the total sales of the 1,000 largest manufacturing corporations in the U. S. and 15.2 percent of the assets. In turn, the 1,000 largest firms accounted for approximately two-thirds of all sales by manufacturing corporations in the U. S. and three-fourths of the assets.

Table VII. 1,000 LARGEST MANUFACTURING CORPORATIONS by Industry and Employment United States and Fourth District 1965

SIC Code	Industry	Number of Firms United States	Headquartered in the Fourth District			Headquartered Outside the Fourth District but with Plants in the Fourth District		
			Number of Firms	Number of Employees		Number of Firms	Number of Employees	
				Total	Within Fourth District		Total	Within Fourth District
20	Food and kindred products	126	3	33,635	3,716	43	570,737	25,997
21	Tobacco manufactures	10	-0-	-0-	-0-	1	7,777	171
22	Textile mill products	43	-0-	-0-	-0-	2	30,998	600
23	Apparel and other finished products	20	1	4,000	2,008	1	6,000	220
24	Lumber and wood products	11	-0-	-0-	-0-	5	89,615	1,377
25	Furniture and fixtures	11	1	3,245	1,710	2	10,350	968
26	Paper and allied products	49	3	32,941	7,670	23	273,950	14,663
27	Printing and publishing	28	3	11,339	6,198	5	30,233	7,907
28	Chemicals and allied products	97	9	66,734	19,302	33	632,842	31,075
29	Petroleum and related industries	46	7	91,714	6,889	10	288,162	8,743
30	Rubber and plastic products	17	8	291,205	55,447	4	70,878	5,391
31	Leather and leather products	9	1	7,640	2,315	1	6,375	250
32	Stone, clay, and glass products	39	12	141,071	40,006	18	132,782	11,009
33	Primary metal industries	83	20	525,989	165,386	20	445,192	18,185
34	Fabricated metal products	51	9	60,727	10,920	23	235,917	21,363
35	Machinery, except electrical	127	21	210,783	55,614	37	625,460	59,794
36	Electrical machinery	91	8	147,163	44,270	24	974,268	57,605
37	Transportation equipment	79	8	134,988	35,808	30	1,668,466	148,901
38	Instruments and related products	37	3	13,923	2,632	8	49,975	3,711
39	Miscellaneous including ordnance	26	1	4,622	2,394	5	73,504	8,907
	Total	1,000	118	1,781,719	462,285	295	6,223,481	424,837

Sources: See Appendix

By far the greatest concentration of the various industrial categories in the Fourth District is in the rubber and plastics industry, with 8 of the 17 largest firms headquartered in the District. Those 8 companies accounted for more than 76 percent of total sales and total assets of the 17 largest companies. (See Tables VII and VIII.)

Firms engaged in the primary metal industries represent the second greatest concentration of sales and assets within the District. Twenty of the nation's 83 largest companies in this group are headquartered in the Fourth District, accounting for nearly 49 percent of total sales of the group and about 50 percent of the total assets.

Ranking third in degree of concentration within the District is the stone, clay, and glass industry, with 12 of the nation's 39 largest companies headquartered in the District. Those 12 held nearly 40 percent of total assets of the 39 largest firms and accounted for 45 percent of the total sales.

Other industries in which companies headquartered in the Fourth District accounted for 10 percent or more of both sales and assets of the largest firms in the industries are petroleum and coal products, nonelectrical machinery, and electrical machinery.

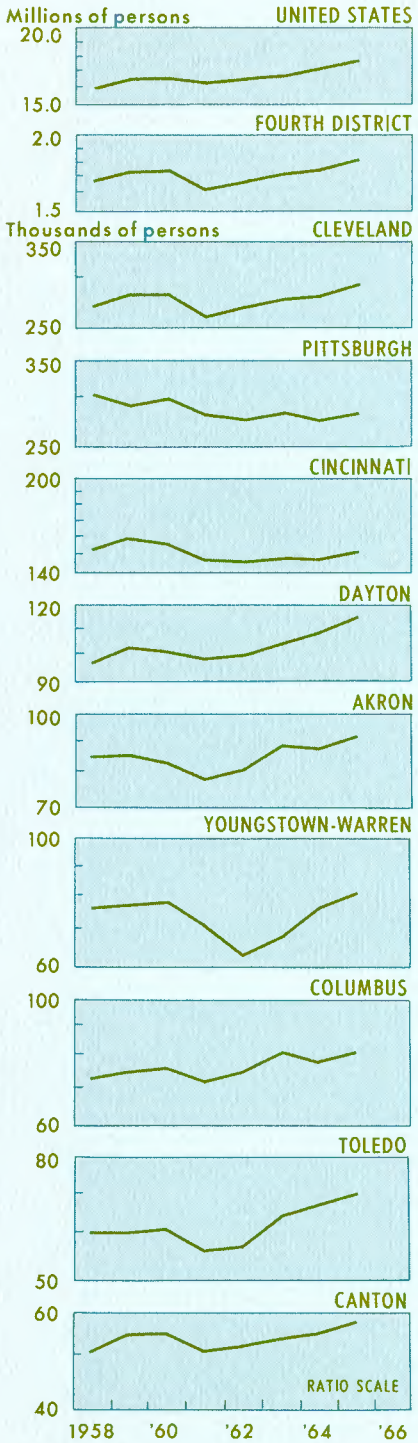
Table VIII. **1,000 LARGEST MANUFACTURING CORPORATIONS**
Assets and Sales by Industry
United States and Fourth District
1964

SIC Code	Industry	Total Assets, United States 1,000 Largest Firms (millions of dollars)	Firms Headquartered in the Fourth District (percent of Total Assets)	Total Sales, United States 1,000 Largest Firms (millions of dollars)	Firms Headquartered in the Fourth District (percent of Total Sales)
20	Food and kindred products	$ 17,251	5.1%	$ 34,660	2.7%
23	Apparel and other finished products	975	4.1	1,554	5.6
24	Lumber and wood products	2,508	-0-	2,436	-0-
25	Furniture and fixtures	417	9.3	680	7.1
26	Paper and allied products	8,416	9.0	9,360	10.9
27	Printing and publishing	2,109	6.5	2,864	6.8
28	Chemicals and allied products	26,193	8.3	27,609	11.2
29	Petroleum and related industries	54,890	12.2	42,302	11.7
30	Rubber and plastic products	5,202	76.5	7,226	76.7
31	Leather and leather products	859	5.8	1,583	6.8
32	Stone, clay, and glass products	5,964	39.4	6,010	45.2
33	Primary metal industries	27,508	50.2	25,226	48.8
34	Fabricated metal products	5,594	7.7	7,726	8.6
35	Machinery, except electrical	19,119	11.4	23,179	13.0
36	Electrical machinery	19,871	15.3	26,462	11.5
37	Transportation equipment	31,995	5.5	55,348	5.1
38	Instruments and related products	3,786	6.0	4,745	5.7
	Total	$242,783	15.6%	$291,840	14.0%

Sources: See Appendix

Chart 3.

MANUFACTURING EMPLOYMENT



Sources of data: U.S. Department of Commerce; U.S. Department of Labor; Department of Internal Affairs, Commonwealth of Pennsylvania; Ohio Department of Employment Security; Federal Reserve Bank of Cleveland

The 295 other firms among the nation's 1,000 leading manufacturers that have plants within the Fourth District employed about the same number of persons in the District as did the 118 headquartered here, but that number represented less than 7 percent of their total employment (compared with 25 percent for headquartered firms). The combined employment of the 118 firms headquartered in the District and the 295 others with plants in the District accounted for nearly half of total manufacturing employment in the District in 1965 (48.6 percent).

All but 4 of the 118 large firms headquartered in the Fourth District also have plants and other facilities (research laboratories, sales offices, etc.) outside the District. The 2,446 plants and facilities of the 118 firms were distributed as follows in 1965: 456 within the District, 1,382 elsewhere in the U. S., and 608 (including 9 sales offices) in foreign countries. (See center map for foreign operations.) Foreign plants are operated by 82 of the 118 firms. Of that group, the nonelectrical machinery industry has the largest number of firms (15) with foreign operations, covering a wide range of products from paper-making machinery and office equipment to roller bearings. The wide geographical dispersal of that industry's 137 plants in other countries, with a heavy concentration on western Europe, is apparent from the center map. Other industries with large foreign operations include the 10 chemical companies with 70 plants in other countries, the 6 petroleum firms with 82 plants outside the U. S., and the 12 primary metal firms with 77 foreign operations. A summary tabulation follows:

Industry	Number of Large Fourth District Firms*	Number of Foreign Operations
Food	2	14
Apparel	1	2
Paper and allied products	1	3
Printing and publishing	2	2
Chemicals	10	70
Petroleum and coal products	6	82
Rubber and plastics	5	49
Leather and leather products	1	1
Stone, clay, and glass	8	55
Primary metals	12	77
Fabricated metal products	6	32
Nonelectrical machinery	15	137
Electrical machinery	5	27
Transportation equipment	7	50
Instruments and related products	1	7
Total	82	608

*Of the 118 nationally large firms headquartered in the Fourth District.

While the above discussion has centered on large companies, it should not be overlooked that smaller companies, in addition to being important in their own right, are often indispensable to the large companies as subcontractors, sup-

pliers of parts, and performers of special jobs. Many of these firms are small only because they are new, and some will likely become tomorrow's giants, contributing much to the industrial growth of the Fourth District.

CONCLUDING COMMENTS

Fourth District manufacturing activity is substantially committed to the metal-producing and metal-using industries. The District also has a substantial commitment to two other basic industries, rubber and plastics, and stone, clay, and glass. More specifically, on the basis of 1965 data, manufacturing employment in the Fourth District accounted for more than 10 percent of the U. S. total in rubber and plastics, stone-clay-glass, primary metals, fabricated metal products, nonelectrical machinery, electrical machinery, and transportation equipment. Ten years earlier (1955), the corresponding percentages were generally higher; indeed, only in the transportation equipment grouping did the relative share of the Fourth District increase during 1955-65 (see Table IX), thereby elevating that industry into the 10-percent-plus group.

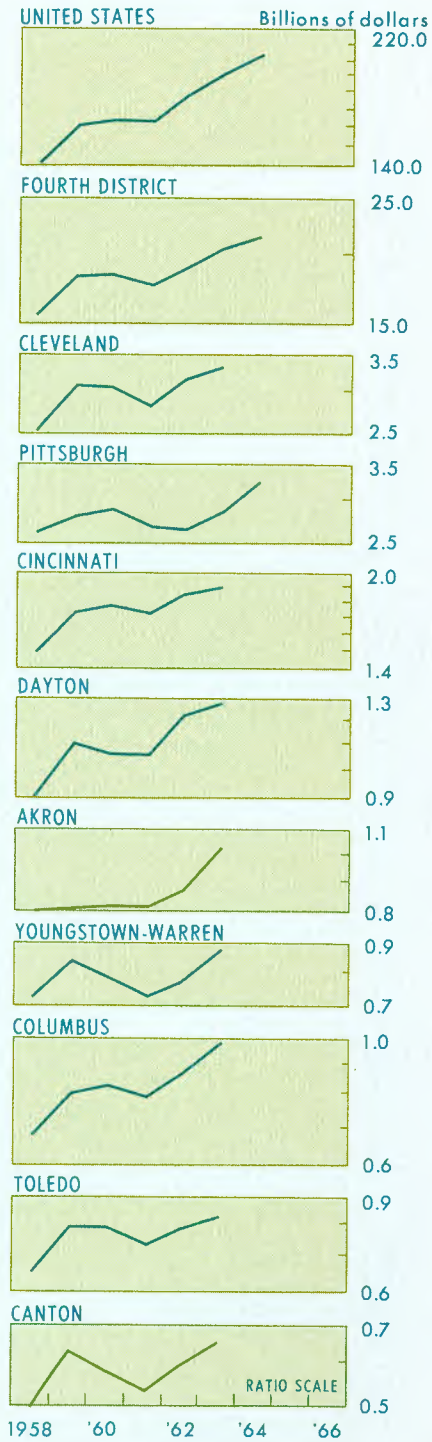
The Fourth District is part of the most highly industrialized region of the United States, an economic complex extending from southern New England to Chicago and beyond, and from the Great Lakes to the Mason-Dixon line. It has the advantages and disadvantages associated with having been part of an advanced industrial complex. On the plus side, labor is experienced in the ways of industrial processes and of large scale enterprises; major industries find suppliers and satellite industries nearby; capital funds have accumulated through generations of economic growth; supporting business services stand ready to undertake a wide variety of projects from new product promotion to the development of group pension plans.

But there are minuses as well. Old industrial plants are sometimes unsuitably designed and unsuitably located for today's industrial practices and methods of transportation; there are instances of inertia that come with long-continued success. Also, it is difficult to score spectacular rates of gain when a million persons already are employed in manufacturing; that is to say, there is little drama in the gain of 10,000 new jobs, when it represents only a 1-percent increase.

Not only is it difficult to maintain the pace of earlier rapid growth, but factors contributing to that growth may themselves have been altered or even arrested. Comparative advantage based on the availability of exhaustible natural resources may have diminished. Changed technology may give new life to old industrial areas (witness the use of oxygen furnaces and continuous casting in established steel centers), or it may spell the decline of once dominant industries in other areas, as has happened in the case of the textile and paper industries. Population shifts may also occasion changes

Chart 4.

VALUE ADDED by MANUFACTURE



Sources of data: U.S. Department of Commerce; Department of Internal Affairs, Commonwealth of Pennsylvania; Federal Reserve Bank of Cleveland

in industrial location and thus restrain the continued expansion of one area or stimulate the expansion of another. (One example is the development of southern California within the last 20 years as a major apparel manufacturing center.) Similarly, the shifting location of one industry may compel the relocation of another industry. A case in point would be the farm machinery industry that has tended to follow agriculture in its move to the west and southwest.

A final comment on the relative role of manufacturing in the economic complex may be in order. In 1966, manufacturing employment in the U. S. reached an all-time high of 19 million. As a percent of total employment, however, manufacturing employment was substantially less than in earlier periods of peak economic activity. (Manufacturing employment in the Fourth District, estimated at nearly 1.9 million in 1966, did not quite reach the all-time high of slightly more than 2.0 million in 1953.)

Students of employment trends are in general agreement that manufacturing employment will decline relatively further by 1975. Basically, two considerations underlie such a forecast: first, the

Table IX. **MANUFACTURING EMPLOYMENT BY INDUSTRY**
United States and Fourth District
Selected Years

SIC Code	Industry	1955			1965		
		Fourth District (thousand of persons)	United States	Fourth District As Percent of United States	Fourth District (thousands of persons)	United States	Fourth District As Percent of United States
20	Food and kindred products	125.4	1,824.7	6.9%	112.1	1,752.0	6.4%
22	Textile mill products	15.7	1,050.2	1.5	12.5	921.3	1.4
23	Apparel and other finished products	30.6	1,219.2	2.5	24.8	1,353.6	1.8
24	Lumber and wood products	15.3	739.6	2.1	12.2	610.1	2.0
25	Furniture and fixtures	31.2	363.8	8.6	21.3	429.1	5.0
26	Paper and allied products	43.8	550.0	8.0	48.1	640.0	7.5
27	Printing and publishing	75.5	834.7	9.0	80.8	981.0	8.2
28	Chemicals and allied products	59.7	773.1	7.7	65.0	906.4	7.2
29	Petroleum and related industries	15.3	237.1	6.4	11.4	182.0	6.3
30	Rubber and plastic products	104.6	363.3	28.8	102.5	471.5	21.7
31	Leather and leather products	14.3	385.9	3.7	11.4	350.9	3.2
32	Stone, clay, and glass products	111.1	588.4	18.9	98.7	627.4	15.7
33	Primary metal industries	395.4	1,322.5	29.9	345.5	1,295.6	26.7
34	Fabricated metal products	200.8	1,122.4	17.9	191.9	1,268.3	15.2
35	Machinery, except electrical	226.0	1,448.5	15.6	241.4	1,725.8	14.0
36	Electrical machinery	186.7	1,240.8	15.0	173.0	1,658.1	10.4
37	Transportation equipment	177.8	1,854.6	9.6	198.1	1,737.9	11.4
38	Instruments and related products	17.8	323.2	5.5	20.9	386.8	5.4

Source: U. S. Department of Labor and Industrial Directories

ratio of manpower use to total output will continue its secular decline (see patterns evidenced in Tables I and II); second, consumption patterns will continue to change. A steadily increasing majority of consumers in the United States are adding to discretionary spending power, which will result in more spending on services. More people are going on more and longer vacations, are attending concerts, are spending more for medical and dental services, for education, and the like.

Fortunately for the Fourth District, the area is well established in lines of manufacture in which consumers continue to evidence a marked and sustained interest, including transportation and electrical equipment. But the District's share in these lines will not be maintained without a competitive struggle. Manufacturing firms in the District must be receptive to change, be innovative, and be aggressive, to derive benefit from change. Important decisions will have to be made; if they are the "right" decisions, they will contribute to the continued economic growth of the region of which the Fourth District is an important part.

APPENDIX

Basic data used in the article are from the Census of Manufactures, 1954, 1958, and 1963. Comparable data for individual industries are available only from the Censuses of 1958 and 1963 due to definitional changes adopted in 1957. Data for individual SMSA's are limited to 1958 and 1963 because of changes in coverage.

Preliminary data on value added and capital spending beyond 1963 are from the 1964 Survey of Manufactures. Other information on capital spending beyond 1963 is from the Ohio Department of Development and the Pennsylvania Department of Internal Affairs. Employment figures beyond 1963 are from the U. S. Department of Labor and the Kentucky Department of Labor. All employment data are by place of employment (establishment).

Information on which of the 1,000 largest manufacturing firms are headquartered in the Fourth District is from two sources: *Fortune* magazine's "Plant and Product Directory, 1966," and *News Front*, June 1965. Responsibility for interpreting such information rests with this Bank.

Employment figures for firms headquartered or having plants in the Fourth District are from the industrial directories of the four states within the District. Information on plant locations outside the U. S. is from Moody's *Industrial Manual*, June 1965.

COMPARATIVE STATEMENT OF CONDITION

ASSETS	Dec. 31, 1966	Dec. 31, 1965
Gold Certificate Account	$ 831,084,455	$1,027,788,063
Redemption Fund for Federal Reserve Notes	155,156,139	147,919,600
Total Gold Certificate Reserves	986,240,594	1,175,707,663
Federal Reserve Notes of Other Banks	98,460,309	70,087,483
Other Cash	49,855,792	12,346,414
Discounts and Advances	—0—	3,790,000
U. S. Government Securities:		
Bills	963,072,000	772,221,000
Certificates	355,004,000	—0—
Notes	1,738,048,000	2,106,682,000
Bonds	505,763,000	555,763,000
Total U. S. Government Securities	3,561,887,000	3,434,666,000
Total Loans and Securities	3,561,887,000	3,438,456,000
Cash Items in Process of Collection	722,999,562	586,241,928
Bank Premises	4,945,683	5,271,050
Other Assets	106,099,492	83,397,615
Total Assets	$5,530,488,432	$5,371,508,153
LIABILITIES		
Federal Reserve Notes	$3,315,615,159	$3,232,281,011
Deposits:		
Member Bank — Reserve Accounts	1,457,964,023	1,445,338,569
U. S. Treasurer — General Account	556,311	67,818,951
Foreign	14,400,000	13,500,000
Other Deposits	13,321,479	11,019,221
Total Deposits	1,486,241,813	1,537,676,741
Deferred Availability Cash Items	607,918,429	486,774,242
Other Liabilities	18,455,531	15,301,059
Total Liabilities	$5,428,230,932	$5,272,033,053
CAPITAL ACCOUNTS		
Capital Paid In	51,128,750	49,737,550
Surplus	51,128,750	49,737,550
Total Liabilities and Capital Accounts	$5,530,488,432	$5,371,508,153
Contingent Liability on Acceptances Purchased for Foreign Correspondents	$ 17,262,000	$ 12,924,000

COMPARISON OF EARNINGS AND EXPENSES

	1966	1965
Total Current Earnings	$153,521,823	$127,241,656
Net Expenses	16,195,696	16,633,918
Current Net Earnings	137,326,127	110,607,738
Additions to Current Net Earnings:		
Profit on Foreign Exchange Transactions (Net)	118,844	83,349
All Other	26,284	99,191
Total Additions	145,128	182,540
Deductions from Current Net Earnings:		
Loss on Sales of U. S. Government Securities (Net)	203,594	862
All Other	37,924	46
Total Deductions	241,518	908
Net Additions		181,632
Net Deductions	96,390	
Net Earnings Before Payments to U. S. Treasury	$137,229,737	$110,789,370
Dividends Paid	$ 3,027,907	$ 2,899,235
Payments to U. S. Treasury (Interest on F. R. Notes)	132,810,630	105,243,485
Transferred to Surplus	1,391,200	2,646,650
Total	$137,229,737	$110,789,370

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Assistant Cashier

fourth federal reserve district