

# economic review

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FEDERAL RESERVE BANK OF CLEVELAND

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# THE CHANGING STRUCTURE OF BANK HOLDING COMPANIES

The rapid growth of bank holding companies is one of the most significant developments in banking structure in the past few years. Bank holding companies, as the name implies, are companies that own or control, directly or indirectly, one or more banks. The banks involved in a holding company may be unit banks, or banks with branches; the banks retain their own boards of directors that are responsible to the regulatory authorities and the stockholders (including the holding company) for the operation of the banks. At present, there are two general types of bank holding companies: multi-bank and one-bank. The multi-bank holding company can be further divided into registered and chain or group systems. The registered holding company is legally defined in the Bank Holding Company Act of 1956 (as amended in 1966) as a corporation that owns, controls, or holds with power to vote 25 percent or more of the voting shares of each of two or more banks;

such corporations must register with the Board of Governors of the Federal Reserve System as the supervisory authority. The chain or group banking system is more difficult to define. In general, chain or group banking systems exist when an individual or partnership controls a group of banks. In addition, a corporation may own stock in any number of banks in a group as long as it does not control or vote more than 25 percent of the stock of more than one bank. Group or chain banking systems are not required to be registered with the Board of Governors of the Federal Reserve System, and as a result, data concerning these systems are limited.

There are two types of one-bank holding companies: nonbank originated and bank originated. Nonbank originated one-bank holding companies occur when a company owns a substantial interest in a single bank, although the major activities of the company are generally of a nonbank nature. The bank originated

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one-bank holding company occurs when an existing bank organizes a holding company in which the bank becomes a subsidiary.<sup>1</sup> When a bank organizes a one-bank holding company, the bank first establishes a general business corporation. The business corporation then obtains a charter for a "phantom" bank, which is a wholly owned subsidiary of the new corporation. The original bank is then merged with the phantom bank, but maintains the name of the original bank. Because neither type of one-bank holding company is required to register under the Bank Holding Company Act of 1956, data for these holding companies are also limited.

This article discusses the growth and development of registered bank holding companies and, where information is available, one-bank holding companies in both the nation and the Fourth Federal Reserve District.

## HISTORICAL DEVELOPMENT

Bank holding companies have existed since the turn of the century, developing originally in states that limited or prohibited branch banking. Frequently, the early bank holding companies were informal organizations and were often referred to as chains or group banks. By 1925, the bank holding company movement was well established in the financial economy, and the number of banks affiliated with holding companies or bank groups had increased. The agricultural problems of the 1920's, along with the trend toward urbanization, created difficulties for many rural banks. As a result, owners of small banks

often favored acquisition by a holding company, since acquisition provided an opportunity to become part of a stronger banking organization as well as a ready market for the owners' stock. Although data for these early years of bank holding companies are limited, the zenith of this movement was apparently reached around 1929. One tabulation compiled by the Federal Reserve System indicated there were 287 holding companies of various types in 1929 that controlled more than 10 percent of the banking offices in the nation and an estimated 23 percent of the dollar volume of all bank deposits.<sup>2</sup>

At yearend 1931, there were 97 bank groups, controlling three or more banks. The bank holding company legislation of 1933, coupled with the liberalization of the laws concerning branching activities in several states, resulted in further declines in bank groups. In 1936, there were 52 bank groups (controlling three or more banks) with 14 percent of the deposits at all insured banks; by 1945, the number of such groups fell to 33.<sup>3</sup> In 1954, on the basis of a more inclusive definition (bank groups controlling 25 percent of two or more banks), there were 46 bank holding companies, accounting for only 8 percent of the deposits at all insured banks.<sup>4</sup>

<sup>2</sup> There was no uniform definition of a bank group, and data from different sources frequently reflect different definitions. Consequently, the data should be treated with caution. See U. S., Congress, House, *Branch, Chain and Group Banking*, 71st Cong., 2nd Sess., 1930.

<sup>3</sup> Board of Governors of the Federal Reserve System.

<sup>4</sup> U. S., Congress, House, Committee on Banking and Currency, *Control and Regulation of Bank Holding Companies*, 84th Cong., 1st Sess., 1955, p. 91.

<sup>1</sup> For additional information, see "One-bank Holding Companies," *Economic Commentary*, Federal Reserve Bank of Cleveland, December 7, 1968.

## HOLDING COMPANY LEGISLATION

Congress passed the first holding company legislation in 1933.<sup>5</sup> The legislation required a bank holding company to register with the Federal Reserve System only if the holding company owned 50 percent or more of the stock of a bank and if the holding company wanted to vote the stock of its affiliates. Although the early legislation also imposed some regulations designed to prevent unsound practices, it stopped short of regulating the formation or expansion of bank holding companies. As a result, it became possible to form a holding company that could purchase stock in any number of banks without any regulatory supervision as long as the total amount of stock in an individual bank did not exceed 50 percent of the outstanding stock of that bank.

As bank holding company activity began to accelerate following World War II, Congressional interest kept pace, particularly after the Board of Governors filed its first and only case under sections 7 and 11 of the Clayton Act (the Transamerica case).<sup>6</sup> After

several years of debate, Congress passed the Bank Holding Company Act of 1956, which requires companies that own or control at least 25 percent of the stock of each of two or more banks (in contrast to 50 percent of the stock of one bank under the 1933 law) to register with the Federal Reserve System. The law also provides for the Federal Reserve System to approve formations and acquisitions of holding companies and limits nonbanking connections of holding companies. The 1956 act exempts companies that own only one bank; that is, a company can own 100 percent of the stock of one bank and less than 25 percent of the stock of other banks and not come under the 1956 act. This exemption provides the legal basis under which a non-bank company may own and operate one bank without being subject to the Bank Holding Company Act of 1956.

## RECENT GROWTH OF BANK HOLDING COMPANIES IN THE UNITED STATES

In 1965, registered bank holding companies and one-bank holding companies accounted for 18.3 percent of the deposits at all insured commercial banks, compared with 45.3 percent in 1968 (see Table I). At yearend 1968, the combined total of all types of proposed and actual bank holding companies was 894, a significant increase over the number in 1965.

During the 1956-1965 period, the number of bank holding companies registered under the 1956 act was, on balance, virtually unchanged. In 1965, however, the number of registered bank holding companies began to increase, and by 1968, the number approved

<sup>5</sup> Several states have enacted prohibitive legislation regarding holding companies that own or control two or more banks. The legislation in some states requires state approval before formation of a "registered" bank holding company. Ten states, including Pennsylvania and Kentucky, prohibit further expansion of bank holding companies. Four states, including West Virginia, prohibit bank holding companies. Ohio has no state legislation prohibiting or restricting bank holding companies that own or control two or more banks.

<sup>6</sup> *Annual Report*, Board of Governors of The Federal Reserve System, 1948.

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TABLE I

Selected Data on Bank Holding Companies  
United States and Fourth District  
December 31, 1968

		Known One-Bank Holding Companies		
	Registered Bank Holding Companies*	Bank Originated†	Nonbank Originated	Total
United States				
Number of bank holding companies	84	82	728	894
Number of affiliated banks	648	82	728	1,458
Total deposits at holding companies (mil. of \$)‡	\$ 56,100	\$ 101,500	\$ 22,300	\$ 179,900
Holding company deposits as percent of total deposits at all insured commercial banks‡	14.1%	25.5%	5.6%	45.3%
Fourth District				
Number of bank holding companies	5	3	33	41
Number of affiliated banks	35	3	33	71
Total deposits at holding companies (thous. of \$)‡	\$3,179,764	\$2,061,200	\$1,264,798	\$6,505,762
Holding company deposits as percent of total deposits at all insured commercial banks‡	11.3%	7.3%	4.5%	23.0%

\* Includes those in operation as well as those approved by the Board of Governors of the Federal Reserve System during 1968. Where a bank holding company is controlled by another holding company, both are counted as registered bank holding companies.

† Includes both proposed and actual.

‡ Deposits as of June 29, 1968.

Sources: *American Banker*; Board of Governors of the Federal Reserve System; Federal Deposit Insurance Corporation; Federal Reserve Bank of Cleveland

and in operation reached 84.<sup>7</sup> The share of deposits controlled by such holding companies rose from 8.7 percent in 1965 to 14.1 percent in 1968 (see Chart 1).

Between 1955 and 1965, the number of one-bank holding companies increased from

<sup>7</sup> This growth reflects in part the additional companies that were required to "register" as a result of the 1966 amendments to the Bank Holding Company Act of 1956. The amendments brought under the law all trusts "unless by its terms it must terminate within 25 years or not later than 21 years and 10 months after the death of individuals living on the effective date of the trust."

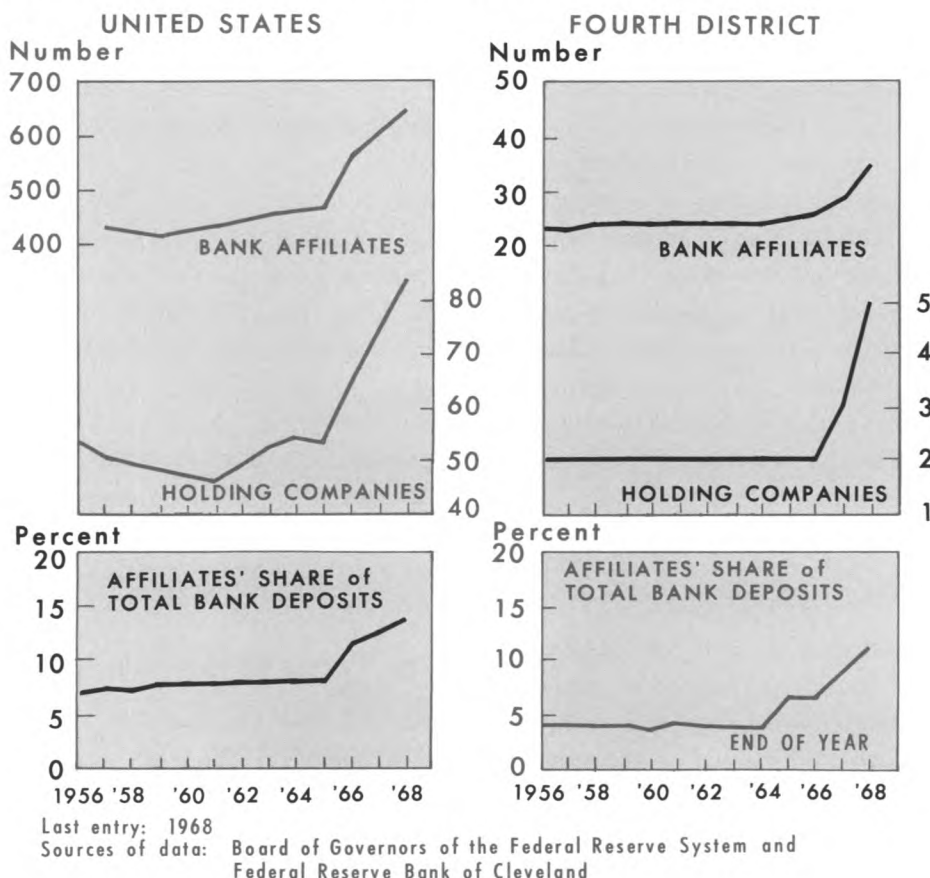
117 to 550. However, in the 1965-1968 period, 260 one-bank holding companies, both bank and nonbank originated, were formed. The share of deposits at one-bank holding companies, bank and nonbank originated, rose from 5 percent in 1965 to about 31 percent of all deposits at insured commercial banks in 1968.<sup>8</sup>

Nonbank originated one-bank holding companies have existed for some time. At yearend

<sup>8</sup> Deposits as of June 29, 1968.

Chart 1.

## REGISTERED BANK HOLDING COMPANIES



1965, there were 550 nonbank originated one-bank holding companies, accounting for 4.7 percent of the deposits at all insured banks. At yearend 1968, there were 728 nonbank originated one-bank holding companies, accounting for 5.6 percent of the deposits at all insured banks. The banks affiliated with these essentially nonbanking holding companies are for the most part small in deposit size and do not, on average, account for a significant portion of the parent holding company's

assets.<sup>9</sup>

Bank originated one-bank holding companies, which were virtually unknown before 1967, account for the largest proportion of deposits at all bank holding companies and a large portion of the recent growth. In 1968, these companies, which are generally organized by the management of an existing bank,

<sup>9</sup> As of December 31, 1968, only 37 out of 728 affiliated banks had total deposits of more than \$100 million.



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controlled 25.5 percent of the deposits at all insured banks (see Table I). Several factors have been cited for the emergence of bank originated one-bank holding companies as a dominant part of banking during 1968: (1) Modern management techniques may be implemented more efficiently through the holding company structure than through the more narrowly defined activities of a commercial bank. (2) The holding company structure allows a bank to offer diversified financial services that a bank or registered holding company cannot offer under existing banking law. (3) A one-bank holding company's affiliate can offer services that could result in legal challenges from competition if these services were offered through departments of a bank.<sup>10</sup>

### GROWTH OF HOLDING COMPANIES IN THE FOURTH DISTRICT

The growth of bank holding companies in the Fourth District has tended to follow that in the nation. After a period of stability from 1956 through 1965, the formation and expansion of bank holding companies in the Fourth District accelerated. In 1965, two registered bank holding companies accounted for 8 percent of the deposits at all insured banks in the Fourth District (see Table I). In 1968, five registered holding companies accounted for 11.3 percent of the deposits at all insured banks in the Fourth District. In February 1969, the Board of Governors of the Federal Reserve System approved a sixth registered bank holding company in Ohio, with total deposits of less than \$10 million.

Data on one-bank holding companies are not readily available for earlier years; however, recent data indicate that in 1968 six nonbank originated one-bank holding companies were formed, bringing the total for the Fourth District to 33. Nonbank originated holding companies accounted for 4.5 percent of the deposits at all insured banks in the Fourth District in 1968. Three District banks have also formed or announced plans to form bank originated one-bank holding companies. In 1968, bank originated one-bank holding companies held 7.3 percent of the deposits at all insured banks in the Fourth District.<sup>11</sup> The data on registered and one-bank holding companies in the Fourth District indicate that at yearend 1968, 41 holding companies controlled 71 banks and accounted for 23 percent of all deposits at insured banks in the District.

### LOCATION OF HOLDING COMPANIES IN THE FOURTH DISTRICT

At yearend 1968, there were 30 bank holding companies in Ohio (5 "registered," 24 nonbank originated, 1 bank originated), controlling 23.8 percent of the deposits at all insured banks in the state (see Table II). There were five one-bank holding companies (two bank originated and three nonbank originated) in the Fourth District portion of Pennsylvania, controlling 25.4 percent of the deposits at all insured banks in the District portion of the state.

<sup>10</sup> U. S. Treasury Department News Release, March 24, 1969.

<sup>11</sup> The Fourth District has fewer bank originated one-bank holding companies than any other Federal Reserve district, with the exception of the Ninth District (Minneapolis).



TABLE II

Distribution of Holding Company Deposits  
Fourth District, by State  
December 31, 1968

	Registered Bank Holding Companies*	Known One-Bank Holding Companies†	Total Deposits at All Insured Commercial Banks Fourth District‡ (thous. of \$)	Total Deposits at Holding Companies‡ (thous. of \$)	Holding Company Deposits as Percent of Total Deposits at All Insured Commercial Banks‡
Kentucky	0	4	\$ 1,388,348	\$ 24,868	1.8%
Ohio	5	25	18,469,798	4,395,773	23.8
Pennsylvania	0	5	8,086,275	2,050,613	25.4
West Virginia	0	2	288,599	34,508	12.0
Total	5	36	\$28,233,021	\$6,505,762	23.0%

\* Includes those in operation as well as those approved by the Board of Governors of the Federal Reserve System during 1968. Where a bank holding company is controlled by another holding company, both are counted as registered bank holding companies.

† Includes both proposed and actual nonbank originated and bank originated one-bank holding companies.

‡ Deposits as of June 29, 1968.

Sources: Board of Governors of the Federal Reserve System; Federal Deposit Insurance Corporation; Federal Reserve Bank of Cleveland

There were four one-bank holding companies (nonbank originated) in the Fourth District portion of Kentucky. These four one-bank holding companies controlled 1.8 percent of the deposits at all insured banks in the Fourth District portion of Kentucky. Two one-bank holding companies (nonbank originated) were in the District portion of West Virginia and accounted for 12 percent of the deposits at all insured banks in the District portion of the state.

#### DISTRIBUTION OF ONE-BANK HOLDING COMPANIES BY MAJOR BUSINESS ACTIVITY

A comparison of the major business activities of one-bank holding companies reveals that 31.5 percent of the one-bank holding

companies in the United States are primarily involved in real estate financing, followed by insurance companies and commercial banks, representing 24.6 percent and 9.6 percent, respectively (see Chart 2). Additional areas of business activities of one-bank holding companies include manufacturing, trade, agriculture, service companies, transportation, and philanthropic organizations.

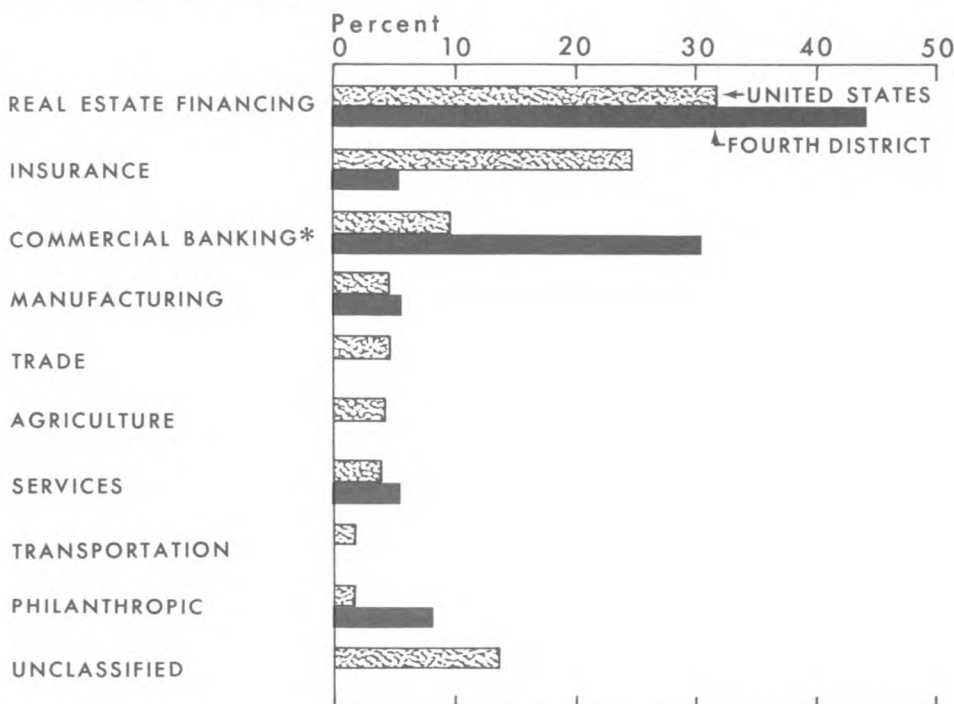
In the Fourth District, the major business activities of one-bank holding companies differ from the pattern in the United States. Although real estate financing firms account for the highest proportion of one-bank holding companies, commercial banks are second, with insurance companies accounting for a limited share of one-bank holding companies when listed by major business activity.

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Chart 2.

### DISTRIBUTION of ONE-BANK HOLDING COMPANIES by MAJOR BUSINESS ACTIVITIES

As of December 31, 1968



\*Includes both bank and nonbank originated holding companies.

Sources of data: U. S. Congress and Federal Reserve Bank of Cleveland

## CONCLUDING COMMENTS

The rapid rise of bank originated one-bank holding companies, with their ability to diversify into a wide range of nonbanking and nonfinancial activities, has raised important questions for the bank regulatory authorities. Nonbank activities have traditionally been separated from banking; however, the current trend seems to be on the verge of breaching the separation. The Board of Governors of the Federal Reserve System has recently stressed other potential problems that could possibly

arise from bank and nonbank affiliations, such as undue concentration of resources, decreased competition, conflicts of interest, and dangers to the soundness of the nation's banking business.<sup>12</sup> Several Congressional proposals have been introduced to end the exemption afforded one-bank holding companies under the Bank Holding Company Act of 1956. Although the various bills agree on some points, they have differing positions on

<sup>12</sup> Press Release, Board of Governors of the Federal Reserve System, February 20, 1968.

a number of other points. The Board of Governors of the Federal Reserve System expressed a majority view on February 20, 1969,<sup>13</sup> that one-bank holding companies should come under the same type of regulation as registered bank holding companies, and that it would be most effective for a single agency to administer the proposed law. The majority position of the Board on other aspects of the proposed law includes: (1) Banking and nonbanking business ventures should be separated. (2) Banks, as service com-

panies, should be allowed flexibility to innovate within specific limitations. (3) One-bank holding companies in existence prior to the mass movement should receive special consideration. (4) The privileges accorded one type of bank holding company should be uniform for all types.

The significant changes in banking structure effected by the emergence of the one-bank holding companies as well as the proposed legislation are yet to be felt, but it appears highly probable that the concept of a bank being a department store of finance is closer to becoming a reality than ever before.

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<sup>13</sup> *Ibid.*



# THE PAPER AND ALLIED PRODUCTS INDUSTRY IN THE FOURTH DISTRICT

The Fourth Federal Reserve District has long been a major contributor to total United States production of paper, paperboard, and converted paper and board products. However, during the post-World War II period, the Fourth District's share of total paper and board production has declined steadily, largely because of changes in both technology and consumption patterns in the industry that resulted in a shift of production centers away from the District. This article reviews some of the major changes in the paper and allied products industry and discusses their impact on this industry in the Fourth District. For this discussion, two basic production stages in the industry are recognized: primary mill production and converting operations. The former consists of the production of pulp, paper, paperboard, building paper, and building board. The latter refers to the production of end products from paper and paperboard stock.<sup>1</sup>

## OVERVIEW

In 1968, production in the paper and allied products industry increased to a record high of almost 49 million tons, which was nearly 5 percent greater than the previous high reached in 1966. During the past decade, the average annual rate of increase in production

in the paper and allied products industry, as measured by the Federal Reserve Board's index of industrial production, equaled the 4.7 percent annual rate of increase for all manufacturing industries. In recent years, consumption has also risen markedly. For example, average consumption of paper products was 530 pounds per person in 1968, compared with 381 pounds in 1950.

Despite increased production and consumption, price increases in the paper industry have been rather moderate. The index of wholesale prices for the industry as a whole advanced by only 3.4 percent between 1960 and 1968, while wholesale prices for all manufacturing industries rose by 7.7 percent. The fact that prices in the paper and allied products industry increased at a slower pace than those for all manufacturing industries appears to be related to, among other things, increased competition from other products such as plastics and tendencies toward excess capacity, especially among paperboard producers. During this period of slow price increases, there have been noticeable efforts on the part of the industry to reduce the costs of both raw materials and labor. In addition, the industry has been actively involved in merger programs. In the early 1950's, the mergers primarily reflected a trend toward more integrated companies that have the capacity for production of both pulp and paper.<sup>2</sup> In the latter

<sup>1</sup> The paper and allied products industry is classified into 17 four-digit Standard Industrial Classification industries. See Appendix for the four-digit breakdown of the industry.

<sup>2</sup> See Stuart U. Rich, *Product Policies of Nonintegrated New England Paper Companies*, Research Report to the Federal Reserve Bank of Boston, No 13. (Boston: 1961).

1950's and throughout the 1960's, partially as a result of excess capacity and price weakness, major paper and paperboard companies concentrated on acquiring converting operations. Moreover, merger activity involving nonpaper industry firms has increased in the 1960's.

### SHIFTS IN PRODUCTION CENTERS

In order to satisfy the growing demand for paper and paperboard while holding down costs, the industry has been continuously searching for new sources of cellulose as well as new production techniques. One result of these efforts has been a series of shifts over time in the geographical centers of paper and paperboard production. For example, the Fourth District became a major production center after 1849, when straw was introduced as a papermaking material, especially for wrapping paper and paperboard.<sup>3</sup> The area's importance in the industry was reinforced around the turn of the century, when wood became the principal papermaking material and pulp mills followed the location of lumbering operations. This latter trend has continued: pulp production moved to the Pacific Northwest during the 1920's and 1930's, while recently, the South has become more predominant in pulp production.

Wastepaper became a primary source of raw material for the manufacture of paperboard after 1929. The emergence of large cities, which are a major source of waste-

paper, strengthened the position of the Fourth District area as a producer of paperboard. In fact, Ohio was the second leading producer of paperboard during the 1930's and 1940's. Wood pulp, however, has replaced wastepaper as the primary source of raw material for paperboard. This recent shift in the primary raw material has contributed to the relative decline of the Fourth District as a producer of paperboard.

Several other factors contributed to the shift in production centers that became apparent in the early 1950's. For example, the kraft or sulphate process of production, which had been introduced in the late 1920's grew in importance.<sup>4</sup> Following a shortage of domestic wood pulp in the late 1940's, additional supplies of wood pulp again became available in the 1950's, principally in the South and Pacific Northwest. Moreover, the trend toward integrated mills accelerated. In particular, the South, which has an abundant wood supply, benefited from new capacity using the kraft process.

As a result of the shifts in production centers, paper and paperboard capacity became more dispersed among several regions in the United States. The more recent changes in the location of mills and, consequently, in the production of paper and paperboard, had the effect of reducing the relative importance of the Fourth District area as a primary producer of paper. Because production data are not available on geographical units smaller than

<sup>3</sup> John A. Guthrie, *The Economics of Pulp and Paper* (Pullman, Washington: The State College of Washington Press, 1950).

<sup>4</sup> See the discussion in "Pulp: Perilous Market for Chemicals," *Chemical Week*, XCIX (November 25, 1966), pp. 57-72. Also, "Recent Trends in the Paper Industry," *Economic Review*, Federal Reserve Bank of Cleveland, July 1966, pp. 21-31.

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TABLE I

Percent Distribution of Total Paper and Paperboard Production Among Leading Producing States 1950-1966

	1950	1955	1960	1966
United States	100.0%	100.0%	100.0%	100.0%
Georgia	4.1	5.5	5.9	7.4
Wisconsin	6.6	6.4	6.5	6.2
Louisiana	D	6.1	5.2	5.4
Washington	4.0	4.8	4.9	5.3
Michigan	6.7	5.8	5.3	5.0
Florida	4.4	5.8	5.7	5.0
Maine	5.4	5.3	5.2	4.7
Alabama	2.1	1.8	3.6	4.7
Pennsylvania	5.8	5.3	4.9	4.5
New York	7.7	6.3	5.5	4.4
Oregon	D	D	D	4.3
Ohio	6.3	5.2	4.8	4.2

D Withheld to avoid disclosure of data for individual companies.

Source: U. S. Department of Commerce, Bureau of the Census

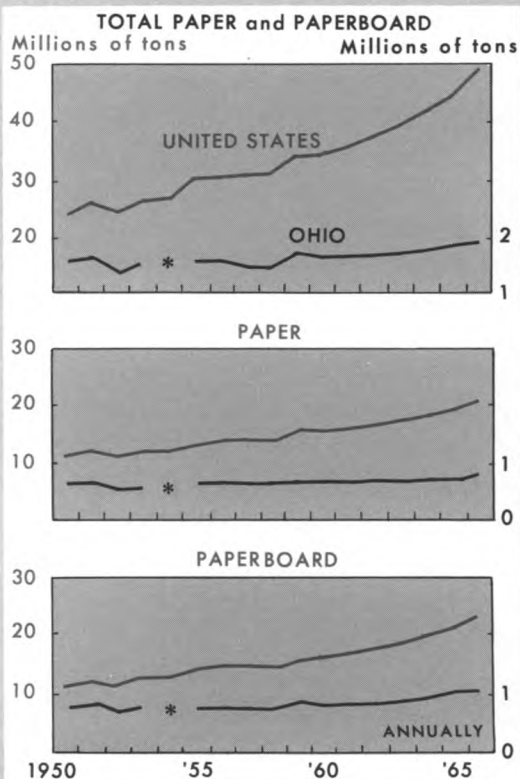
states, it is not possible to derive an estimate for the entire Fourth District. Therefore, Ohio production data are used to represent the Fourth District.

Currently, Ohio ranks twelfth among the leading producing states in paper and paperboard production in the United States; in 1950, Ohio ranked fourth (see Table I). This drop in relative importance is related to (1) the increased importance of production processes not prevalent in Ohio's mills (principally kraft pulping); (2) the establishment of integrated mills based primarily on kraft pulping in the South (most Ohio mills are nonintegrated); and (3) the increased consumption of products that are not the specialties of Ohio mills, especially tissue stock, linerboard, and special food board.

Although production in Ohio has increased at an average annual rate of 3.9 percent since 1955, Ohio's share of total paper output in

the nation has declined, as suggested by the widening spread between production trends in the United States and in Ohio (see Chart 1). Between 1950 and 1966, paper and board production in Ohio dropped from 6.3 percent to 4.2 percent of total paper and paperboard production in the United States. The change in Ohio's share of total production between 1950 and 1966 was slightly more pronounced

Chart 1.  
PRODUCTION of PAPER  
and PAPERBOARD  
United States and Ohio, 1950-1966



\*Data for Ohio for 1954 not available.

Last entry: 1966

Source of data: U. S. Department of Commerce, Bureau of the Census



TABLE II

Consumption of Selected Paper and Paperboard Grades, United States  
State of Ohio as Percent of Total United States Production  
1950-1967

	Apparent Consumption* (thous. of tons)					
	1950	1955	1960	1965	1966	1967
United States						
All paper, excluding newsprint	9,501	11,287	13,675	16,734	18,093	17,821
Fine paper	1,156	1,409	1,750	2,421	2,705	2,624
Paperboard	10,868	13,582	15,150	19,670	21,325	20,386
Containerboard	5,771	7,365	8,234	11,330	12,595	11,848
Folding boxboard, except special food board	2,340	2,543	2,887	3,423	3,629	3,407
	Production (as Percent of Total United States)					
State of Ohio						
All paper, excluding newsprint	6.4%	5.6%	5.0%	4.5%	4.2%	n.a.
Fine paper	12.9	14.0	14.4	13.3	13.3	n.a.
Paperboard	7.1	5.6	5.3	4.9	4.0	n.a.
Containerboard	5.5	3.7	3.5	3.6	3.3	n.a.
Folding boxboard, except special food board	10.2	8.1	9.9	10.4	10.0	n.a.

n.a. Not available.

\* Apparent consumption = Production + Imports - Exports.

Source: U. S. Department of Commerce, Bureau of the Census

for paperboard than for paper. Ohio's share of total paperboard production dropped from 7 percent in 1950 to 4 percent in 1966, while its share of total paper production declined from 5.8 percent to 4 percent.

## CHANGING PATTERNS OF CONSUMPTION

Geographical shifts in the production of pulp, paper, and paperboard and the trend toward integrated mills only partially explain the changing relative importance of Ohio in the paper and allied products industry. Trends in the consumption of various grades of paper and paperboard, as well as changes in the production processes, provide additional insight into the relative decline of Ohio's position in the industry.

Table II presents consumption estimates

for selected paper and paperboard grades, chosen on the basis of grades manufactured in the Fourth District. Since 1950, consumption of all paper, excluding newsprint, in the United States has nearly doubled. Moreover, consumption was supplied almost completely by domestic production.<sup>5</sup> Table II also shows Ohio's relative contribution to the total United States production of selected product grades. Although Ohio accounted for a lesser proportion of total paper production in 1966 than in 1950, the state maintained its relative position as a producer of fine papers. Fine papers, which consist primarily of various grades of writing paper, accounted for 44 percent of

<sup>5</sup> Newsprint constitutes nearly one-third of all paper consumed in the United States. Three-fourths of newsprint is imported.



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the paper manufactured in Ohio in 1966.

Paperboard—Ohio's principal mill product—accounted for 53 percent of the state's total mill production in 1966. Although paperboard consumption has increased sharply in the United States, Ohio's share of production has declined. Ohio's declining share of paperboard production reflects the growing emphasis on containerboard consumption, specifically linerboard. In containerboard production, Ohio is primarily a producer of semi-chemical corrugating material (used to make shipping containers). However, the primary grade of containerboard currently in use is kraft linerboard, which is used in making shipping containers and also has the desired qualities for the outside layers of folding boxboard. In fact, kraft linerboard accounted for 63 percent of containerboard production in the United States in 1967, compared with 48 percent in 1950.

Folding boxboard, excluding special food board, is Ohio's second major mill product. Although consumption of folding boxboard, excluding special food board, has increased, the relative importance of folding boxboard with respect to total boxboard consumption and production in the United States was nearly the same in 1967 as in 1950. Instead, special food board, which largely is a bleached kraft board product made especially for direct contact with food, has been the primary source of growth in boxboard consumption and production.

## CAPITAL EXPENDITURES AND CAPACITY EXPANSION

The changes in the availability of resources as well as technology in the paper and allied

products industry have been reflected in the industry's capital investment programs. In recent years, three separate periods of strong investment activity can be distinguished: an expansion program in 1956 and 1957; a modernization period from 1958 to 1964; and a second expansion program initiated in 1964 and 1965.

**Expansion in the 1950's.** Substantial additions to capacity resulted from the two major capital spending booms after 1950. New capacity was established primarily in the South and the Pacific Northwest in conjunction with the sources of raw materials made usable by technological advances. To better understand this most recent shift in the location of capacity and production, and thereby further explain the Fourth District's declining role as a primary producer, it is helpful to review the events that preceded the first surge in capital spending. In the period from 1940 to 1955, the overall demand for paper and board doubled, as indicated by apparent consumption. However, by 1951, the demand for paperboard doubled over the 1940 level, due largely to the fact that, during the 1940's, paperboard boxes and containers supplanted wooden boxes and containers as a shipping and storage medium.

On the other hand, additions to capacity lagged behind increases in output and consumption during this period. As indicated in Table III, by 1950, the industry increased its total capacity by about 50 percent over the 1940 level. By 1955, the ratio of production to capacity in the paper industry as a whole exceeded 90 percent.<sup>6</sup> In addition, during the

<sup>6</sup> "Recent Trends in the Paper Industry," *op. cit.*, p. 28.

TABLE III

Production Capacity for Paper, Paperboard, and Selected Grades  
United States  
1940-1967

	Capacity (thous. of tons)					Percent Distribution				
	1940	1950	1960	1965	1967 <sup>e</sup>	1940	1950	1960	1965	1967 <sup>e</sup>
Total paper and paperboard	16,891*	25,581†	41,334	48,266	54,308	100.0%	100.0%	100.0%	100.0%	100.0%
Total paper	9,422	12,358	17,410	20,692	23,526	55.8	48.3	42.1	42.9	43.3
Newsprint	1,075	1,033	2,303	2,358	3,076	6.4	4.0	5.6	4.9	5.7
Printing paper	2,578	3,425	5,298	6,403	7,274	15.3	13.4	12.8	13.3	13.4
Fine paper	894	1,317	2,015	2,630	2,958	5.3	5.1	4.9	5.4	5.4
Coarse and special industrial paper	2,840	3,713	5,298	6,043	6,724	16.8	14.5	12.8	12.5	12.4
Tissue paper	809	1,370	2,478	3,231	3,485	4.8	5.4	6.0	6.7	6.4
Total paperboard	7,469	11,861	19,430	23,036	25,914	44.2	46.4	47.0	47.7	47.7
Containerboard	n.a.	n.a.	10,743	13,262	15,714	n.a.	n.a.	26.0	27.5	28.9
Boxboard	n.a.	n.a.	6,063	6,700	6,921	n.a.	n.a.	14.7	13.9	12.7
Building board and paper	n.a.	1,362	4,494	4,538	4,868	n.a.	5.3	10.9	9.4	9.0

NOTE: Details may not add to totals because of rounding.

<sup>e</sup> Estimated.

n.a. Not available.

\* Does not include building board or building paper.

† Includes building board and building paper.

Sources: American Paper Institute; National Paperboard Association; National Industrial Conference Board

1940's and early 1950's, pulp shortages existed, and the industry had to rely on foreign suppliers for pulp.

The growing need for additional paper and board capacity in conjunction with pulp supply difficulties encouraged the development of integrated facilities that have the capacity for continuous production of pulp and paper or board. Furthermore, integrated facilities could result in cost reductions through the elimination of extra processing of pulp and of transportation charges from pulp mills to paper or board mills. Availability of ample wood for pulping was the principal factor that determined the location of integrated facilities. Initially, Canada benefited from new

capital investment because of available supplies of softwood. This directional trend was reversed, however, with advances in kraft-pulp bleaching technology that enabled producers to make white paper from the kraft process.<sup>7</sup> Until the latter advance occurred, kraft pulp was used in the production of coarse paper and linerboard. Through bleaching, the process can be used to make other grades of paper (for example, tissue stock) as well as special food board. The South then became a major beneficiary of the industry's capital spending program because of the

<sup>7</sup> "Pulp: Perilous Market for Chemicals," *op. cit.*

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availability of softwoods in that region, (the Fourth District area is a supplier of hardwoods, which are more difficult to use in pulping and take longer to grow after replanting),<sup>8</sup> the low cost of production in the area in comparison with other areas, and the area's proximity to the large markets of the East Coast and southern Great Lakes areas.<sup>9</sup>

Clearly, the capital spending program that occurred in the 1950's emphasized paperboard and building paper and board capacity. This emphasis is evidenced by the fact that from 1950 to 1960 the share of paperboard capacity to total capacity increased, while that associated with paper declined sharply (see Table III). Moreover, the expansion program emphasized integrated mills. When the expansion program began in the 1950's, it is estimated that integrated mills accounted for 50 percent of the nation's paper and board capacity and about 71 percent of production.<sup>10</sup> Presently, it is estimated that at least two-thirds of paper and board mill capacity and about three-fourths of total production is integrated.<sup>11</sup>

<sup>8</sup> Neal P. Kingsley and David R. Dickson, *Pulpwood Production in the Northeast, 1965*, U.S. Forest Service Resource Bulletin NE-6, 1967.

<sup>9</sup> Comparative cost data for regional production in the 1940's are given in Guthrie, *op. cit.*, Chs. 9-10. Similar data for the 1950's are reviewed by Rich, *op. cit.*, pp. 26-31.

The Pacific Northwest is also a low cost producing area. However, the South has an obvious competitive advantage in terms of transportation costs to the converters that are located primarily in the southern Great Lakes-East Coast area.

<sup>10</sup> John H. Vogel, "The Pattern of Industry Growth, 1830-1955," *Paper Trade Journal*, November 5, 1956, pp. 36-38.

<sup>11</sup> Rich, *op. cit.*, pp. 14-15.

**Modernization Period 1958-1964.** The expansion period during the 1950's was followed by a period of excess capacity, as demand slackened during the 1957-1958 and 1960-1961 business recessions. Excess capacity existed primarily among paperboard producers as the demand for the end products of the paperboard industry (namely, containers and boxes) is determined largely by the demand for other industrial products. Wholesale prices for paperboard peaked in 1957 and fell sharply during 1960-1961.<sup>12</sup>

As a result of unused capacity, due largely to the recessions, and weak prices, the paper industry attempted to lower the costs of both raw materials and labor. A greater degree of control over costs of wood for pulping was sought through better forest management practices, more complete usage of pulpwood, storage of chips rather than roundwood (logs of specified dimensions), and improved transportation from forest to mills.

In the mills and plants, cost reductions were sought through the use of wider papermaking machinery and increased labor productivity. Wide machines are currently used to make newsprint and linerboard.<sup>13</sup> These products, plus the coarse papers, require a high volume of pulp production, which is facilitated by the

<sup>12</sup> See H. A. Post and D. W. Slingerland, "Economic Review," *Pulp, Paper and Board*, XXI (September, 1965), pp. 3-7; also "Recent Trends in the Paper Industry," *op. cit.*, pp. 27-28.

<sup>13</sup> In 1967, there were 25 papermaking machines in operation that were 275 inches or wider, all outside the Fourth District, principally in the South. Of the new machines planned for purchase in 1967 in the Fourth District, the widest reported was 185 inches. See the breakdown of 1967 expenditures in *Pulp and Paper*, November 27, 1967, pp. 46-55.

TABLE IV

Productivity in the Paper and Allied Products Industry  
United States and Fourth District  
1958-1966 and Percent Change 1958-1966

	United States				Fourth District*			
	1958	1963	1966	Percent Increase 1958-1966	1958	1963	1966	Percent Increase 1958-1966
Value Added per Production Worker Manhour								
Paper and allied products	\$6.11	\$7.48	\$8.75	43.2%	\$5.72	\$7.02	\$ 8.13	42.1%
Paper mills	6.47	7.92	9.47	46.4	5.68	8.70	11.01	93.8
Paper and paperboard products	5.92	7.39	8.86	49.7	5.74	7.26	8.77	52.8
Paperboard containers and boxes	5.10	5.91	6.60	29.4	5.22	5.49	6.19	18.6

\* Ohio producers only.

Source: U. S. Department of Commerce, Bureau of the Census

kraft or sulphate methods of breaking down wood fiber, especially in softwoods.

During the modernization period,<sup>14</sup> productivity in the paper and allied products industry in Ohio (up 42.1 percent) nearly kept pace with the nation (43.2 percent). In absolute terms, however, productivity in Ohio remained below the national average (see Table IV). For container and box manufacturers, productivity in the nation moved ahead of Ohio, both in relative and absolute terms. The increase in value added per production worker manhour in Ohio paper mills, however, greatly outstripped the gain in the nation. Labor productivity increased by 94 percent in the Ohio mills between 1958 and 1966, or more than twice the increase in the nation.

In addition to differences in machinery, the differential in productivity reflects upgrading

<sup>14</sup> In terms of investment, the modernization period lasted until 1964. Although capacity expansion began this same year, the effects of the modernization period on productivity can be measured through 1966, because of the lag between investment and production based on new capacity.

of product lines among Ohio paper producers. Ohio paper makers have shifted their product lines into the quality papers in an effort to overcome the higher cost structure prevailing in the Fourth District, primarily because of differences in the cost of wood pulp. By upgrading product lines, Ohio paper manufacturers are offering products that command higher prices.<sup>15</sup> As shown in Table V, fine papers accounted for nearly 44 percent of Ohio's total paper production in 1966, compared with 25 percent in 1950. The average wholesale price of writing papers—the major grade of fine papers—is the highest of all paper grades (see Table VI). In contrast, the average wholesale price of wrapping paper, one of the coarse papers made principally in

<sup>15</sup> Rich, *op. cit.*, observes that the successful nonintegrated mills in New England are those in which the product mixes have been upgraded in order to overcome an unfavorable competitive position that has resulted from the establishment of greater capacity, higher volume producing machinery, and integrated facilities outside of New England. Formerly producers of newsprint and wrapping papers, the nonintegrated mills of New England now specialize in the higher priced writing and printing grades.

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TABLE V

Percent Distribution of Paper and  
Selected Paper Grades Production  
State of Ohio  
1950-1966

	<u>1950</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1966</u>
Total paper	100.0%	100.0%	100.0%	100.0%	100.0%
Book paper, uncoated	42.8	38.3	30.9	24.0	22.8
Fine paper	25.2	32.3	38.4	42.7	43.5
Coarse paper	18.0	D	10.3	8.5	7.9
Other grades	14.0	29.4*	20.4	24.8	25.8

D Withheld to avoid disclosure of data for individual companies.

\* Includes coarse paper.

Source: U. S. Department of Commerce, Bureau of the Census

TABLE VI

Wholesale Prices and Price Indexes  
Paper and Selected Paper Grades  
1967 and 1968

	Wholesale Prices (per 100 lbs.)		Wholesale Price Index (1957-59=100)	
	<u>1967</u>	<u>1968 (10 mo. avg.)</u>	<u>1967</u>	<u>1968 (10 mo. avg.)</u>
Paper	n.a.	n.a.	110.0	112.6
Book paper, A grade	\$ 17.857	\$ 18.114	117.6	119.3
Book paper, plain, offset	19.293	19.698	118.5	121.0
Writing paper	30.788	31.679	118.3	121.7
Wrapping paper	9.977	10.217	108.0	110.2
Waxing paper	15.959	16.338	101.5	102.1
Newsprint	139.950*	141.400*	104.3	105.4

n.a. Not available.

\* Price per ton.

Source: U. S. Department of Labor, Bureau of Labor Statistics



the South, is less than one-third of the price of writing papers. In addition, prices of writing papers have been stronger than those of coarse paper, as suggested by the level of the wholesale price indexes shown in Table VI. The lower index values of wrapping and waxing papers, as well as newsprint, suggest that the recent price weakness in the paper industry, excluding paperboard, exists among coarse papers rather than fine papers. Thus, the gain in value added per production worker manhour in Ohio mills is related to the shift to quality product lines.

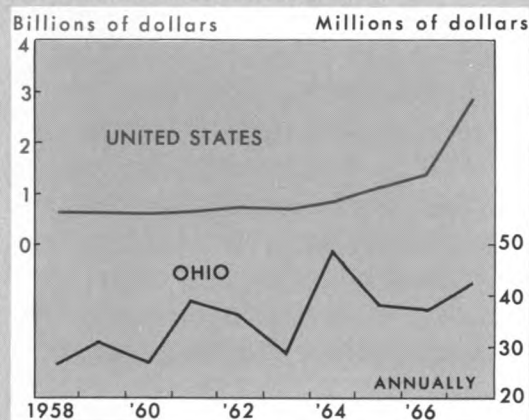
Since 1964. The general business expansion that began in 1961, augmented by the demands of the Vietnam conflict, greatly increased the demand for paper and paperboard. Capacity utilization in the industry began to exceed 90 percent in 1964, the year the most recent wave of capacity expansion started. The surge in capital spending is clearly shown in Chart 2. The chart also suggests that the Fourth District, as represented by Ohio data, again is not sharing in the new capacity currently under construction. As in the 1950's, over half of the new investment has gone to the southern producing areas.<sup>16</sup> Of the 53 new mills either under construction or proposed in 1967, only one was scheduled for the Fourth District, suggesting that the District's role in total United States primary production is likely to decline further. Projects underway in the Fourth District include investments in a new mill, four papermaking machines, three fabricating plants, and three pollution control programs.

<sup>16</sup> Detailed breakdowns of expenditure programs are given annually in *Pulp and Paper*; see also, "Pulp: Perilous Market for Chemicals," *op. cit.*

Chart 2.

## CAPITAL SPENDING in the PAPER and ALLIED PRODUCTS INDUSTRY

United States and Ohio, 1958-1967



Last entry: 1967

Sources of data: U. S. Department of Commerce,  
Bureau of the Census and  
American Paper Institute

## EMPLOYMENT

Although production increased at an average annual rate of 4.7 percent during the past decade, employment growth in the paper and allied products industry advanced at a much slower pace. From 1955 to 1966, the average annual rate of increase in total employment in the paper and allied products industry was 1.8 percent in the nation, compared with 1.2 percent in the Fourth District (see Chart 3).

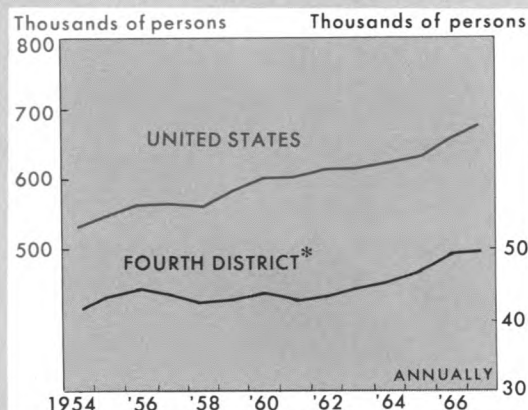
The gains in employment in converting operations after 1958 were offset by the employment situation in the mills. Among primary producers, the concerted effort to lower production costs, chiefly through increasing labor productivity, combined with a period of overcapacity, resulted in employment losses in primary production from 1960 to 1964, in

## ECONOMIC REVIEW

Chart 3.

### TOTAL EMPLOYMENT in the PAPER and ALLIED PRODUCTS INDUSTRY

United States and Fourth District, 1954–1967



\*Includes Ohio and the Pittsburgh and Erie SMSAs.

Last entry: 1967

Source of data: U. S. Department of Labor,  
Bureau of Labor Statistics

both the nation and Ohio (see Table VII). Employment expansion in the primary production group resumed in 1964 and 1965, following the acceleration in production initiated in 1961 (see Chart 1). However, the strides made in increasing labor productivity and the apparent shortage of skilled labor, as reported by industry officials,<sup>17</sup> worked against marked employment expansion in paper mills in both the United States and Fourth District. A portion of the increased output, in terms of employment, was attained by extending the average hourly workweek by production workers. Average weekly hours in paper mills reached a high in the record production year of 1966 (see Table VIII).

<sup>17</sup> For example, see the surveys of the paper and allied products industry contained in *U. S. Industrial Outlook*, (Washington, D. C.: U. S. Department of Commerce), annually.

Although total production in 1968 surpassed the 1966 record, average weekly hours were lower in 1968 than in 1966. Increased employment and the use of new capacity, installed after 1964, probably contributed to the reduction in average weekly hours in 1968.

Employment in converting operations has shown nearly continuous expansion since 1958, increasing at an average annual rate of 4.7 percent among converted paper and paperboard products producers and 2.9 percent among container and box producers (see Table VII). In both groups of converting operations, employment changes in the Fourth District lagged behind those in the nation. Since 1958, the major employment gains in the Fourth District have been associated with the converted paper and paperboard products group, specifically in paper coating and glazing, and the production of die cut paper and board products. Among container and box producers, the manufacture of corrugated shipping containers was the primary source of new employment in the Fourth District between 1958 and 1967.

## A NOTE ON CONVERTING LOCATIONS

Converting operations and employment are located primarily in metropolitan areas, as indicated in the maps. In the Fourth District, for example, Cincinnati, Hamilton-Middletown, Dayton, Cleveland, and Pittsburgh accounted for three-fifths of the Fourth District's employment in 1966 in companies manufacturing converted paper and paperboard products, including containers and boxes. This association between major urban areas and paper and board converting facilities applies to the United States as well as the Fourth



TABLE VII

Employment in the Paper and Allied Products Industry  
United States and State of Ohio  
1958-1967

	Employment (thous. of persons)										Average Annual Rate of Change	Percent Distribution		
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967		1958	1963	1967
Total Paper and Allied Products														
United States	564.1	587.2	601.1	601.3	614.4	618.5	625.5	639.1	666.9	681.3	+2.1%	100.0%	100.0%	100.0%
Ohio	35.8	36.6	37.2	36.5	37.0	37.8	38.6	40.0	42.2	42.9	+2.0	100.0	100.0	100.0
Primary Production														
United States	281.0	288.4	292.1	285.9	283.2	281.7	279.7	279.9	286.4	290.0	+0.4	49.8	45.5	42.6
Ohio	15.7	15.9	16.2	15.7	15.4	15.6	15.5	16.2	16.3	16.5	+0.6	43.9	41.3	38.5
Converted Paper and Paperboard														
United States	117.7	125.1	132.4	137.1	144.3	147.1	152.5	159.6	171.2	177.3	+4.7	20.9	23.8	26.0
Ohio	7.8	7.9	8.2	8.4	8.8	9.1	9.8	10.0	10.9	11.2	+4.1	21.8	24.1	26.1
Paperboard Containers and Boxes														
United States	165.4	173.7	176.6	178.3	186.9	189.7	193.3	199.6	209.3	214.0	+2.9	29.3	30.7	31.4
Ohio	12.3	12.8	12.8	12.4	12.8	13.1	13.3	13.8	15.0	15.2	+2.4	34.3	34.6	35.4

Source: U. S. Department of Labor, Bureau of Labor Statistics

TABLE VIII

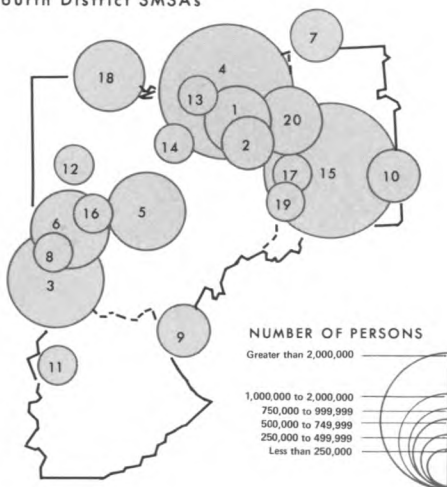
Average Weekly Hours of Production Workers  
Paper and Allied Products Industry  
United States and State of Ohio  
1958-1968

	Total Industry		Paper Mills	
	United States	Ohio	United States	Ohio
1958	41.9	42.2	43.2	43.9
1959	42.8	43.7	44.1	44.4
1960	42.1	42.8	43.4	44.2
1961	42.5	43.2	43.7	45.7
1962	42.5	43.5	43.6	46.2
1963	42.7	43.6	44.1	46.1
1964	42.8	44.1	44.0	47.4
1965	43.1	44.6	44.5	48.1
1966	43.4	45.0	44.8	48.8
1967	42.8	44.1	44.3	46.7
1968e	42.9	44.7	44.6	47.7

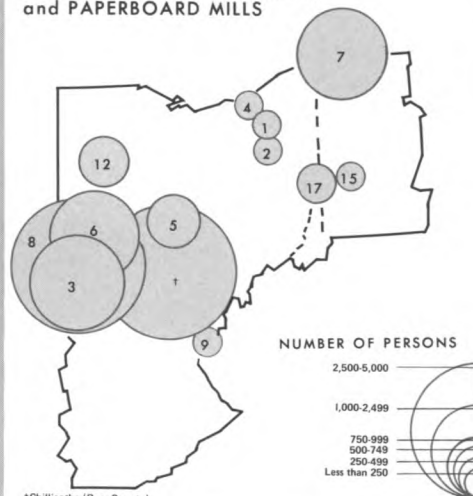
e Estimated by Federal Reserve Bank of Cleveland.

Source: U. S. Department of Labor, Bureau of Labor Statistics

**ESTIMATED POPULATION: 1965**  
Fourth District SMSAs



**EMPLOYMENT in PULP, PAPER,  
and PAPERBOARD MILLS**



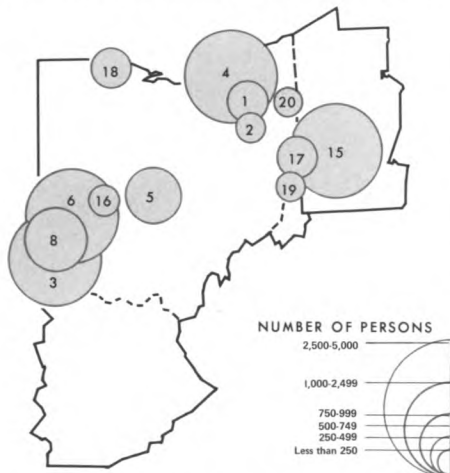
†Chillicothe (Ross County).

\*Production centers shown account for 85% of all Fourth District employment in indicated industry.

1. AKRON, O.
2. CANTON, O.
3. CINCINNATI, O. - KY. - IND.
4. CLEVELAND, O.
5. COLUMBUS, O.
6. DAYTON, O.
7. ERIE, PA.
8. HAMILTON - MIDDLETON, O.
9. HUNTINGTON - ASHLAND, W. VA. - KY. - O.
10. JOHNSTOWN, PA.

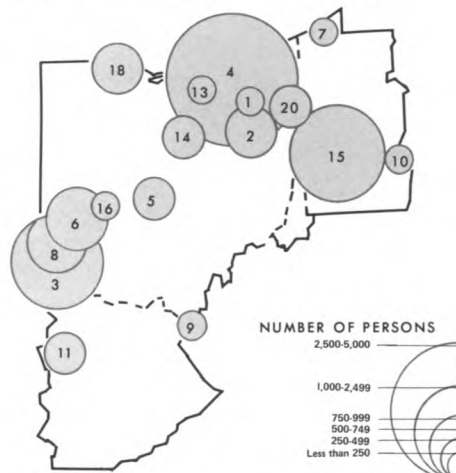
11. LEXINGTON, KY.
12. LIMA, O.
13. LORAIN - ELYRIA, O.
14. MANSFIELD, O.
15. PITTSBURGH, PA.
16. SPRINGFIELD, O.
17. STEUBENVILLE - WEIRTON, O. - W. VA.
18. TOLEDO, O. - MICH.
19. WHEELING, W. VA. - O.
20. YOUNGSTOWN - WARREN, O.

**EMPLOYMENT in the MANUFACTURE of  
CONVERTED PAPER and PAPERBOARD PRODUCTS**



\*Production centers shown account for 88% of all Fourth District employment in indicated industry.

**EMPLOYMENT in the MANUFACTURE  
of PAPERBOARD CONTAINERS and BOXES**



\*Production centers shown account for 82% of all Fourth District employment in indicated industry.

District. The reasons for this geographical association are, in part, historical; that is, historically paper and board, the raw materials of converters, were produced near major metropolitan areas. Thus, by locating at the urban centers, converters had ready access to raw materials as well as markets.

Although paper and board production has shifted geographically, metropolitan centers continue to be attractive locations for converters for several reasons. For one, the continued industrial growth of metropolitan centers, such as those in the Fourth District, has been accompanied by increased demand for converted paper and board products. Also, the low value added associated with the converted products, compared with paper and board production (see Table IV), makes it more economical to ship raw materials long distances, as opposed to finished products, which tend to be shipped in lower volume and at higher rates than paper and board. In addition, containers and boxes are generally produced for storing and shipping particular products. As a result, container and box producers are sensitive to changes in product design and product scheduling, which in turn encourages such producers to locate close to markets.

## MERGER ACTIVITY

Fourth District-based firms in the paper and allied products industry have been actively engaged in merger activity since 1950. During the 1950-1967 period, there were 120 mergers involving Fourth District headquartered paper industry firms. The distribution of these mergers by acquired and acquiring industry is shown in Tables IX and X.

Since 1950, major paper and paperboard producers have been the primary acquiring firms among Fourth District-based firms in the paper and allied products industry (see Table IX). Nearly one-half of the acquisitions of Fourth District producers involved the purchase of converters. The combined acquisitions of converters and paper distributors suggest that acquiring firms were extending product lines as well as locking-in outlets for their mill products. On the other hand, acquisitions of additional mills, mainly paper mills, suggest efforts aimed at expanding capacity. Major paper and paperboard producers headquartered in the Fourth District also have been active in establishing new mill capacity in the Southern producing area. Clearly, four-fifths of the acquisitions made by Fourth District-based firms in the paper and allied products industry were confined to the industry itself. As mentioned earlier, mergers involving nonpaper industry firms occurred more frequently in the 1960's. In the Fourth District, one-half of the acquisitions of nonpaper industry firms have been consummated since 1963.

Converters in the Fourth District also were the primary target of acquisitions made by paper and paperboard producers headquartered outside the Fourth District (see Table X). Major container and box producers in the nation also concentrated on acquiring Fourth District-based converters in the same industry group. In fact, 33 Fourth District converters have been absorbed by merger since 1950. Interestingly, the great majority of the Fourth District converters that were acquired were merged into firms based outside the Fourth District. On the other hand, Fourth

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TABLE IX

Distribution of Firms Acquired by Paper Industry Firms  
Headquartered in Fourth District  
1950-1967

Industry of Acquired Firm	Industry of Acquiring Firm				Total Acquisitions (by Industry of Acquired Firm)
	Pulp, Paper, and Paperboard Mills	Converted Paper and Paperboard Products	Paperboard Containers and Boxes	Others	
Pulp, paper, and paperboard mills	13	—	—	—	13
Converted paper and paperboard products	10	5	1	9	25
Paperboard containers and boxes	19	1	—	3	23
Distributors	9	—	—	—	9
Nonpaper industry	11	2	3	—	16
Total acquisitions (by industry of acquiring firm)	62	8	4	12	86

Sources: Federal Trade Commission and Federal Reserve Bank of Cleveland

TABLE X

Distribution of Fourth District Paper Industry Firms Acquired  
by Firms Headquartered Outside of Fourth District  
1950-1967

Industry of Acquired Firm	Industry of Acquiring Firm				Total Acquisitions (by Industry of Acquired Firm)
	Pulp, Paper, and Paperboard Mills	Converted Paper and Paperboard Products	Paperboard Containers and Boxes	Nonpaper Industry	
Pulp, paper, and paperboard mills	1	—	2	4	7
Converted paper and paperboard products	7	—	3	1	11
Paperboard containers and boxes	7	—	5	4	16
Total acquisitions (by industry of acquiring firm)	15	—	10	9	34

Sources: Federal Trade Commission and Federal Reserve Bank of Cleveland

District-based converters acquired only eight other converting firms and no mills during the period under review.

The effects of the merger activity involving Fourth District-based firms in the paper and allied products industry appear to represent a general strengthening of the industry position of major District paper and paperboard producers, as well as the entrance of non-Fourth District producers into new product lines and new geographical markets.

## CONCLUDING COMMENTS

The declining relative importance of the Fourth District as a primary producer of paper reflects geographical shifts in production that occurred with technological changes, new sources of pulp, and changing patterns in product consumption. Confronted with an eroding competitive position because of higher costs of production, product lines in Fourth District mills were upgraded. In addition, Fourth District-based primary producers sought to retain or strengthen their industry position by establishing new mills in southern producing areas as well as by acquiring converting operations that tend to lock-in outlets for mill products. The latter development should also facilitate greater efficiency in production scheduling and capacity utilization.

The Fourth District is likely to continue to decline as a primary producer relative to other producing areas, chiefly the South and Northwest, as a result of the wave of capacity expansion initiated in the latter two areas in 1964. Nevertheless, continued growth in population and commercial and industrial activity in the Fourth District, especially in the metro-

politan areas, indicate further growth in converting operations in the area. Given, however, the large number of small independent converting firms in the Fourth District and the prospect for continued growth in the demand for their products, further acquisitions of converters seem likely in the District, whether or not the acquisitions are made by Fourth District-based firms.

## APPENDIX

### Standard Industrial Classification of the Paper and Allied Products Industry

Group Number	Industry Number	
261		Pulp mills
	2611	Pulp mills
262		Paper mills, except building
		paper mills
	2621	Paper mills, except building
		paper mills
263		Paperboard mills
	2631	Paperboard mills
264		Converted paper and paperboard
		products, except containers
		and boxes
	2641	Paper coating and glazing
	2642	Envelopes
	2643	Bags, except textile bags
	2644	Wallpaper
	2645	Die cut paper and paperboard and
		cardboard products
	2646	Pressed and molded pulp goods
	2647	Sanitary paper products
	2649	Converted paper and paperboard
		products, not elsewhere
		classified
265		Paperboard containers and boxes
	2651	Folding paperboard boxes
	2652	Set-up paperboard boxes
	2653	Corrugated and solid fiber boxes
	2654	Sanitary food containers
	2655	Fiber cans, tubes, drums,
		and similar products
266		Building paper and building
		board mills
	2661	Building paper and building
		board mills



