

# economic review

DECEMBER 1965

---

## IN THIS ISSUE

Survey of Changes  
in Interest Rates on  
Savings and Time  
Deposits . . . . . 3

Sources of Coal Consumed  
in Ohio . . . . . 16

Management of Cash Assets  
at Fourth District Reserve  
City and Country  
Member Banks . . . 24

FEDERAL RESERVE BANK OF CLEVELAND

**Additional copies of the ECONOMIC REVIEW  
may be obtained from the Research Department,  
Federal Reserve Bank of Cleveland, Cleveland,  
Ohio 44101. Permission is granted to reproduce  
any material in this publication.**

# SURVEY OF CHANGES IN INTEREST RATES ON SAVINGS AND TIME DEPOSITS

(Fourth District)

The importance of savings and time deposits has increased substantially in recent years. As a general matter, the growth of savings and time deposits has accompanied (and/or been a partial response to) changes in the environment within which banks operate and has reflected modifications in traditional methods of conducting bank operations. More specifically, a number of important developments have influenced the financial system and banking activity during recent years: increased sensitivity on the part of the public to interest rate differentials on similar types of liquid assets; increased innovating activity on the part of commercial banks as reflected by the introduction and growth of new methods to attract funds; and successive increases in the maximum rates of interest that banks are permitted to pay on savings and time deposits, among others.<sup>1</sup> One result

<sup>1</sup> For a review of recent innovations in methods of attracting funds, see "Sources of Commercial Bank Funds: An Example of Creative Response," *Economic Review*, Federal Reserve Bank of Cleveland, Cleveland, Ohio, November 1965.

of these developments has been increased emphasis on analysis that seeks to interpret and evaluate the rapidly shifting financial environment.<sup>2</sup>

This article attempts to shed some light on how a limited group of banks have responded to some of the developments cited above, by presenting the results of a recent survey of interest rates offered by Fourth District member banks on their savings and time deposits.<sup>3</sup> The survey was conducted by the Research Department of the Federal Reserve Bank of Cleveland in April-May 1965. Eighty-five

<sup>2</sup> An example is a recent study of the role of time deposits in the financial process: L. E. Gramley and S. B. Chase, Jr., "Time Deposits in Monetary Analysis," *Federal Reserve Bulletin*, October 1965, pp. 1380-1406.

<sup>3</sup> The rates *offered* on savings and time deposits, discussed in this article, are not necessarily equal to the actual rates *paid* by reporting banks. The actual rate paid to a depositor is determined basically by the frequency with which interest is compounded and, in the case of savings deposits, by the willingness of the depositor to maintain his deposit for the required period of time.

## ECONOMIC REVIEW

**TABLE I**  
**Maximum Interest Rates Authorized Under**  
**Regulation Q on Savings and Time Deposits**

Type and Maturity of Deposit	Percent per annum			
	Effective Date			
	Jan. 1, 1957	Jan. 1, 1962	July 17, 1963	Nov. 24, 1964
<b>Savings Deposits:</b>				
1 year or more . . .	3	4	4	4
Less than 1 year . . .	3	3½	3½	4
<b>Time Deposits:*</b>				
1 year or more . . .	3	4	4	4½
6 months to 1 year . . .	3	3½	4	4½
90 days to 6 months . . .	2½	2½	4	4½
Less than 90 days . . .	1	1	1	4

\*Rates authorized for foreign-owned time deposits not considered here.

Note: Changes made in December 1965, increasing the maximum rates that member banks are permitted to pay on time deposits, are not included in the table.

Source: Board of Governors of the Federal Reserve System

percent of the member banks in the Fourth District participated in the survey. The survey results provide some indication of the response of banks to recent changes in the general financial environment and, specifically, to changes in Regulation Q, under which maximum permissible rates on savings and time deposits are governed by the supervisory authorities.<sup>4</sup> The time period for which the banks reported levels of rates extended from December 1960 through the first quarter of 1965. This time span is important because it includes, as of this writing, all the occasions when recent changes in Regulation Q became effective. Table I lists these effective dates of changes in rates permissible on savings and time deposits.

<sup>4</sup> For earlier nationwide survey results of rate changes by member banks, see Caroline Cagle, "Interest Rates on Time Deposits, Mid-January 1962," *Federal Reserve Bulletin*, February 1962, and "Interest Rates on Time Deposits, Mid-February 1963," *Federal Reserve Bulletin*, June 1963.

In this discussion of the survey results, the timing of changes made by District banks in interest rates on both savings and time deposits and the resulting rate levels are presented first. Then, the influence of bank size and location upon rate changes and levels are discussed. Tabular summaries of the rates reported by District banks, against various background factors, are contained in Tables II-V. In addition, six maps are presented in order to highlight locational patterns of rates offered by District banks on selected dates, as well as differences in the responses of banks on savings as opposed to time deposits.

## THE NATURE OF TIME AND SAVINGS DEPOSITS

Rates on savings and time deposits have generally risen since 1960. However, there have been differences in the timing and amount of change in rates offered on savings deposits, as compared with time deposits. In addition, there is evidence of differing influences of bank size and location on rates offered on savings and time deposits. Because of these differences, and because savings and time deposits are essentially not the same type of deposits, it might be helpful in interpreting the results of the survey to first comment briefly on the major characteristics of holders of the two kinds of deposits.

Savings deposits, evidenced by a passbook or written receipt or agreement, are held only by individuals and nonprofit organizations. Reasons for holding savings deposits vary widely among individuals, although a number of motivating forces have been found to be major influences. These include the accumulation of funds for emergencies or in anticipation of future expenditures for houses,

urable goods, or education, as well as the attempt to increase the flexibility of expenditures beyond the limits imposed by current income.<sup>5</sup> An important reason for holding savings deposits at commercial banks is that of convenience, that is, "one-stop" banking.

That the rate of return on savings deposits may not be a major consideration to "savers" is suggested by the existence of the multiplicity of savings objectives. In addition, the moderate average size of savings deposits (estimates vary between approximately \$1,000-\$2,000) tends to limit the number of saving or investment alternatives available to holders of such deposits. In the survey cited in footnote 4, only one out of twelve sampled savings-account owners reported the rate paid on savings accounts influenced their holdings of such deposits. In households with annual incomes of \$10,000 or more, the group logically expected to be most sensitive to yield differentials on similar forms of liquid assets, only one family in ten said that the yield on savings deposits would influence the form of savings they desired.<sup>6</sup>

In contrast, holders of time deposits, especially in the form of negotiable certificates of deposit (CD's), are considered to be investors that are more sensitive to differences in rates available on competing forms of liquid assets. (One indication of this sensi-

tivity is the relative conformity in movement of rates on various types of money market instruments, for example, CD's, short-term U.S. Treasury securities, and commercial paper, among others.) In order to attract the funds of such investors, it would seem that banks have to offer competitive rates of interest.

The greater sensitivity of time deposit holders to yield differentials reflects in part the identity of these holders, largely business firms, state and local governments, and foreign official institutions.<sup>7</sup> Because time deposit holdings tend to be relatively large, the investment alternatives available to holders of time accounts often are greater than those available to holders of savings accounts. At the same time, efforts to achieve efficient cash management, plus the potential earnings on large dollar amounts invested at slightly higher rates, encourage the typical time deposit holder to search out the highest paying investment outlet.

Thus, in general, differences in the behavior of holders of savings as compared with time deposits essentially reflect the different motivations of the two types of depositors, as well as the alternative outlets available to each. Considerations other than the rate of return and the small average size of savings deposits tend to limit the alternatives available to holders of such deposits to a smaller group of liquid assets, for example, savings and loan shares and U.S. Treasury savings bonds,

<sup>5</sup> The results of a comprehensive survey of consumer attitudes toward savings deposits can be found in E. Mueller and H. Osborne, "Consumer Time and Savings Balances: Their Role in Family Liquidity," *American Economic Review*, May 1965, pp. 265-275. The survey was conducted by the Survey Research Center of the University of Michigan for the Board of Governors of the Federal Reserve System.

<sup>6</sup> *Ibid.*, pp. 273-275.

<sup>7</sup> A portion of time deposits at commercial banks is accounted for by deposits accumulated for the repayment of personal loans, and open-account deposits which include those made by Christmas and vacation clubs. Such deposits account for a small share of total time deposits held by commercial banks.

## ECONOMIC REVIEW

among others. Holders of time deposits, on the other hand, tend to be more interest-rate conscious and have a greater number of alternative outlets in which to invest temporarily idle funds. Basic differences between the behavior of the two types of depositors were reflected in the interest rates offered on savings and time deposits by Fourth District member banks during 1960-65, particularly with reference to bank size and location. This was reported in the recent survey and is discussed in the following presentation of the survey results.

### TIMING OF BANK RESPONSE

*Saving Deposits.* A noticeable shift to higher rates on savings deposits by Fourth District member banks occurred during the first quarter of 1962, following the January 1962 change in Regulation Q. This marked the first change in the regulation since 1957. As the upper portion of Table II shows, 19 percent of the reporting banks moved to rates of 3½ percent or more during the first quarter of 1962; 13 percent of the banks moved to the new 4 percent maximum permissible rate. The majority of banks offering the 4 percent maximum at that time were those which had been paying 3 percent—the previous maximum.

From the end of the first quarter of 1962 until 1964, few adjustments were made in rates on savings deposits by District banks. By the fourth quarter of 1964, however, the proportion of reporting banks offering rates of 3½ percent or more had increased to 42 percent. At the end of the first quarter of 1965, the latest period covered by the survey, slightly over one-half of the reporting banks

offered rates on savings deposits of 3½ percent or more, with 38 percent of the reporting banks at the 4 percent maximum. The proportion of banks at the 3 percent maximum in effect at the end of 1961, however, had been 80 percent. Thus, fewer banks seem to have taken advantage of the higher maximum permitted in 1965 than was the case before the 1962 change in Regulation Q, perhaps because of the shorter lapse of time since the latest change in authorized rates. In brief, major shifts to higher rates on savings deposits occurred during the first quarter of 1962, not again until 1964, and then steadily through the first quarter of 1965.

*Time Deposits.* In contrast, a larger proportion of reporting banks quickly moved to higher rates on time deposits after the January 1962 change in Regulation Q. Table III shows that 47 percent of District banks moved to rates of 3½ percent or more on time deposits during the first quarter of 1962. At that time, 41 percent of the banks reported the 4 percent maximum authorized.

A further contrast between bank actions on time as compared with savings deposits is evident in the behavior of banks from the first quarter of 1962 until 1964. Banks did not adjust rates on savings deposits to any great extent during this period, whereas the proportion of banks that reported higher rates on time deposits increased at a slow but steady pace. It is interesting that no *major* adjustments in rates were reported by Fourth District member banks following the July 1963 change in Regulation Q, which applied only to time deposits having maturities of less than one year.

**TABLE II**  
**Maximum Rates Offered on Savings Deposits**  
 Survey of Fourth District Member Banks  
 Selected Quarters,<sup>a</sup> 1960-65

Size of Bank and Rate Levels <sup>b</sup>	4Q 1960	4Q 1961	1Q 1962	4Q 1962	3Q 1963	4Q 1963	4Q 1964	1Q 1965
	Percentage Distribution of Banks <sup>c</sup>							
<b>All Reporting Banks</b>								
(390 banks)								
Under 3 percent p.a. . . . .	26	19	15	15	14	13	11	10
3 percent . . . . .	73	80	66	63	62	62	47	39
3½ percent . . . . .			6	10	9	10	12	13
4 percent . . . . .			13	14	15	15	30	38
All rates . . . . .	100	100	100	100	100	100	100	100
<b>Reporting Banks by Size of Total Deposits</b>								
<b>Under \$10 million</b>								
(203 banks)								
Under 3 percent p.a. . . . .	33	25	20	18	17	17	14	13
3 percent . . . . .	67	75	69	66	65	65	53	45
3½ percent . . . . .			5	10	9	9	11	12
4 percent . . . . .			5	6	8	8	23	29
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$10-under \$25 million</b>								
(114 banks)								
Under 3 percent p.a. . . . .	22	16	12	12	12	11	10	8
3 percent . . . . .	78	84	63	59	60	61	46	37
3½ percent . . . . .			10	12	12	12	17	16
4 percent . . . . .			15	17	16	16	28	40
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$25-under \$100 million</b>								
(47 banks)								
Under 3 percent p.a. . . . .	17	6	2	2	2	2	—0—	—0—
3 percent . . . . .	83	94	64	64	62	62	49	43
3½ percent . . . . .			4	4	4	4	2	4
4 percent . . . . .			30	30	32	32	49	53
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$100 million and over</b>								
(26 banks)								
Under 3 percent p.a. . . . .	19	19	8	8	8	8	8	8
3 percent . . . . .	81	81	50	50	50	50	8	—0—
3½ percent . . . . .			8	8	8	8	19	19
4 percent . . . . .			35	35	35	35	65	73
All rates . . . . .	100	100	100	100	100	100	100	100

<sup>a</sup>Included are fourth quarter of each year covered by the survey, quarters in which a change in Regulation Q became effective, and most recent quarter covered by the survey.

<sup>b</sup>Rate levels represent maximum rates reported on savings deposits regardless of maturity; banks were grouped according to size of total deposits outstanding on December 31, 1964. The 3½ percent and 4 percent rate classifications apply to the first quarter of 1962 and subsequent periods.

<sup>c</sup>Components may not add to totals because of rounding.

Source: Federal Reserve Bank of Cleveland

**TABLE III**  
**Maximum Rates Offered on Time Deposits**  
 Survey of Fourth District Member Banks  
 Selected Quarters,<sup>a</sup> 1960-65

Size of Bank and Rate Levels <sup>b</sup>	4Q 1960	4Q 1961	1Q 1962	4Q 1962	3Q 1963	4Q 1963	4Q 1964	1Q 1965
Number and Percentage Distribution of Banks <sup>c</sup>								
<b>All Reporting Banks</b>								
Number of Banks . . . . .	346	345	359	361	359	362	365	366
Under 3 percent p.a. . . . .	15	11	6	4	4	4	3	3
3 and under 3½ percent <sup>d</sup> . . . . .	85	89	47	43	40	39	18	9
3½ and under 4 percent . . . . .			6	7	8	8	7	7
4 percent and over <sup>e</sup> . . . . .			41	45	48	49	72	81
All rates . . . . .	100	100	100	100	100	100	100	100
<b>Reporting Banks by Size of Total Deposits</b>								
<b>Under \$10 million</b>								
Number of Banks . . . . .	174	174	182	182	183	183	186	186
Under 3 percent p.a. . . . .	17	11	7	5	5	5	4	3
3 and under 3½ percent <sup>d</sup> . . . . .	83	89	51	46	41	41	19	12
3½ and under 4 percent . . . . .			5	7	7	7	7	7
4 percent and over <sup>e</sup> . . . . .			37	42	47	47	70	77
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$10-under \$25 million</b>								
Number of Banks . . . . .	102	102	106	107	108	108	108	108
Under 3 percent p.a. . . . .	12	9	6	3	3	3	2	2
3 and under 3½ percent <sup>d</sup> . . . . .	88	91	41	38	36	36	19	8
3½ and under 4 percent . . . . .			6	7	7	7	7	6
4 percent and over <sup>e</sup> . . . . .			48	52	54	54	71	83
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$25-under \$100 million</b>								
Number of Banks . . . . .	45	45	46	46	46	46	47	47
Under 3 percent p.a. . . . .	11	7	4	2	2	2	2	2
3 and under 3½ percent <sup>d</sup> . . . . .	89	93	46	46	39	39	17	6
3½ and under 4 percent . . . . .			—0—	—0—	2	2	4	9
4 percent and over <sup>e</sup> . . . . .			50	52	57	57	77	83
All rates . . . . .	100	100	100	100	100	100	100	100
<b>\$100 million and over</b>								
Number of Banks . . . . .	25	25	25	25	25	25	25	25
Under 3 percent p.a. . . . .	24	24	12	8	—0—	—0—	—0—	—0—
3 and under 3½ percent <sup>d</sup> . . . . .	76	76	48	48	40	40	12	—0—
3½ and under 4 percent . . . . .			20	24	32	32	16	4
4 percent and over <sup>e</sup> . . . . .			20	20	28	28	72	96
All rates . . . . .	100	100	100	100	100	100	100	100

<sup>a</sup>Included are fourth quarter of each year covered by the survey, quarters in which a change in Regulation Q became effective, and most recent quarter covered by the survey.

<sup>b</sup>Rate levels represent maximum rates reported on time deposits regardless of maturity; banks were grouped according to size of total deposits outstanding on December 31, 1964.

<sup>c</sup>Components may not add to totals because of rounding.

<sup>d</sup>Only the lower limit (3 percent) is applicable through the end of 1961.

<sup>e</sup>Only the lower limit (4 percent) is applicable from January 1962 through the third quarter of 1964; the 4½ percent ceiling became effective November 24, 1964.

Source: Federal Reserve Bank of Cleveland

Finally, substantial shifts to higher rates on time deposits occurred in late 1964 and through the first quarter of 1965. About four-fifths of the reporting banks offered 4 percent or more on time deposits at the end of the first quarter of 1965, as compared with 49 percent at the 4 percent maximum at the end of the fourth quarter of 1963. Thus, the *timing* of major shifts in rates on time deposits coincided with the timing of movements to higher rates on savings deposits, but a larger number of banks shifted to higher time deposit rates.

The distribution of rates paid on savings and time deposits resulting from the foregoing changes is illustrated in the table below:

Rate Level	Percentage of Banks			
	Dec. 1961		March 1965	
	Savings	Time	Savings	Time
Under 3 percent . . . . .	19	11	10	3
3 and under 3½ percent . . . . .	80	89	39	9
3½ and under 4 percent . . . . .			13	7
4 percent and over . . . . .			38	81
All rates . . . . .	100	100	100	100

Note: See footnotes, Tables II and III.

Although the proportion of banks offering the 3 percent maximum on the two types of deposits was similar at the end of 1961, the structure of rates on time deposits was substantially higher than on savings deposits at the end of March 1965. In addition, the dispersion of banks offering less than 4 percent was much smaller for time deposits.

## BANK SIZE

Changes in rates offered on savings deposits at District banks over the survey period were clearly associated with bank size, in

that larger banks adjusted rates upward more quickly than smaller banks. In addition, larger banks offered higher and more uniform rates than smaller banks. In contrast, the relation between size of bank and changes in rates offered on time deposits was less clear, with rate changes tending to be less associated with bank size. In other words, rate increases on time deposits during the survey period were dispersed throughout all size groups of reporting banks. Tables II and III contain reported rates on savings and time deposits classified according to bank size.

*Savings Deposits.* Table II indicates that, following the January 1962 change in Regulation Q, 43 percent of reporting banks with deposits of \$100 million or more offered rates above 3 percent on savings deposits, while only 10 percent of the banks with deposits of less than \$10 million offered similar rates. In the two other size groups, the proportion of banks offering more than 3 percent increased from one-fourth of the banks with \$10-\$25 million in deposits to one-third of the \$25-\$100 million banks. In addition, the proportion of banks offering the 4 percent maximum rate increased with bank size, ranging from 5 percent in the smallest size group to 35 percent in the largest size group. Thus, not only was the incidence of upward movements in rates greater at larger banks, but also the level of rates offered tended to be both higher and more uniform at larger banks.

Similar rate patterns prevailed at the end of the first quarter of 1965. At that time, only 8 percent of the banks with deposits of \$100 million or more offered rates of 3 percent or less, while almost three-fifths of banks with deposits under \$10 million offered rates of

## ECONOMIC REVIEW

3 percent or lower. Similarly, the proportion of banks reporting the 4 percent maximum again varied directly with bank size. To illustrate, about three-fourths of banks with deposits of \$100 million or more reported the maximum rate, while the proportion of banks in smaller size groups reporting the 4 percent maximum declined with bank size to 29 percent in the under-\$10-million deposit-size group.

*Time Deposits.* In contrast, upward adjustments in rates offered on time deposits over the survey period were more widespread throughout all size classes of banks (see Table III). In addition, rates offered on time deposits tended to be higher and more uniform than rates offered on savings deposits within given size classifications.

At the end of the first quarter of 1962, at least 40 percent of the banks in each size group offered rates of  $3\frac{1}{2}$  percent or more on time deposits. The proportion of banks in each size group that reported 4 percent, however, varied substantially, ranging from 20 percent of banks with deposits of \$100 million and over to one-half of banks with deposits of \$25 to \$100 million. It is perhaps somewhat surprising that only 20 percent of banks with deposits of \$100 million or more reported the 4 percent maximum at the end of the first quarter of 1962. This was primarily because banks in central and southwestern Ohio did not raise rates until mid-1964.

Major shifts to higher rates on time deposits had occurred at banks in all size groups by the end of 1964. At that time, 70 percent or more of the banks in each size group reported rates of 4 percent or more. The first quarter of 1965, the latest period covered by the

survey, found 96 percent of the banks with deposits of \$100 million or over offering 4 percent or more on time deposits, with slightly over three-fourths of the banks with deposits under \$10 million offering similar rates. In addition, the smallest size group showed the greatest increase in the number of banks that instituted time deposit services during the survey period. The number of smaller banks offering time deposits increased from 174 at the end of 1960 to 186 at the end of the first quarter of 1965 (see Table III).

## LOCATION AND BANK RESPONSE

Rate levels on savings and time deposits reported by member banks of course were not uniform throughout the Fourth District. By the end of the first quarter of 1965, a 4 percent rate on savings deposits was representative in many of the major metropolitan areas and surrounding counties. But at the same time, banks in a number of other Fourth District counties continued to offer a 3 percent rate on savings deposits. In contrast, increases in rates on time deposits were geographically widespread throughout the Fourth District, especially by the end of the first quarter of 1965.

Levels of rates on savings deposits are illustrated geographically in Maps 1-3, and rates on time deposits are illustrated in Maps 4-6. The maps show rate patterns as of June 1961, June 1962, and March 1965, in order to reflect rates prevailing prior to the January 1962 change in Regulation Q, the adjustments in rates made at reporting banks by the end of June 1962 (six months after the 1962 Regulation Q change), and rate levels in effect in the most recent period for which data

**TABLE IV**  
**Representative Rates on Savings Deposits**  
**Fourth District County Patterns**  
 Selected Periods, 1961-65

County Group and Rate Levels <sup>a</sup>	June 1961	June 1962	March 1965
	Percentage Distribution of Counties <sup>b</sup>		
<b>All Reporting Counties</b> (127 counties)			
Under 3 percent p.a. . . . .	23	17	11
3 percent . . . . .	76	61	38
3½ percent . . . . .		13	13
4 percent . . . . .		8	39
All rates . . . . .	100	100	100
<b>SMSA Counties</b> (41 counties)			
Under 3 percent p.a. . . . .	15	10	7
3 percent . . . . .	85	51	24
3½ percent . . . . .		20	17
4 percent . . . . .		20	51
All rates . . . . .	100	100	100
<b>Other Counties</b> (86 counties)			
Under 3 percent p.a. . . . .	28	21	12
3 percent . . . . .	72	66	44
3½ percent . . . . .		10	12
4 percent . . . . .		2	33
All rates . . . . .	100	100	100

<sup>a</sup> See footnote b, Table II.

<sup>b</sup> Components may not add to totals because of rounding.

Source: Federal Reserve Bank of Cleveland

are available. The color assigned to each county indicates the rate reported by the majority of responding banks located in the county.<sup>8</sup> The rate reported by the majority of banks in each county is referred to as the "representative" rate in the subsequent dis-

<sup>8</sup> In a few cases, an average rate was computed for counties in which there were the same number of banks offering different rates.

**TABLE V**  
**Representative Rates on Time Deposits**  
**Fourth District County Patterns**  
 Selected Periods, 1961-65

County Group and Rate Levels <sup>a</sup>	June 1961	June 1962	March 1965
	Number and Percentage Distribution of Counties <sup>b</sup>		
<b>All Reporting Counties</b>			
Number of counties . . . . .	119	122	122
Under 3 percent p.a. . . . .	7	3	-0-
3 and under 3½ percent . . . . .	92	48	12
3½ and under 4 percent . . . . .		11	7
4 percent and over . . . . .		38	81
All rates . . . . .	100	100	100
<b>SMSA Counties</b>			
Number of counties . . . . .	39	39	39
Under 3 percent p.a. . . . .	8	3	-0-
3 and under 3½ percent . . . . .	92	44	8
3½ and under 4 percent . . . . .		13	3
4 percent and over . . . . .		41	90
All rates . . . . .	100	100	100
<b>Other Counties</b>			
Number of counties . . . . .	80	83	83
Under 3 percent p.a. . . . .	8	2	-0-
3 and under 3½ percent . . . . .	92	51	14
3½ and under 4 percent . . . . .		10	8
4 percent and over . . . . .		37	77
All rates . . . . .	100	100	100

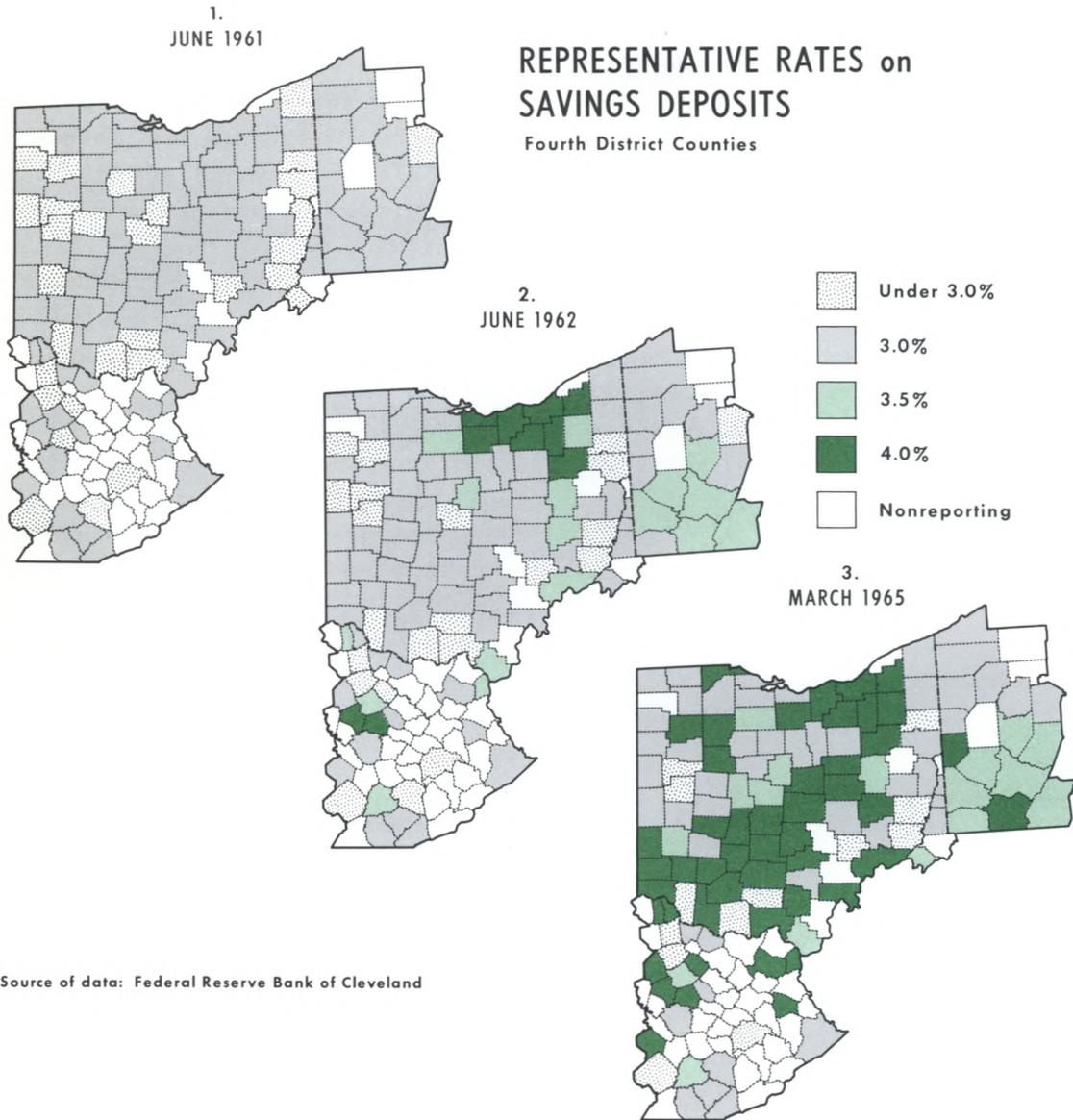
<sup>a</sup> See footnotes d and e, Table III.

<sup>b</sup> Components may not add to totals because of rounding.

Source: Federal Reserve Bank of Cleveland

cussion. (Counties in which there were no banks reporting in the survey are shown in white.) Although reported rates did not indicate a high degree of dispersion within counties, rates were not as uniform as might be implied by the single rate assigned to each county. Finally, Tables IV and V contain rate levels grouped according to counties comprising Standard Metropolitan Statistical Areas

## ECONOMIC REVIEW



Source of data: Federal Reserve Bank of Cleveland

(SMSA's) and all other counties in which banks responded to the survey.<sup>9</sup>

*Savings Deposits.* Maps 1-3, in showing re-

<sup>9</sup> A total of 43 counties are included in the 15 complete and 4 partial SMSA's located in the Fourth District; 39 of the 43 SMSA counties are included in the discussion of time deposits, while 41 SMSA counties reported rates on savings deposits.

presentative rates on savings deposits, highlight the prevalence of the 3 percent maximum reported by banks for the end of June 1961 (Map 1), a geographical concentration of counties with representative rates of 4 percent at the end of June 1962 (Map 2), and the spread of higher rates by the end of the first

quarter of 1965 (Map 3). The proportion of counties with representative rates of 3 percent or more increased from about three-fourths at the end of June 1961 to over four-fifths at the end of June 1962, and to 90 percent at the end of March 1965 (see Table IV).

As indicated in Map 2, at the end of June 1962 a representative rate of 4 percent (the legal maximum) was reported in only 10 counties, concentrated in north central Ohio (Cleveland and surrounding counties), and in the Lexington, Kentucky area. A somewhat lower rate of 3½ percent was representative of reporting banks in 16 counties scattered throughout Ohio and Kentucky, and concentrated in western Pennsylvania around Pittsburgh. By the end of the first quarter of 1965, however, a representative rate of 4 percent was reported for 39 percent of the Fourth District counties in which banks responded to the survey.

Table IV shows that representative rates in SMSA counties were higher, on the average, than in other counties. This was true for all time periods. At the end of March 1965, for example, a representative rate of 4 percent was recorded for over one-half of the SMSA counties, while only one-third of all other counties in which banks responded to the survey had similar rates on savings deposits. Many of these "other" counties classified at 4 percent were contiguous to SMSA's. Thus, representative rates of 4 percent on savings deposits were characteristic mainly of economically integrated areas including large population centers and surrounding counties.

*Time Deposits.* Again in contrast to the experience for savings deposits, representative county rates on time deposits reflected a

greater degree of uniformity throughout the Fourth District. Only 7 percent of the counties at the end of June 1961, for example, had representative time-deposit rates of under 3 percent, as compared with 23 percent at rates under 3 percent on savings deposits (compare Maps 1 and 4).

By the end of June 1962, six months after the legal maximum on time deposits with maturities of one year or more was increased from 3 percent to 4 percent, representative rates of 4 percent were reported by banks in almost two-fifths of all reporting counties. Map 2 shows the location of such counties; at that time, rates of 4 percent were predominant in counties in southwestern Pennsylvania, in a large number of counties located in north central and eastern Ohio, in a group of counties north of Dayton, Ohio, and around Lexington and Corbin, Kentucky. Banks located in non-SMSA counties seemed to have been as active in raising rates on time deposits during the first six months of 1962 as banks in SMSA's (see Table V). In central and southwestern Ohio, banks did not increase rates on time deposits until mid-1964.

Map 6 illustrates representative county rates on time deposits as of March 1965. Slightly over four-fifths of the reporting counties in the Fourth District had representative rates of 4 percent or more by then, and none of the counties were reported as having rates under 3 percent at that time. Furthermore, in only 4 of 39 reporting counties located in SMSA's were representative rates under 3½ percent on time deposits reported for March 1965.

Thus, shifts by reporting banks to higher rates on time deposits were more widespread,

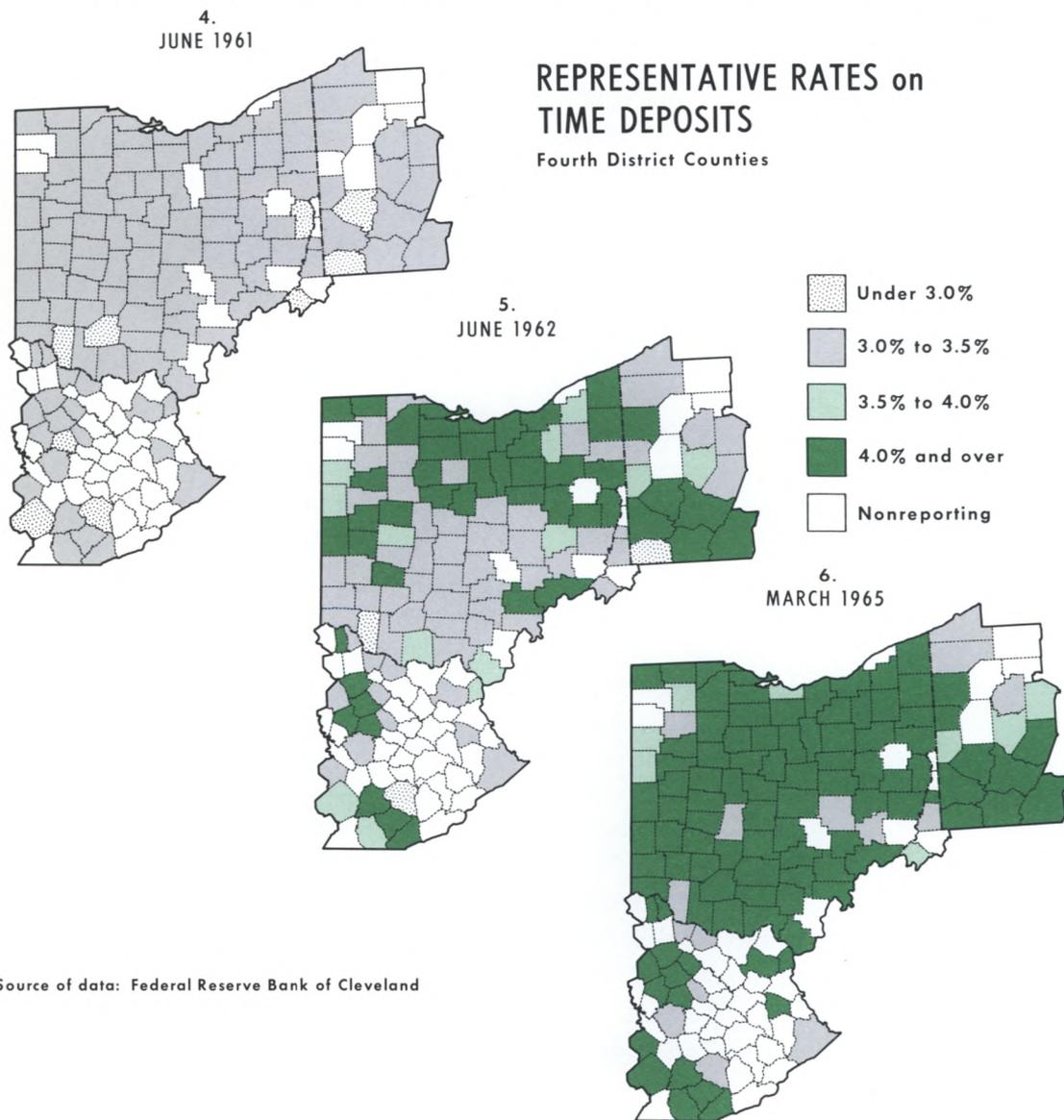
## ECONOMIC REVIEW

geographically, than those on savings deposits. At the end of the first quarter of 1965, the latest period for which data are available, banks in almost all areas in the Fourth District offered rates of 4 percent or more on time deposits. The influence of bank location, although important with respect to the changes in rates and levels of rates reported by banks

on savings deposits, apparently was minimal with regard to time deposits.

## CONCLUSION

Results of the Fourth District survey provide evidence on the importance of bank size in relation to changes in rates on savings and time deposits, but one must realize that many



elements in turn influence both bank size and decisions to adjust rates. Such factors include the general economic environment in which a bank is located and the policies and objectives of bank management. In addition, the number and importance of competing financial institutions are likely to have played a major role in influencing the decision of bankers to adjust rates offered to depositors. The association between bank size and bank performance, therefore, is by no means a clear-cut relationship—size is both the cause and effect

of a number of characteristics of individual banks and banking markets. Similar considerations apply to the discussion of bank location. Further statistical analysis of the performance of banks as indicated by the results of the survey, incorporating some of the variables cited above, is currently under way at the Federal Reserve Bank of Cleveland. It is hoped that the research in progress will result in a better understanding of the relationship between banking structure and bank performance.

---

#### RECENTLY PUBLISHED

*The Board of Governors of the Federal Reserve System has announced a new publication entitled Monetary Theory and Policy: A Bibliography, Part 1: Domestic Aspects. The publication is available from the Board's Division of Administrative Services, Washington, D.C. 20551, at a price of \$1.00.*

---

# SOURCES OF COAL CONSUMED IN OHIO

Coal consumption in Ohio increased from 1958 to 1963 due to larger amounts of coal required by electric utilities and industrial users. This increase more than offset an unchanged level of coal consumption by coke producers and a decline in sales to retail users.<sup>1</sup> The near-term outlook appears bright for total coal consumption in Ohio (barring technological changes that might result in the replacement of coal as a fuel), although individual markets are likely to exhibit divergent trends as they did from 1958 to 1963. This article examines the sources of coal used in Ohio and, in that context, is concerned with coal production in the state.

Ohio ranks as the second largest coal consumer in the U.S., accounting for over 10 percent of national coal consumption. At the same time, the state is the fifth largest coal producer, following West Virginia, Kentucky, Pennsylvania, and Illinois in descending order. The 37 million tons of coal produced in Ohio during 1963 represented 8 percent of all coal mined in the nation, a proportion that has changed little in recent years. In terms of at-mine value, coal production in Ohio totaled \$136 million in 1963, one-third of the value of the state's total mineral production.

<sup>1</sup> See "Consumption of Coal in Ohio," *Economic Review*, Federal Reserve Bank of Cleveland, Cleveland, Ohio, October 1965.

## PART OF THE APPALACHIAN COAL FIELD

The Ohio coal field is part of the Appalachian coal field, lying in the eastern and southeastern one-third of the state, as shown in Chart 1. It extends over 25 counties whose individual coal production ranged in 1963 from less than 100,000 tons to over eight million tons. Most of the coal in Ohio is mined in



only five counties, which are located near the central portion of the coal field (heavily outlined in the chart), and whose production in each case exceeded two million tons in 1963.

Like the Appalachian coal field as a whole, the areas in Ohio have large coal reserves. Although approximately four billion tons of coal had been either mined or lost in mining by the end of 1963, an estimated 42 billion tons remained in the state's coal field, which is enough to last 600 years based on present levels of coal production and current technology.

The Ohio coal field differs in several important aspects from most other areas of the Appalachian coal field. First, coal found in Ohio is of relatively low quality, containing too much sulfur and ash to be suitable for coke production or other special applications requiring high-quality coal. However, in cases where coal of widely varying quality can be used, such as for electric power production or general industrial use, Ohio coal is satisfactory.

Locational and geological factors that tend to influence the cost of mining and transporting coal provide a further distinction between Ohio and other portions of the Appalachian coal field. With reference to location, major coal-producing areas in Ohio are nearer the industrial centers and the large electric utilities in the state than are those of Pennsylvania, Kentucky, or West Virginia, thereby giving Ohio coal an advantage in lower transportation costs to such users. In addition, the presence of navigable water on both the north and south sides of the state provides low-cost, easily accessible routes for shipment of Ohio coal to other states.

With reference to geological factors, the Ohio coal field has the further advantage of lying in an unglaciated area, where the land is gently rolling or hilly, making coal less difficult to mine than in the mountainous sections of Pennsylvania, Kentucky, and West Virginia. Partly due to the absence of glacial deposits, virtually all coal reserves in Ohio are found within strip mining depth where coal can be mined more productively than by underground methods.

### INTERSTATE TRADE PATTERNS

Coal flows within and in and out of Ohio in a complex pattern. Despite extensive coal deposits and a substantial volume of coal production, Ohio is a net importer of coal. This is largely because Ohio coal is unsuitable for coke production and some other industrial uses. On the other hand, the central location of Ohio coal on the western edge of the Appalachian coal field facilitates exportation of Ohio coal to markets in states mainly northwest of Ohio.

Although total consumption of coal in Ohio during 1963 (49.2 million tons) exceeded total production (36.7 million tons) by only 12.5 million tons, slightly more than one-half of total consumption (25.7 million tons) represented coal that was imported into the state. To complete the picture, it should be noted that 13.2 million tons of Ohio-produced coal were exported to other states.

Coal production in Ohio	+	Coal imports	=	Coal consumption in Ohio	+	Coal exports
36.7		25.7		49.2		13.2
million tons		million tons		million tons		million tons

## ECONOMIC REVIEW

**TABLE I**  
**Coal Consumption in Ohio by Source and Use, 1958-63**  
(thousands of tons)

	1958	1959	1960	1961	1962	1963	Change 1958-63
<b>All Markets</b>							
Total . . . . .	44,390	50,069	49,624	44,998	48,324	49,157	+10.7%
Imports . . . . .	24,735	28,278	27,865	24,893	25,894	25,718	+ 4.0%
Ohio Produced . . . . .	19,655	21,791	21,759	20,105	22,430	23,439	+19.3%
As % of total . . . . .	44%	44%	44%	45%	46%	48%	—
<b>Electric Utilities</b>							
Total . . . . .	18,306	20,599	21,375	20,243	21,918	22,991	+25.6%
Imports . . . . .	6,370	6,923	7,631	7,312	7,736	8,163	+28.1%
Ohio Produced . . . . .	11,936	13,676	13,744	12,931	14,182	14,828	+24.2%
As % of total . . . . .	65%	66%	64%	64%	65%	64%	—
<b>Coke Producers</b>							
Total . . . . .	8,886	12,475	11,880	9,129	9,482	9,061	+ 2.0%
Imports . . . . .	8,841	12,475	11,880	9,129	9,482	9,061	+ 2.5%
Ohio Produced . . . . .	45	—	—	—	—	—	—
As % of total . . . . .	0.5%	—	—	—	—	—	—
<b>Other Industries</b>							
Total . . . . .	12,093	13,043	12,898	12,713	13,822	14,482	+19.8%
Imports . . . . .	5,489	6,023	5,908	6,425	6,675	6,958	+26.8%
Ohio Produced . . . . .	6,604	7,020	6,990	6,288	7,147	7,524	+13.9%
As % of total . . . . .	55%	54%	54%	49%	52%	52%	—
<b>Retail Sales</b>							
Total . . . . .	5,105	3,952	3,471	2,913	3,102	2,623	—48.6%
Imports . . . . .	4,035	2,857	2,446	2,027	2,001	1,536	—61.9%
Ohio Produced . . . . .	1,070	1,095	1,025	886	1,101	1,087	+ 1.6%
As % of total . . . . .	21%	28%	30%	30%	35%	41%	—

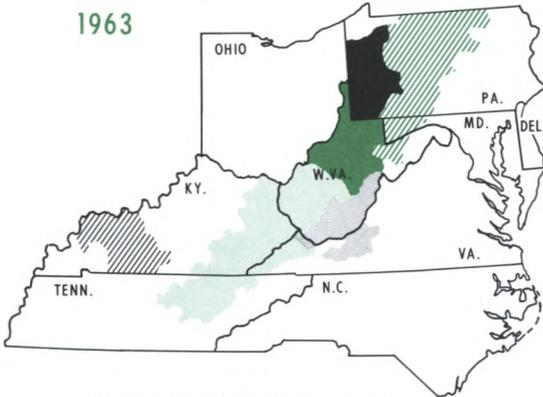
Source: U.S. Department of the Interior

Table I shows that the volume of Ohio-mined coal consumed in Ohio rose by almost 20 percent from 1958 to 1963 (19.7 to 23.4 million tons). That gain was due primarily to increased use of Ohio-produced coal by electric utilities (plus 2.9 million tons) and, to a lesser extent, by general industrial consumers (plus 0.9 million tons). As shown in the table, during the same five-year period total coal imports increased by only 4 percent, with reductions actually sustained in the retail mar-

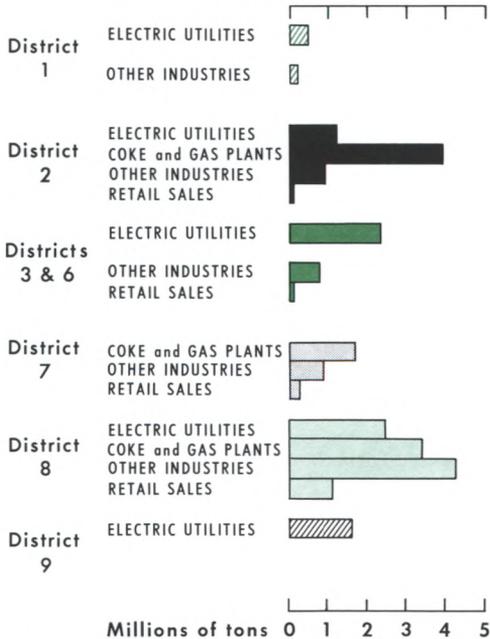
ket. As a result, the proportion of all coal consumed in Ohio that was mined in the state, increased from 44 percent to 48 percent. At the same time, the volume of exports of Ohio-mined coal rose 28 percent.

Over 90 percent of the coal imported into Ohio originates in the Appalachian coal field, with the remainder coming from western Kentucky, as shown in Chart 2. By far the largest source within the Appalachian coal field, supplying nearly one-half of the total tonnage

2. SOURCES of COAL IMPORTED into OHIO  
By Producing District and by Major Industry  
1963



ANNUAL VOLUME of SHIPMENTS - 1963  
Millions of tons 0 1 2 3 4 5



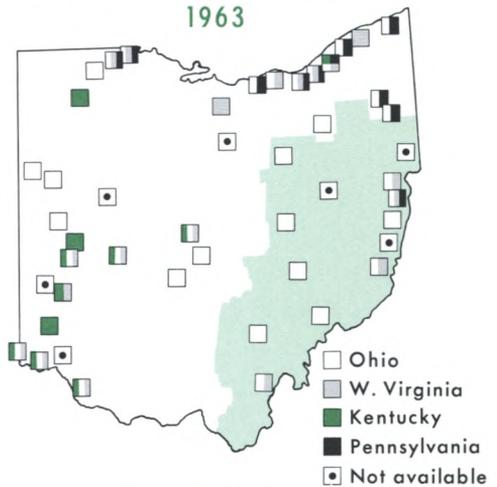
Source of data: U.S. Department of the Interior

shipped into Ohio, is District 8, which includes parts of West Virginia, Kentucky, Virginia, and Tennessee. Western Pennsylvania (District 2), which accounted for one-fourth of the total tonnage imported in 1963, is also a major supplier, particularly of coking coal.

3. SOURCES OF COAL FOR ELECTRIC UTILITIES

Of the 23.0 million tons of coal consumed during 1963 by electric utilities in Ohio as a group, 14.8 million tons (64 percent) came from Ohio mines (see Table I). Most of the remainder was imported from Kentucky and West Virginia (see Chart 2). The sources of coal used by individual electric utility companies in Ohio are depicted in Chart 3. While there is no clear pattern as to sources of supply, a few general observations can be made. Utilities located in or near the Ohio coal field, as might be expected, use Ohio coal exclusively except for imports from West Virginia and Pennsylvania by some power companies located along the Ohio River. As for other parts of the state, coal from Kentucky and West Virginia is also used by electric utilities in southwestern Ohio, while the power companies located along Lake Erie import some

3. SOURCES of COAL CONSUMED by ELECTRIC UTILITIES in OHIO  
1963



Note: Division of blocks not intended to denote proportion of coal from any state; they are used only to show source of coal

Source of data: Federal Power Commission

## ECONOMIC REVIEW

coal from those two states as well as from Pennsylvania.

On the surface it may seem incongruous for electric utilities in Ohio to import coal from other states, considering that coal mined in Ohio is plentiful, of suitable quality and, in many cases, located closer to the importing utilities. However, electric utilities, more than most other industrial users, are tied to the lowest cost fuel in an area—which in the case of Ohio is coal—because fuel expenditures constitute 50 percent of total production expenses. A power company, therefore, is importantly concerned with the delivered price of coal, and not with the place of mining. Out-of-state coal fields are apparently able to offset presumed advantages of the Ohio coal field in some cases either by lower mining costs, by more favorable transportation rates, or by a combination of the two.

Although mining costs are not the only determinants of selling prices of coal, and although data on the cost of coal mined are not available by state, some indication of differentials in cost of mining coal can be derived from information on mine size and wage scales. Large mines, for example, are generally able to produce coal at a lower cost because of better utilization of manpower and capital resources and greater operating efficiencies resulting from economies of scale that do not exist in a small mine. Hence, since there are a greater number of large mines in West Virginia, Kentucky, and Pennsylvania than in Ohio, it is conceivable that a larger volume of coal is being mined at lower average costs in the states other than Ohio. In 1963, there were 227 large mines<sup>2</sup> in West Virginia, pro-

<sup>2</sup> Mines that produce more than 100,000 tons of coal annually.

ducing 110 million tons of coal; Pennsylvania had 113 comparable mines producing 54 million tons; and Kentucky had 98, with an output of 53 million tons. In Ohio, by contrast, there were only 68 large mines, whose 1963 production was 28 million tons.

Mining costs may also differ because of differences in wage rates and productivity. In 1963, output per man-day in Kentucky strip mines averaged 47 tons, or nearly double that of all Ohio strip mines.

Transportation costs are a large part of the delivered price of coal because the mineral is heavy and bulky. Consequently, freight costs are an important determinant of the place where an electric utility purchases coal. Some of the electric utilities in northeastern Ohio, for instance, may turn to Pennsylvania coal because of the proximity of the Pennsylvania coal field rather than to the major producing areas of Ohio. Those utilities located along the Ohio River, on the other hand, can utilize low-cost river rates in transporting coal and are able to ship coal farther by barge than by rail at comparable costs.

The bargaining position of an electric utility is also a factor in determining its source of coal because it can affect both the at-mine price and transportation costs. An electric utility using large amounts of coal is generally able to negotiate a lower price per ton than a small electric utility and will purchase coal wherever the most favorable price can be obtained without regard to state origin. Since there is a greater number of large mines in West Virginia, Kentucky, and Pennsylvania that can supply the needed volume of coal, it is likely that a lower price could be negotiated at more mines in those states than in Ohio.

Moreover, large electric utilities have been able to negotiate lower freight rates on volume shipments of coal as railroads have turned to the use of unit trains.

## SOURCES OF COKE AND COKING COAL

Ohio is the second largest consumer of coke in the nation, which reflects Ohio's position as a leading iron and steel producer. However, since Ohio coal contains too much sulfur and ash to be suitable for coking purposes, all coal consumed in this market must be imported or the coke itself must be shipped to Ohio from outside the state. In recent years, steel producers have tended to bring more coke than coking coal to Ohio so that, although coke consumption in Ohio increased 8 percent from 1958 to 1963, coke production in the state declined 3 percent. The volume of coal consumed by Ohio coke producers, however, was nearly the same in 1963 as in 1958, as shown in Table I.<sup>3</sup>

While the total volume of coking coal imported into Ohio was virtually the same in

<sup>3</sup> The increased volume of coke shipments into Ohio has resulted in part from more favorable freight rates for coke than for coal. The process of coking coal reduces the weight of coal about 30 percent, and coal freight rates would have to be 30 percent below those of coke to be competitive. Since a 30-percent rate differential has not existed in recent years, shipment of coke instead of coal has been more economical. The shipment of coke has been further encouraged by better methods of loading and handling coke so as to prevent damage in transit. Spokesmen for some steel companies also cite additional reasons for shipping coke from Pennsylvania coke ovens to Ohio blast furnaces: the reduction of per-unit coke requirements through greater blast furnace efficiency, closer proximity of the Pennsylvania coke ovens to the coking coal mines, consolidation of by-product operations, and more efficient operation of coke plants in face of changing steel mill production.

1963 as in 1958, there was a significant shift in sources, as the amount of coking coal shipped from western Pennsylvania increased and that from Kentucky and West Virginia declined.

## COAL SUPPLIED TO INDUSTRIAL CONSUMERS

The amount of coal used by industrial consumers in Ohio (other than electric utilities and coke plants) increased significantly between 1958 and 1963, as shown in Table I. However, the rise of almost 20 percent in total industrial consumption was accompanied by only a 14-percent gain in the Ohio-produced portion, while the tonnage of coal shipped from out-of-state sources rose by 27 percent.

Reasons for the failure of Ohio-mined coal to maintain its share of the industrial coal market in Ohio cannot be determined from available data. However, the fact that the chemicals and allied products and stone, clay, and glass products industries accounted for one-half of the entire gain in industrial coal consumption from 1958 to 1963 points to quality requirements and transportation costs as possible reasons for the relative loss.<sup>4</sup> The stone, clay, and glass industry requires a higher quality coal than is produced in Ohio for many of its industrial processes. The chemical industry, on the other hand, has been expanding at locations along the Ohio River, particularly in the Cincinnati area, and may find it more economical to purchase coal in an adjoining state.

By far, most out-of-state coal for industrial consumption in Ohio originates in Kentucky and West Virginia, as shown in Chart 2. From

<sup>4</sup> See Table II on page 17 of the October 1965 issue of the *Economic Review*, Federal Reserve Bank of Cleveland, Cleveland, Ohio.

## ECONOMIC REVIEW

1958 to 1963, most supplying areas increased shipments about in proportion to their earlier share of the market. There was some shift among West Virginia suppliers, however, with shipments from the southern part of the state sharply increasing, while those from the northern section declined slightly.

### THE RETAIL MARKET

The retail market is the smallest of the four coal markets in Ohio. It is also a net importer, having, in fact, the largest margin of imports among the four markets, even though that margin declined sharply from 1958 to 1963 (see Table I). With total retail sales dropping significantly, the Ohio-produced portion of the market held its own in absolute tonnage and gained as a percent of total sales.

West Virginia and Kentucky, which are the major out-of-state suppliers of coal for the Ohio retail market (see Chart 2), suffered the largest declines in sales to Ohio retail consumers from 1958 to 1963, although the volume of coal shipped from all out-of-state sources declined during that period.

### THE EXPORT MARKET

Slightly more than one-third of the coal produced in Ohio in 1963 (13.2 million tons) was shipped to other states. Such exports increased 28 percent between 1958 and 1963 and maintained about the same proportion of total production in Ohio. As Table II indicates, states which either adjoin Ohio or are accessible by Great Lakes shipping are among the major consumers of Ohio coal.

Most coal exported from Ohio is destined for the electric utility market, as would be expected in view of the suitability of Ohio coal

**TABLE II**  
**Destination of Coal Exports from Ohio, 1963**  
(thousands of tons)

	Electric Utilities	Other Industries <sup>a</sup>	Retail Sales	Total
Michigan . . . . .	5,994	2,167	136	8,297
West Virginia . . . . .	927	408	4	1,339
Wisconsin . . . . .	336	403	467	1,206
Minnesota . . . . .	351	248	154	753
New York . . . . .	215	212	4	431
Pennsylvania . . . . .	41	132	11	184
Other . . . . .	228	508	300	1,036
Total . . . . .	8,092	4,078	1,076	13,246

<sup>a</sup> Except electric utilities and coke plants.

Source: U.S. Department of the Interior

for producing electric power. Electric utilities in Michigan are by far the largest out-of-state market for Ohio coal—consuming 6.0 million tons in 1963—and were responsible for a large part of the 35-percent gain in shipments to electric power producers outside Ohio from 1958 to 1963.

Michigan also is the largest buyer of Ohio coal for general industrial use, with imports from Ohio totaling 2.2 million tons in 1963, or 16 percent more than in 1958. Retail shipments of coal from Ohio, although very small in volume, were more than four times as large in 1963 as in 1958.

### CONCLUDING COMMENTS

Ohio coal producers' growing share of the state's coal market from 1958 to 1963 reflects divergent developments in the three major markets for which Ohio-mined coal is used. Consumption of Ohio-produced coal by electric utilities in the state increased at about the same rate as consumption of coal from all sources. Due to the large amount of Ohio-mined coal used, the increase in total coal consumption by power companies in Ohio

resulted in a rising percentage of Ohio coal in the state's total consumption. The increase in consumption by general industrial users tended to have the same effect upon total consumption of Ohio-produced coal, albeit to a lesser extent, because consumption of Ohio coal increased at a slower pace than total consumption. Retail sales indirectly contributed to the rise in the proportion of Ohio-produced coal used in the state, by maintaining steady tonnage from Ohio mines despite a sharp decline in total consumption by retail consumers.

It does not appear likely that Ohio-mined coal will continue to gain as rapidly in proportion to the state's total coal consumption in the near-term as was the case from 1958 to 1963. Although Ohio coal production will probably continue to grow in absolute terms as total coal consumption moves up, growth may be tempered somewhat by increasing emphasis placed on abating the air pollution problem. Burning coal, or any other fossil fuel, with a high sulfur content such as that

mined in Ohio, has been identified as a prime contributor to air pollution through the release of sulfur dioxide into the air. Although methods are being studied to reduce the sulfur content of coal before burning and to remove flue gases after burning, the most immediate and seemingly economical means of reducing such pollution may be to use coal with a lower sulfur content. In the short run, electric utilities may attempt to avoid the expense of sulfur removal facilities by purchasing higher cost coal from out-of-state coal fields.

Ohio coal producers will probably continue to ship more coal to general industrial users as they did from 1958 to 1963, but it is likely that consumption of imported coal will rise even faster. In that case, Ohio-mined coal would continue to edge down as a percent of total coal consumption in the industrial market. The outlook for shipments of Ohio-mined coal to retail consumers depends on how far this market declines before the demand for Ohio-produced coal is also reduced.

# MANAGEMENT OF CASH ASSETS AT FOURTH DISTRICT RESERVE CITY AND COUNTRY MEMBER BANKS

This article concludes a series of articles on bank management of cash assets appearing in the *Review*.<sup>1</sup> The first article considered the management of cash assets by all member banks of the Federal Reserve System for the period 1954 through the middle of 1963. The second contrasted cash management of all Reserve City member banks to that of Country banks. This final article compares cash management at Fourth District Reserve City and Country member banks with that of similarly classed member banks throughout the nation.<sup>2</sup> The first section briefly reviews the major findings of the more recent of the two preceding articles.<sup>3</sup>

<sup>1</sup> See "Bank Management of Cash Assets" and "Management of Cash Assets at Reserve City and Country Member Banks," *Economic Review*, Federal Reserve Bank of Cleveland, Cleveland, Ohio, April 1965 and July 1965, respectively.

<sup>2</sup> For reasons mentioned in the July article, Reserve City banks in New York City and Chicago are excluded from consideration.

<sup>3</sup> The first study is summarized in "Management of Cash Assets at Reserve City and Country Member Banks," *op. cit.*, pp. 3-4.

## RESTATEMENT OF EARLIER CONCLUSIONS

For the long-term period 1954 through mid-1963, Reserve City and Country member banks succeeded in reducing the proportion of cash assets<sup>4</sup> to total assets. Such success as was achieved resulted almost entirely from reductions in the managed,<sup>5</sup> or discretionary, component of cash assets. Though managed

<sup>4</sup> Similar to the earlier articles, "cash assets" are defined as the sum of vault cash (sometimes referred to as currency and coin), reserves maintained with regional Federal Reserve banks, balances with other commercial banks in the U.S., and cash items in process of collection.

<sup>5</sup> For reasons discussed in the April article, the definition of "managed cash assets" for the subperiod 1954 through mid-1960 differs from that for the subperiod from mid-1960 through mid-1963. For the first subperiod, managed cash assets are defined as vault cash plus correspondent balances with commercial banks in the U.S. plus the difference between balances maintained at the regional Federal Reserve banks and the volume of required reserves (that is, excess reserves). For the second subperiod, managed cash assets include correspondent balances plus excess reserves, which are redefined as the difference between the total of balances maintained at Reserve banks plus vault cash and the volume of required reserves.

cash declined as a proportion of total assets throughout the long-term period 1954 through mid-1963, rates of decline were more pronounced in the period after mid-1960 (the end of 1960 in the case of Country banks). The more pronounced declines in the latter period followed largely from changes in the regulation affecting reserve requirements that took effect between December 1959 and November 1960. The change permitted member banks to count vault cash as part of legally required reserves, and, as explained in the first article, enabled substantial additional reductions in managed cash to be effected.

The data revealed that throughout the long-term period Reserve City banks held proportionately more cash assets than Country banks. That situation, however, was the result (direct and indirect) of factors beyond managerial control: larger required reserve ratios on demand deposits, greater proportions of demand deposits, and more active turnover (velocity) of demand deposits at Reserve City banks. (The latter two cause a relatively large share of assets being allocated to cash items in the process of collection.) With respect to the managed cash ratio, which is perhaps a truer measure of management's efficiency, Reserve City banks fared much better, allocating considerably smaller proportions of assets to non-earning discretionary cash balances.

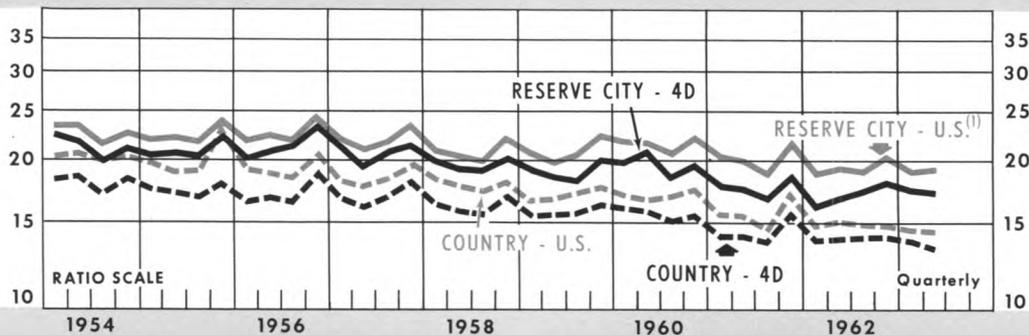
Several factors, which are discussed in some detail in the previous article and are only enumerated here, account for the cash management efficiencies realized by Reserve City banks. First, deposit instability is greatest at small banks—typically Country banks. To cope with this instability, Country banks are usually willing to hold relatively large cash balances

—in the vault, at the regional Federal Reserve bank, or at city correspondents. Second, for various reasons, Country banks make considerable use of Reserve City correspondents, and as compensation for services received, Country banks keep large deposits with such correspondents. A final factor considered was the possibility that Country bankers place less emphasis on efficient cash management than do their Reserve City counterparts. A rather extended argument was made in support of this contention. It was suggested that limited managerial resources together with the relatively high opportunity cost of managing cash causes Country bankers to concentrate their efforts in other directions. Put otherwise, the lower managed cash ratio experienced by Reserve City banks does not necessarily reflect "better" management but, instead, a different optimum asset mix.

### **CASH MANAGEMENT AT RESERVE CITY AND COUNTRY MEMBER BANKS IN THE FOURTH DISTRICT**

The present analysis begins with a consideration of the data plotted in Chart 1, which shows the relationship between cash and total assets for Reserve City and Country member banks in both the U.S. and the Fourth District. Similar to national patterns, the data reveal that Reserve City banks in the Fourth District held larger proportions of cash to total assets than did Country banks in the District. Again similar to national patterns, Fourth District member banks (both Reserve City and Country banks) experienced declining cash to total asset ratios over the long-term period 1954 through mid-1963. Finally, again paralleling national experience, these declines

1.  
**RATIO of CASH ASSETS to TOTAL ASSETS**  
 Reserve City and Country Member Banks-United States and Fourth District  
 Percent



	AVERAGE ANNUAL RATE of DECLINE		
	1954-1963	1954-1960	1960-1963
RESERVE CITY BANKS - U.S. <sup>(2)</sup>	2.000%	1.028%	4.203%
RESERVE CITY BANKS - 4D <sup>(2)</sup>	2.891%	1.224%	6.719%
COUNTRY BANKS - U.S. <sup>(3)</sup>	3.278%	2.475%	6.392%
COUNTRY BANKS - 4D <sup>(3)</sup>	2.950%	2.639%	4.535%

(1) Excluding Reserve City Banks in New York City and Chicago

(2) 1954, first half; 1960, first half; 1963, first half

(3) 1954, first half; 1960, second half; 1963, first half

Source of data : Board of Governors of the Federal Reserve System

became more pronounced beginning in mid-1960 (the end of 1960 in the case of Country banks), reflecting in large part regulatory changes that enabled member banks to count vault cash as part of legal reserve requirements. It should be noted that Fourth District Reserve City banks succeeded in reducing the cash ratio faster (both over the long-term period and in each of the sub-periods) than did Reserve City banks in the U.S. as a whole. On the other hand, Fourth District Country banks showed smaller rates of decline in the cash ratio in the long-term period and in the 1960-1963 subperiod.

As shown in Chart 1, Fourth District member banks (both Reserve City and Country banks) consistently allocated smaller portions of total assets to cash categories than did similarly classed member banks throughout the

nation. This situation, in itself, is not necessarily indicative of any differences in managerial quality between Reserve City and Country banks located in the Fourth District and in the nation. For example, part of the observed differences in the magnitude of the cash ratio may reflect factors over which management exerts little or no control. Such, in fact, is suggested from data plotted in Chart 2, which shows for the various categories the relationship of nonmanaged (nondiscretionary) cash holdings—cash items in process of collection and required reserves—to total assets. It is evident from the chart that operating circumstances permit Fourth District member banks to commit relatively less cash to nondiscretionary uses. This was the case over the long term for Fourth District Country banks and from about 1958 on for District

**TABLE I**  
**Time Deposits as a Percent of Total Deposits**  
 (Subject to Reserve Requirements)

	Based on December Figures			
	Reserve City Banks		Country Banks	
	U.S.*	Fourth District	U.S.	Fourth District
1954	28.4%	27.9%	35.3%	42.6%
1955	29.4	28.2	35.2	42.1
1956	29.9	28.7	35.6	42.1
1957	32.3	29.8	38.0	43.6
1958	33.9	31.0	39.7	45.1
1959	34.4	34.1	40.3	46.1
1960	35.5	35.9	42.8	48.7
1961	38.3	38.8	43.9	49.4
1962	42.4	43.1	46.4	50.8
1963	45.9	48.3	48.2	52.2
1964	47.7	51.0	49.3	53.8

\* Excluding Reserve City banks, New York City, and Chicago.

Source: Board of Governors of the Federal Reserve System

**Reserve City banks.**

Why this is so is not altogether clear at this time, and is currently under further investigation. One tentative explanation reflects the differences in deposit composition between Fourth District banks (Reserve City and Country) and banks in the nation (in each reserve

class). From Table I, it can be noted that Country banks in the District have derived a larger portion of their deposit liabilities from time and savings deposits than have Country banks in the U.S. However, while time and savings deposits are generally growing faster than total deposit liabilities (demand plus time and savings deposits), growth is more pronounced for Country banks in the U.S. as a whole than for those in the Fourth District (note the narrowing of the gap in Table I).

Until 1959, time and savings deposits at Fourth District Reserve City banks accounted for slightly smaller proportions of total deposits than was the case at Reserve City banks in the nation. Beginning in 1960, however, the situation was reversed, with Reserve City banks in the Fourth District holding proportionately more time and savings deposits than their counterparts in the nation.

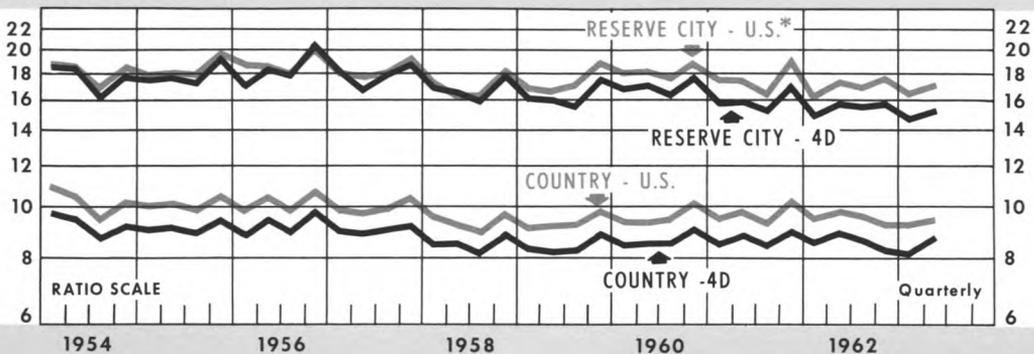
This turn of the data helps explain the behavior of the nonmanaged cash ratio shown in Chart 2. Legal reserve requirements are substantially lower on time and savings de-

2.

**RATIO of NONMANAGED CASH ASSETS to TOTAL ASSETS**

Reserve City and Country Member Banks - United States and Fourth District

Percent



\* Excluding Reserve City Banks in New York City and Chicago

Source of data: Board of Governors of the Federal Reserve System

## ECONOMIC REVIEW

**TABLE II**  
**Cash Items in Process of Collection as**  
**a Percent of Total Assets<sup>1</sup>**

	Reserve City Banks		Country Banks	
	U.S. <sup>2</sup>	Fourth District	U.S.	Fourth District
1954	6.51%	5.81%	2.34%	1.31%
1955	6.34	5.55	2.25	1.51
1956	6.58	5.19	2.08	1.18
1957	7.12	6.69	2.19	1.52
1958	6.79	5.85	2.22	1.32
1959	7.15	6.04	2.05	1.44
1960	8.61	7.10	2.49	1.75
1961	8.18	6.15	2.31	1.47
1962	6.92	5.37	2.29	1.59
1963	7.98	6.26	2.57	1.81

<sup>1</sup> First call date in each year.

<sup>2</sup> Excluding Reserve City banks in New York City and Chicago.

Source: Board of Governors of the Federal Reserve System

posits than on demand deposits. Since the former have accounted for a larger share of deposit liabilities of Fourth District Reserve City banks (since 1959) as well as of Country banks, it follows that the *average* required reserve ratio applicable to these banks would be lower than that for banks in the nation. Prior to 1959, the magnitude of the nonmanaged cash ratio at Fourth District Reserve City banks more or less coincided with the magnitude of the ratio for all Reserve City banks. Since that time, the ratio evidenced a larger decline at Fourth District Reserve City banks, reflecting in part the relatively more rapid expansion of time and savings deposits.

In addition to legally required reserves, cash items in process of collection are included in the total of nondiscretionary cash holdings. Differences in the magnitude of the latter are, as in the case of required reserves, partly the result of differences in deposit composition. As checks are written only against demand deposits, cash items in process of

collection understandably make up a smaller proportion of the total assets of Fourth District member banks (see Table II). In addition, the gap is proportionately wider in the case of Country banks, reflecting the fact that Country banks in the Fourth District hold (though to a diminishing extent) significantly larger proportions of time and savings deposits than do Country banks in the nation.

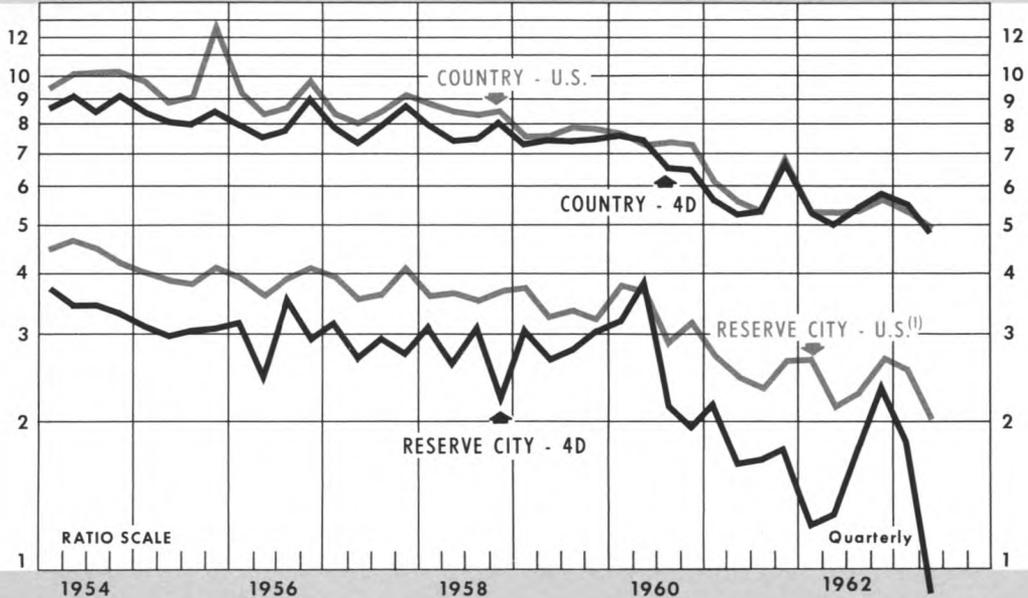
The categories of cash over which management can exert some discretion in matters of magnitude and composition are presented in Chart 3, where managed (discretionary) cash assets are plotted as a proportion of total assets. Here, too, the behavior of the managed cash ratio for Fourth District Reserve City and Country member banks is found generally to conform to the national patterns discussed in the preceding article of this series. In step with national behavior, Fourth District Reserve City and Country banks succeeded in reducing discretionary cash balances as a proportion of total assets over the long-term period 1954 through mid-1963, with the rates of decline much in excess of those recorded by the total cash ratio (see Chart 1). Further evidence of Fourth District correspondence to national patterns is found in the accelerated declines recorded after mid-1960 (the end of 1960 for Country banks). This development, again, reflected in large part a response to the changes in regulations affecting vault cash, which were initiated in late 1959. Similar to national patterns, Fourth District Reserve City banks operated with considerably smaller managed cash ratios than did Fourth District Country banks.

Despite these basic similarities, however, some interesting contrasts are apparent re-

3.

**RATIO of MANAGED CASH ASSETS to TOTAL ASSETS**

Reserve City and Country Member Banks - United States and Fourth District  
Percent



	AVERAGE ANNUAL RATE of DECLINE		
	1954-1963	1954-1960	1960-1963
RESERVE CITY BANKS - U.S. (2)	5.519%	2.918%	13.000%
RESERVE CITY BANKS - 4D (2)	6.890%	0.140%	20.563%
COUNTRY BANKS - U.S. (3)	5.326%	3.880%	12.152%
COUNTRY BANKS - 4D (3)	4.624%	4.188%	7.914%

(1) Excluding Reserve City banks in New York City and Chicago

(2) 1954, first half; 1960, first half; 1963, first half

(3) 1954, first half; 1960, second half; 1963, first half

Source of data: Board of Governors of the Federal Reserve System

garding cash management at Fourth District member banks (Reserve City and Country) and at banks in the nation. Reserve City banks in the District clearly managed cash more closely than did Reserve City banks in the U.S. as a whole, as evidenced by the almost consistently smaller proportion of assets placed in non-earning managed cash. In the case of Country banks, performance is not as clear-cut. Through 1958, as suggested by the lower managed cash ratios, Fourth District Country banks were more efficient than Country banks

in the nation. Since that time, however, no significant differences are noticeable in the corresponding ratios, indicating that cash management at Country banks in the U.S. improved relative to cash management at Country banks in the Fourth District.

A complete explanation of the foregoing is not presented here, as a research project in a closely related area is currently under way and should shed some light on these relationships. However, one factor that does suggest itself as an explanatory variable is that of

## ECONOMIC REVIEW

**TABLE III**  
**Bank Size—Average Value of Assets Per Bank**  
 (millions of dollars)

	Reserve City Banks		Country Banks	
	U.S.*	Fourth District	U.S.	Fourth District
1954	\$223.9	\$356.7	\$10.2	\$ 9.2
1955	241.4	389.8	10.8	10.0
1956	252.1	391.8	11.4	10.5
1957	266.9	396.6	11.8	10.9
1958	291.2	429.3	12.8	11.4
1959	307.3	467.7	13.4	12.0
1960	384.6	484.9	14.2	12.5
1961	440.8	519.2	15.4	13.4
1962	496.9	515.9	16.6	13.4
1963	524.4	629.3	17.6	15.5
1964	599.2	720.6	18.8	17.4

\* Excluding Reserve City banks in New York City and Chicago.

Source: Board of Governors of the Federal Reserve System

bank size. Table III shows that the average size of Reserve City banks in the Fourth District is more than \$100 million larger than the average size Reserve City bank in the nation. Although most studies have found that cash management improves with bank size, it has not been confirmed that performance increases step-by-step with bank size, particularly as relatively large bank size, say, assets of over \$200 million, is reached. In other words, whatever efficiencies larger bank size may permit could become exhausted beyond a certain size. Nevertheless, it would seem that an average bank size differential of more than \$100 million leaves room for the introduction of additional practices that have made possible more efficient cash management at Fourth District Reserve City banks.

No such size advantage favors Country banks in the Fourth District. It is evident from Table III that the average size of these banks is smaller than the average for the nation. The average differential of about \$1.5 million,

however, implies that cash management policies would not be significantly different, as is indicated in Chart 3, at least for the period since 1958. Undoubtedly there are other variables that explain differences in cash management policies, for example, deposit composition, deposit volatility, and loan demand. But for reasons cited earlier, the matter is not pursued further in this article.

### CONCLUDING COMMENTS

The preceding discussion suggests that comparisons with national counterpart figures reflect more favorably on Fourth District Reserve City banks than on District Country banks. It may be, however, that the seemingly better performance of Fourth District Reserve City banks is related more to structural factors, for example, size, deposit composition, rate of change in deposit composition, and strength of loan demand, than to "better" management.

Although not necessarily conclusive, data in Table IV tend to support this contention. The table illustrates the response of the various categories of banks discussed in this article to the vault cash change referred to earlier. Since the response was discussed in detail in the preceding articles of this series, it need only be pointed out here that Fourth District Country banks experienced a greater response than did Country banks in the U.S.—a 50-percent reduction in managed cash against a less-than-40-percent reduction by the latter—and performed *relatively better* than did Fourth District Reserve City banks, which experienced slightly smaller declines in managed cash than did Reserve City banks in the U.S. as a whole.

**TABLE IV**  
**Managed Cash Assets**  
(Average Quarterly Dollar Volume — in Millions of Dollars)

**Reserve City Banks—U.S.\***

	(1) Managed Cash Assets	=	(2) Vault Cash	+	(3) Balances with Other Commercial Banks	+	(4) Maintained Reserves —Required Reserves
First Quarter 1954 through Second Quarter 1960 . . . . .	\$2,804	=	\$ 667	+	\$2,071	+	\$ 65
Third Quarter 1960 through Second Quarter 1963 . . . . .	2,192	=	839	+	2,113	—	760
Net Change . . . . .	—612	=	+172	+	42	—	825
(1) as a % of (4) . . . . .	(74.2%)						

**Reserve City Banks—Fourth District**

	(1) Managed Cash Assets	=	(2) Vault Cash	+	(3) Balances with Other Commercial Banks	+	(4) Maintained Reserves —Required Reserves
First Quarter 1954 through Second Quarter 1960 . . . . .	\$ 288	=	\$ 102	+	\$ 181	+	\$ 5
Third Quarter 1960 through Second Quarter 1963 . . . . .	206	=	122	+	197	—	113
Net Change . . . . .	—82	=	+20	+	16	—	118
(1) as a % of (4) . . . . .	(69.5%)						

**Country Banks—U.S.**

	(1) Managed Cash Assets	=	(2) Vault Cash	+	(3) Balances with Other Commercial Banks	+	(4) Maintained Reserves —Required Reserves
First Quarter 1954 through Fourth Quarter 1960 . . . . .	\$5,999	=	\$1,310	+	\$4,296	+	\$ 393
First Quarter 1961 Through Second Quarter 1963 . . . . .	5,384	=	1,652	+	4,929	—	1,197
Net Change . . . . .	—615	=	+342	+	633	—	1,590
(1) as a % of (4) . . . . .	(38.7%)						

**Country Banks—Fourth District**

	(1) Managed Cash Assets	=	(2) Vault Cash	+	(3) Balances with Other Commercial Banks	+	(4) Maintained Reserves —Required Reserves
First Quarter 1954 through Fourth Quarter 1960 . . . . .	\$ 478	=	\$ 129	+	\$ 307	+	\$ 42
First Quarter 1961 through Second Quarter 1963 . . . . .	403	=	154	+	357	—	107
Net Change . . . . .	—75	=	+25	+	50	—	149
(1) as a % of (4) . . . . .	(50.3%)						

\* Excluding Reserve City banks in New York City and Chicago

Source: Board of Governors of the Federal Reserve System

