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Interest Rates on Time Deposits

SINCE 1936 the maximum allowable rate on time deposits has been changed only once. During this same period, the general level of other interest rates has fluctuated considerably in an upward direction. At the present time the majority of interest rates is above the 3 per cent maximum allowable on time deposits whereas in earlier years the maximum was above most other rates.

As a contributing factor to the many bank failures during the 1920's and the early years of the 1930's, the argument was advanced that during the 1920's competition for deposits led many banks to pay such high rates of interest on these funds that they were forced to invest in high risk and relatively illiquid assets.

Also regulation of interest rates paid on time deposits was thought necessary in order to reduce the flow of deposits to banks in large financial centers which took place in the 1920's. As a result, it was claimed that banks in nonfinancial centers often lacked funds for local investments, and during periods of economic crisis the movement of these deposits out of the financial centers may have contributed to the contraction of credit and subsequent bank panics.

The Banking Acts of 1933 and 1935 were passed, presumably, to prevent banks from competing for deposits so aggressively as to lead to unsound banking and to reduce the flow of funds to the money markets. This legislation included a provision directing the Board of Governors of the Federal Reserve System to set the maximum rate of interest member banks may pay on time and savings deposits.

Section 19 of the Federal Reserve Act, as amended by the Banking Acts of 1933 and 1935, provides in part as follows:

The Board of Governors of the Federal Reserve System shall from time to time limit by regulation the rate of interest which may be paid by member banks on time and savings deposits, and shall prescribe different rates for such payment on time and savings deposits having different maturities, or subject to different conditions respecting withdrawal or repayment, or subject to different conditions by reason of different locations, or according to the varying discount rates of member banks in the several Federal Reserve districts.

In accordance with the law, the Board of Governors of the Federal Reserve System adopted Regulation Q in 1933, setting the maximum interest rates member banks may pay on time and savings accounts. After the initial maximum of 3 per cent there have been three changes in the Regulation as follows:

	Aug. 1, 1933	Feb. 1, 1935	Jan. 1, 1936	Jan. 1, 1957
Savings Deposits	3%	2½%	2½%	3 %
Time Deposits:				
6 Months or more	3	2½	2½	3
90 Days to 6 months	3	2½	2	2½
Less than 90 days	3	2½	1	1

From 1935 through 1956 the maximum interest rate on savings deposits and time deposits of 6 months or more maturity remained at 2½ per cent. During this period other market rates experienced rather wide changes. During the years 1935-1945 interest rates in general declined, as did the average rate paid on time and savings deposits. During this period Regulation Q served as a limit on only a relatively few banks.

Since the mid-1940's the general level of interest rates has risen markedly. Money market rates, represented on the chart, page 4, by the prime bank rate on business loans and the Treasury bill rates, showed a significant, though irregular, rise. Savings and loan associations, which compete with banks for funds, have paid continuously higher average dividend rates since about 1948. Rates in the capital market, as represented for example by the rate on highest grade (Aaa) corporate bonds also showed rather large increases.

By 1956, in order to attract funds, many large banks in financial centers, as well as a number of smaller banks, were paying the maximum allowable rate on their time deposits. As of January 1, 1957, Regulation Q was amended and a new maximum of 3 per cent was established. This action was taken, in part, to bring the permissible rates paid on time deposits more nearly in line with other market rates of interest.

Business and Financial Developments

INDUSTRIAL PRODUCTION in April, seasonally adjusted, at 109 per cent of the 1957 level, was at the March level. Steel output in April was less than 80 per cent of capacity, as compared to 92 per cent in March. In the first half of May output was scheduled at about 75 per cent of capacity, the lowest rate since November 1959. Other activities, which declined from the March level were output of automobiles, paper, crude oil, and electric power. Auto assemblies in April were the lowest for any month this year. Output in May, however, is scheduled to be almost 5 per cent above the April level, and about 12 per cent above the May 1959 total. If the announced schedules are fulfilled, output of automobiles this month will be the largest May total since 1955. Expenditures for new construction also declined from March to April, with private residential building accounting for most of the decline.

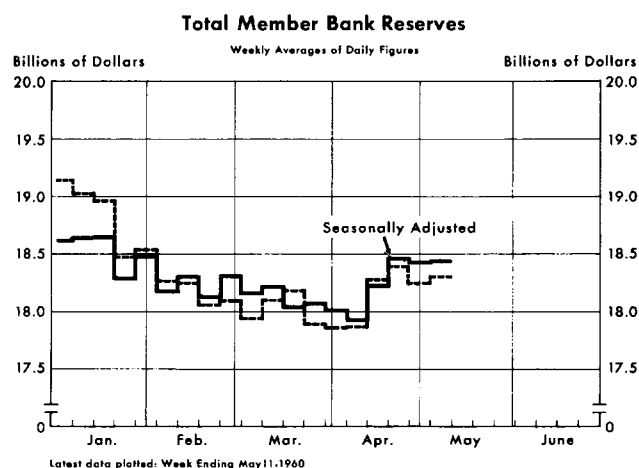
On the expansionary side, seasonally adjusted retail sales were 3 per cent higher in April than in March, and 5 per cent above the April 1959 level. Unit sales of domestically produced passenger cars in April were 4 per cent above those in March and 15 per cent greater than in April of 1959. Weekly department store sales figures indicate that during April sales were considerably higher than in April of last year and March of this year.

Unemployment dropped sharply from March to April. While the decline was nearly double the usual amount at this time of the year, bringing the seasonally adjusted rate of unemployment down from 5.4 per cent in March to 5.0 per cent in April, the level of unemployment was still about the same as that of a year ago. Unemployment dropped most markedly in agriculture, trade, and construction, which had been especially hard hit by the recent inclement weather conditions.

Average prices remained virtually unchanged in March and April. The consumer price index for March was at 125.7 per cent of the 1947-1949 average, up 0.1 point from February and 2.0 points higher than in March of last year. Average price increases for food, apparel, rent, and recreation were largely offset by a decline in transportation prices.

Wholesale prices in April showed little change from the previous month. Increases in prices of farm products were virtually offset by price declines for processed foods, especially meats. Prices of nonfarm commodities in April remained at their March level.

Total reserves of member banks increased substantially during the four-week period ending May 11. Daily average total reserves were up about \$440 million (\$515 million after adjustment for seasonal variation) from the week ending April 10, but were still less than at the beginning of the year. Reflecting the improved reserve position of member banks, Federal funds were traded below the discount rate during a part of each of the four weeks ending May 11.

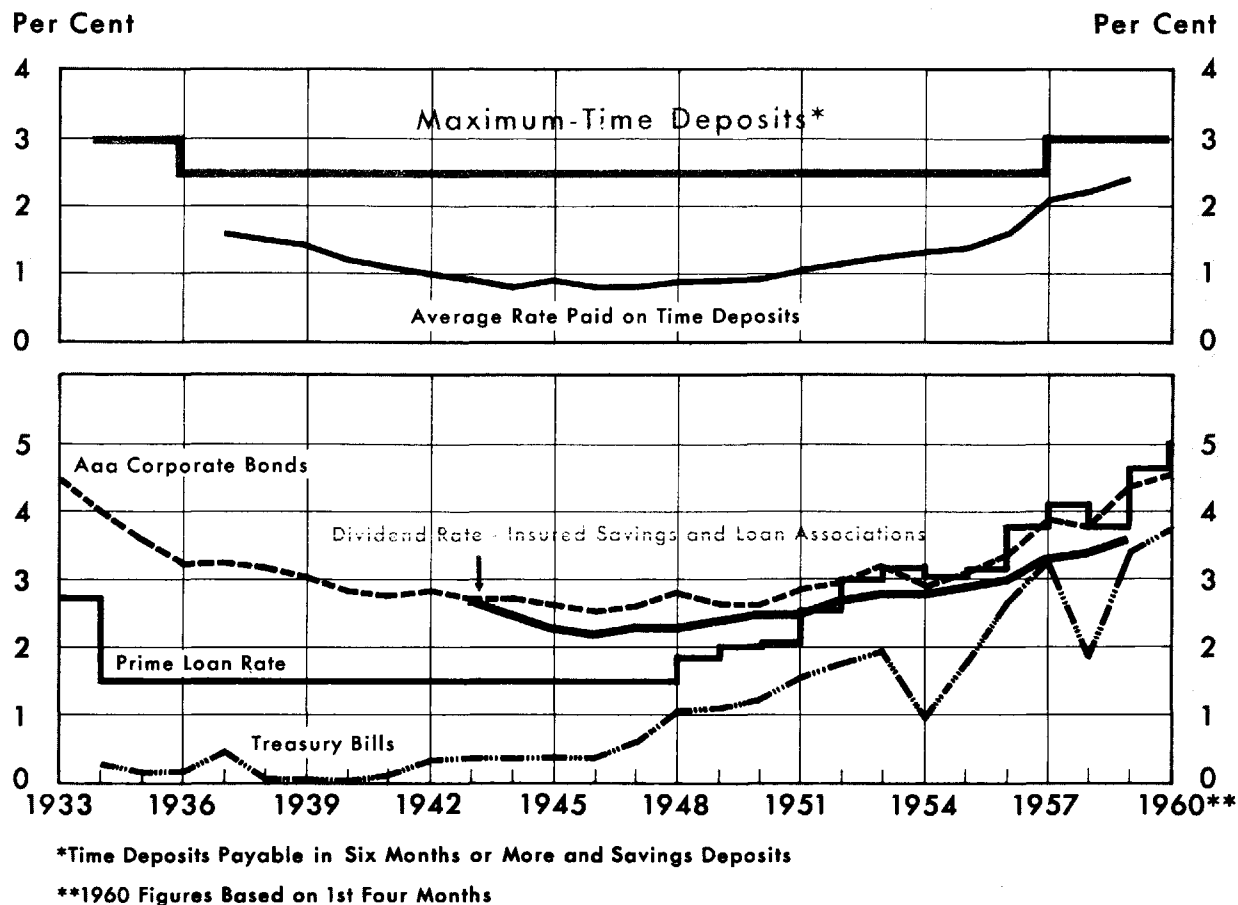


The rise in total reserves was due in part to net purchases of Government securities by the Federal Reserve Banks in the amount of \$470 million during this four-week period. Money market factors added an additional \$155 million to bank reserves, primarily because of a movement of currency out of circulation and an increase of float. During this same period member banks reduced their indebtedness to the Federal Reserve by \$185 million. Weekly average borrowings and net borrowed reserves for the week ending May 11 were \$549 million and \$49 million respectively.

Related to the rise in total reserves, commercial bank credit expanded more than normally during April, according to information obtained from reporting banks. The decline in bank credit which had been underway since August 1959 may have been reversed. Banks purchased a sizeable volume of new Treasury notes in mid-April. Total loans (seasonally adjusted) showed a slight advance in April. Loans to brokers and Government security dealers and to sales finance companies increased; commercial and industrial loans, a more adequate indicator of economic activity, showed little change for the month.

(Continued on page 6)

Interest Rates on Time Deposits Compared with Other Rates



Since January 1957 strong demands for credit have pushed the general level of interest rates substantially higher.¹ Most banks in the financial centers as well as many other banks are again paying the maximum allowable rate on their time deposits. Some time deposits in banks, such as foreign balances, are sensitive to relative money market rates. These deposits have proven to be competitive with Government securities, and in recent months there has been a very large shift from time deposits into Treasury bills and the "magic fives." The New York City banks, which have a large portion of foreign time deposit balances, are particularly sensitive to such movements. From April 1959 to April 1960 time deposits at all commercial banks increased by 1.2 per cent whereas time deposits for weekly reporting banks and New York City banks decreased by 2.2 per cent and 16.4 per cent respectively.

The growth in recent years in time deposits has been at a modest rate compared to the growth in other savings institutions (see table). Especially spectacu-

Growth in Selected Savings Institutions

	Millions of Dollars			Per Cent Increase
	1959	1955	Increase	
Credit Unions (Shares)*	4,800	2,355	2,445	103.8
Savings and Loan (Shares) . .	54,548	32,142	22,406	69.7
Commercial Banks				
(Time Deposits)	67,610	50,300	17,310	34.4
Mutual Savings Banks				
(Deposits)	34,967	28,182	6,785	24.1

* 1959 preliminary

lar has been the expansion of savings and loan associations and credit unions which compete vigorously with commercial banks for the public's savings.

In recent years maximum interest allowable on time deposits has remained at 3 per cent, despite an increase in competitive rates. Some bankers are of the opinion that the low rates allowed on time deposits put commercial banks at a competitive disadvantage in attracting savings. Other bankers feel that by limiting interest rates paid on time deposits, the banking system is able to obtain funds at less cost and thereby reduce a competitive pressure which may have forced banks in other eras to engage in unsound banking practices.

¹ In early 1960 sensitive money market rates have declined from their previous peak levels.

MACHINE CHECK CLEARING

AFTER NEARLY FIVE YEARS of study, designing, and testing by the American Bankers Association and office equipment manufacturers, a system has been designed which promises to speed the flow of check collections in commercial banks. The MICR (Magnetic Ink Character Recognition) system was devised to require only one manual handling of a check in the banking system, whereas currently a typical check is sorted and proved, as to amount many times over in its trip from the payee back to the maker.

The facts as to volume of checks written reveal the potential impact of automatic check collection on commercial banking operations. Checking accounts are the means of making payment in more than 90 per cent of the dollar amount of all transactions in the nation. Checking accounts number in excess of 54 million on which an estimated 11 billion checks will be written this year. Moreover, the number of checks written may exceed 20 billion per year by 1970 if the present growth trend continues.

This rapid growth in number of checks plus prospects for future growth, coupled with the adaptation of automatic machines, point to an early obsolescence of current check collection systems and equipment. Today, most check collection departments of large commercial banks perform a huge volume of routine manual labor and require large staffs of clerks. They prove batches of checks to see that each batch contains the checks that are listed and that the amounts are accurately recorded. They sort the checks for final disposition and prepare outgoing cash letters containing the checks with the listed amounts. All sorts and counts involve accurate reading by an individual of the bank on which the check is drawn and the amount. The large volume and the routine nature of the operation made possible the development of a practical system of automatic check processing.

Automatic Check Sorting and Reading

The system consists basically of a method of numbering which can be read electrically and a high-speed machine which can read the numbers, and perform the operations of sorting, listing, and totaling. Numerals are placed on the lower margin of the check in magnetic ink, identifying the bank,

the account, and the amount of each check. The numerals can be read both by human eyes and by electronic machines as a different electrical signal is put out by each numeral when moved through an electromagnetic field. The data are automatically fed into a computer which totals, sorts, and records the operation.

Uniformity of Check Imprinting Essential

A requisite feature of the system is that checks be imprinted with the common machine language in a uniform manner. The American Bankers Association's Technical Committee on Mechanization of Check Handling devised the imprinting standard.¹ The imprinting should be in a space extending six inches from the right edge of the check and five-eighths of an inch from the bottom. The series is divided into three sections. First, on the left, is the routing symbol and transit number. Second, is the account number and other information desired by the drawee bank, and third is the amount of the check.

Individual banks are being asked to print their routing symbol and transit numbers in magnetic ink on check forms which they supply customers. Banks with electronic processing equipment will presumably also preprint the customer's account number. Checks will be filled out by the customers in ordinary ink as usual. The amount will be encoded on the checks in magnetic ink when they are received by the first bank in the collection chain which has the necessary equipment. This encoding will be a by-product of the listing that is necessary to prove the deposits. From this point on through the banking system the checks can be handled automatically.

Increased Efficiency

The common machine language employing magnetic ink character recognition represents a major break-through in coping with the swelling volume of checks. Both labor costs and provision for space should decline substantially. Some additional costs will be required for redesigning check forms. Aside from this, however, the printing costs for the new checks should be very little higher than for the old

¹ See the American Bankers Association's Bank Management Publication No. 147 for further information about the system.

FIRST NATIONAL BANK OF BLANKTOWN	No. <u>123</u> May 6, 19 <u>60</u>	70-2511 812
BLANKTOWN, ILL.		
PAY TO THE ORDER OF <u>Richard Roe</u>	\$ <u>1735⁰⁰</u>	
<u>One Thousand Seven Hundred Thirty Five and ⁷⁰/₁₀₀</u> DOLLARS		
<u>John Doe</u> SIGNATURE		
<div style="display: flex; justify-content: space-between; font-family: monospace; font-size: 0.8em;"> ⑈0812⑈2511⑈1234⑈4321⑈ 567 ⑈0000173500⑈ </div> <div style="display: flex; justify-content: space-around; font-size: 0.7em; margin-top: 5px;"> ROUTING SYMBOL- TRANSIT NUMBER FIELD ACCOUNT NO. AND TRANSACTION CODE FIELD AMOUNT FIELD </div>		

The "Routing Symbol-Transit Number" field will consist, in the case of par banks, of the routing symbol followed by the suffix of the ABA transit number of the drawee bank. Accordingly, in the case of the sample check ⁷⁰⁻²⁵¹¹ would be encoded in magnetic ink with E13B type in the designated field as 0812-2511. Since this field ⁸¹² must consist of eight digits, non-significant zeros are used to fill in spaces that would otherwise be blank.

Since nonpar banks are not assigned routing symbols they would use their complete transit numbers preceded by the figure "90" as prescribed by the ABA to designate nonpar offices. Thus, if the drawee bank on the sample check was nonpar the eight digit number in the "Routing Symbol-Transit Number" field would appear as 9070-2511.

The "Account Number and Transaction Code" field is reserved for the internal use of the drawee bank.

The "Amount" field is to be encoded subsequent to the issuance of the check by the first bank with encoding equipment receiving it for collection, thus enabling all further handling in intermediate and paying banks to be performed mechanically.

style checks. Even for banks which do not immediately purchase the accounting equipment designed for processing the new checks, this may be a small price to pay in the interest of a more efficient check collection system.

Five of the Federal Reserve Banks will have pilot installations for electronic check processing by early 1961. These installations are designed to test various manufacturer's equipment under operating conditions.

Business and Financial Developments—Continued from page 1.

The seasonally adjusted money supply expanded moderately during April according to preliminary data, in contrast to a decline in the first quarter of the year. This increase was a result of the expansion of loans and investments by commercial banks and the open market purchases of the Federal Reserve. The turnover of money increased rather significantly during the first quarter of 1960, but it is not likely that it continued to rise at this rate during April. Lower short-term interest rates prevailing during April, the smaller volume of short-term Government securities outstanding, and the growth in the money supply would tend to reduce the rate at which money is used.

Interest rates on marketable Government securities tended to level off during April and early May in contrast to a sharp decline in the first quarter of 1960. Short-term yields fluctuated at a slightly lower level. Current yields, however, were higher than they were last spring.

Interest Rates on Selected Government Securities Averages of Daily Figures

	Three-Month Treasury Bills	Long-term Government Bonds
1959		
April	2.95%	4.01%
May	2.84	4.08
December	4.49	4.27
1960		
March	3.31	4.08
April	3.23	4.17
May (11 days)	3.18	4.13

The Federal Government operated at a cash surplus of \$3.8 billion in the first quarter of 1960. In the corresponding three months last year the Treasury had a \$100 million cash deficit. According to projections made by the Bureau of the Budget and the Treasury there should be a cash surplus of \$3.2 billion during the April-to-June quarter this year as compared to a deficit of \$400 million in the like period last year.

District Banking in Early 1960

THERE WAS A MARKED DECLINE in deposit balances at member banks in the Eighth Federal Reserve District during the first four months of 1960. The outflow of deposits tended to cause proportionately larger losses of reserves. To prevent reserve deficiencies and to reduce indebtedness at the Reserve Bank, district member banks sold a sizeable volume of Government securities. The resulting further decline in deposits principally affected banks outside the region, however. Loans at district member banks declined much less than seasonally in the four-month period.

Reserves Declined

Total reserves held by all member banks in the Eighth District declined 8 per cent, from a daily average \$682 million during December 1959 to an average \$625 million in April 1960. This contraction in total reserves was nearly twice the average rate of decline that has taken place in corresponding months of recent years (see chart). In the nation, total reserves of all member banks dropped 4 per cent during the first third of this year: the contraction of reserves throughout the country was also about double the seasonal rate of decline.

Some of the reduction of district member bank reserves took place as banks repaid borrowings from the Federal Reserve Bank. The \$9 million decline in average borrowing in the first four months of 1960 was in part a reflection of the changing relationship between yields on Treasury bills and the Federal Reserve discount rate.¹ Over the four-month period, district banks repaid about 25 per cent of their borrowings from the Federal Reserve, while there was a 33 per cent reduction in borrowed reserves throughout the nation.

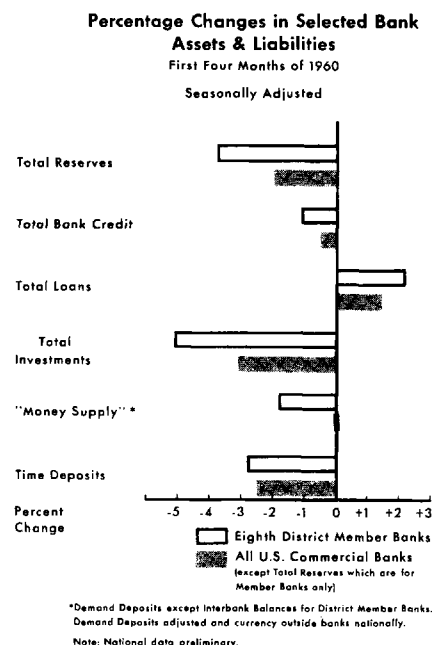
District member banks also lost reserves in an outflow of funds to other areas. During the first third of each year, this region is normally a net "importer" of goods and services from the rest of the nation and a net "exporter" of deposits and reserves. The deposit and reserve drain apparently was a little greater than usual this year. A partial offset to the reserve losses was provided by a net return flow of currency from circulation.

¹ Treasury bill yields dropped from an average 4.49 per cent in December to an average 3.23 per cent in April, while the discount rate remained at 4 per cent.

Bank Credit Decreased

Loans Contracted Less Than Seasonally

Loans held by all district member banks usually decline about 3.5 per cent in the first four months of the year. Despite the drop in reserves, there was only a 1 per cent reduction in loans outstanding from the end of December 1959 through the end of April 1960. This change was equivalent to a seasonally adjusted rise of more than 2 per cent (see chart). Judging from more



detailed reports submitted to the Federal Reserve by thirty larger district banks, net repayments by commercial and industrial borrowers have been smaller in 1960 than is usual for the four months of the year, while there was a slight increase in "Other," including consumer, loans.

Banks Made Large Net Sales of Securities

Reflecting the smaller volume of reserves and the stronger than usual loan demand, district banks sold a large volume of securities from the beginning of January to the end of April this year. Investment portfolios were reduced 9 per cent, or more than twice as much as is usual for the four-month period (see chart). As a consequence, total credit at all member banks in the district contracted about 5 per cent during the first four months of 1960. This amounted to a 1 per cent decline, seasonally adjusted (see chart).

Bank Credit Decreased Nationally, Also

The changes in bank credit in the district during the first four months of 1960 were roughly similar to the changes in total credit at commercial banks throughout the country (see chart). According to preliminary reports, the seasonally adjusted loan expansion at all commercial banks in the nation was less pronounced from the end of 1959 to the end of April 1960 than the expansion at Eighth District member banks. On the other hand, the proportion of securities sold was also smaller in the rest of the nation than in this district. As a consequence, the seasonally adjusted contraction in total credit extended by commercial banks in the United States was less than 1 per cent during the four-month period, and comparable to the adjusted net change at Eighth District member banks.

Demand Deposits Contracted More Than Seasonally

During the first four months of 1960, demand deposits (other than interbank balances) at all member banks in the Eighth District dropped \$336 million, or 8 per cent. While total credit extended by these banks declined \$271 million during the same period, the balance of the change apparently represented a movement of funds from demand deposits in district member banks to time deposit accounts, to nonmember banks in the district, and to banks in other parts of the country. In recent years, demand deposits of district banks have declined an average of 6 per cent from the beginning of January through April. The seasonally adjusted contraction of demand deposits in the first third of 1960 was therefore close to 2 per cent.

The thirty banks which submit more detailed information on credit and deposits reported that their demand deposits (other than interbank deposits) also decreased 8 per cent, or \$169 million, from the end of last December to the end of April. Deposits of individuals, partnerships, and corporations dropped \$168 million during the four months, while a fall in U.S. Government deposits at these thirty banks was nearly offset by a rise in balances of other nonbank deposit-holders.

At the end of the same four-month period, preliminary data indicate that there was virtually no net change in the money supply of the nation (demand deposits adjusted and currency outside banks), seasonally adjusted. The actual decline in the money supply before seasonal adjustment was somewhat more than 3 per cent.

Time Deposits Rose Moderately

Time deposit balances at member banks in the Eighth District declined during January and February, but increased in March and April. From the first of the year through April district time deposits increased about 1 per cent; time deposit balances at all commercial banks in the nation rose even less. The growth of time deposits in the first four months of this year was smaller, therefore, than in the corresponding months of recent years (see chart).

Conclusion

Banking activity in the Eighth Federal Reserve District roughly paralleled developments in banking throughout the nation during the four months ending with April 1960. Loans, both in the district and the nation, contracted less in the past four months than is usual for this time of year. However, total reserves of district member banks, and also of banks in the rest of the nation, declined more than seasonally. Banks therefore adjusted their reserve positions by large net sales of securities. Thus, total bank credit, both in the district and throughout the nation, contracted more than it generally does in the first third of the year.

Reflecting the fall in bank credit, the money supply within the district (as indicated by the volume of demand deposits in district banks) fell farther than usual from the end of last December to the end of this April. On the other hand, preliminary data show an approximately seasonal change in the nation's money supply over the past four months. But time deposit balances at banks in the district and in the nation rose less than usual during the first four months of 1960.



Changes in the Farm Population

THE NUMBER OF PEOPLE LIVING ON FARMS in the nation continued to decline in 1959, according to the United States Department of Agriculture. While physical farm output moved to a new record high, one per cent above the 1958 level and 24 per cent greater than in 1950, farm population, number of farms, and farm employment declined, reaching new lows for the century.

On April 1, 1959 there were 21.2 million people living on farms, one per cent less than a year earlier, 16 per cent less than in 1950, and 33 per cent less than the number on farms a quarter century ago.

Farms in the nation totaled 4.6 million in 1959, 2 per cent less than in 1958, nearly 20 per cent less than in 1950, and about one-third fewer than in 1935.

Farm employment has dropped even more sharply than farm population and number of farms. Average farm employment of 5.8 million in 1959 while only a fraction of one per cent below the 1958 level was 23 per cent less than in 1950, and more than 40 per cent below the level of 1935.

The loss of farm population is a result of technological change in agriculture. Output per worker has increased substantially faster than growth in the farm commodity market, sharply reducing labor requirements for the industry as a whole. New combinations of resources of production have contributed to substantial increases in total farm output and output per worker. Farm output in 1959 was one per cent greater than in 1958, 24 per cent greater than in 1950, and almost 75 per cent above that of 1935. Output of farm commodities per worker has increased three-fold since 1935.¹

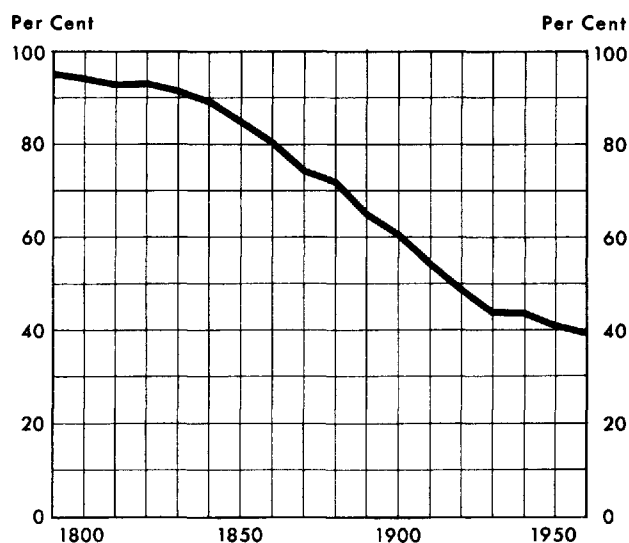
This rapid decline in farm labor requirements has created many adjustment problems. Individual farmers are faced with the important decision of whether or not to shift occupations and make the major adjustments both occupational and social in cities or metropolitan areas. Local and state governments of metropolitan areas are concerned with the additional facilities such as schools, transportation facilities,

utilities, and social services required by the new residents. The Federal Government is concerned with the impact of farm output gains and has attempted to ease the impact of such gains with acreage control and price support programs.

The gains in real income to the total economy from increased production efficiency in agriculture however, are great. Transfers of labor from agriculture to nonfarm sectors of the economy have contributed to increased output of total nonfarm goods and services. Furthermore, all consumers have benefited from lower food prices.

From 1840 until the present the rural population has steadily declined relative to total population, with the exception of the depression years of the 1930's. In the decade 1840-1850 the per cent of the population classified as rural declined from 89.2 to 84.7—a greater relative decline than occurred in the entire four decades prior to 1840, despite the higher birth rate in rural areas.² The relative decline was steady throughout the last half of the 19th and the first half of the 20th centuries except during the thirties. By 1900 only 60 per cent of the nation's population was classified as rural and in 1950 rural population accounted for only 41.0 per cent of the total.³

Per Cent of Total Population Classified as Rural
United States, 1790-1959



¹ Output per man-hour refers to the constant dollar value of goods and services produced in relation to the hours of all persons employed. It reflects the interaction of all factors of production including labor skills, technology, capital investment and the contribution of management.

A large share of the increased output can be attributed to purchases of additional resources produced off the farm such as machinery, fertilizer, insecticides, and fuel, and represents a shifting of labor from the farm to the factory which produced the resource. Also, there are problems of consistency in measuring output and labor input over a period of time, especially in agriculture.

² Rural population as distinguished from farm population includes all persons living outside incorporated places of 2,500 inhabitants or more and areas classified as urban under special rules. Farm population includes only people actually living on farms. Farm population census data are not available prior to 1910.

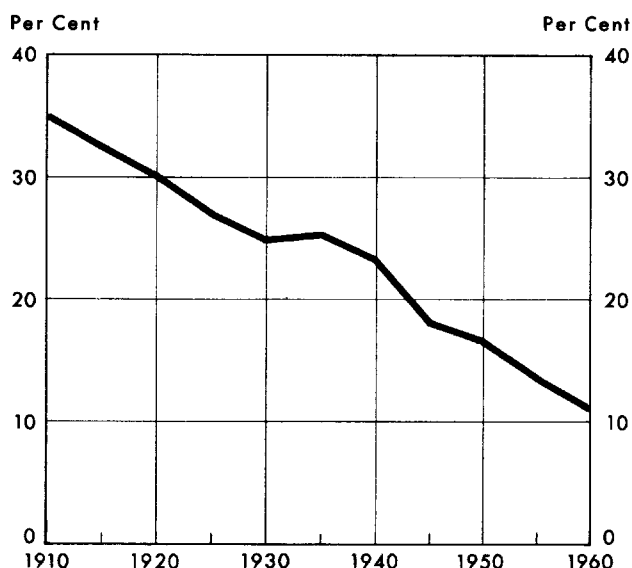
³ Data based on "old" Bureau of Census definition of urban population.

Decline in Farm Population

Apparently the number of people living on farms reached a plateau near the turn of the 20th century and held fairly constant until the 1920's. Farm population data, which date back to 1910, show more than 32 million people living on farms at that time. In the 1920's a downturn became apparent, reaching a low of 30.5 million in 1930 when the trend was temporarily reversed by a "back-to-the-farm movement" of the early depression years. In 1933 the trend again turned downward, and farm population has continued to decline with but minor interruptions.

Relative to total population the decline in number of people on farms has been even more pronounced. Farm population dropped from 35 per cent of total population in 1910 to 11 per cent in 1960 according to preliminary estimates.

**Per Cent of Total Population Living on Farms
United States, 1910-1960**



Number and Size of Farms

The number of farms in the nation has moved in a pattern similar to that of the farm population, increasing throughout the 19th century, reaching a plateau soon after the turn of the century and declining, following a small bulge in the depression years of the 1930's. The number of farms increased steadily from 1.4 million in 1850 to 6.4 million in 1910. The number remained near this level until the mid-1930's when it rose to a peak of 6.8 million. Numbers then declined rapidly to 6.3 million in 1940 to 5.6 million in 1950 and according to preliminary estimates to 4.6 million in 1959.

Much of the increase in numbers of farms was achieved by carving out new farms in undeveloped

areas. New land brought into farms increased almost threefold in the half-century ending in 1900. By that time most of the better land of the country had been brought into farms and the increase in farm land has since been relatively slow.

A decline in the number of farms since the depression years has been via farm consolidation and farm enlargement rather than in a reduction of acreage. New land brought into farms has slightly more than offset losses from expanding commercial, industrial and residential use. Farm land acreage continued to increase from 1.1 billion acres in 1935 to 1.2 billion in 1954 while the average size of farms rose from 155 to 242 acres.

Farm Employment

A corollary to the declining farm population and declining number of farms is the reduction in farm employment including both farm operators and other workers. Employment on farms rose steadily from 2.1 million in 1820 to a peak of 11.6 million in 1910. The decline was small until 1935 when farm employment still averaged 10.1 million for the year. By 1940, with farm employment at 9.5 million, the downturn had become more pronounced. The flight from the farm is a more appropriate description for the decline since 1940 with farm employment dropping to 7.5 million in 1950 and 5.8 million in 1959.

Employment on farms relative to total employment has declined continuously since 1820. At that time farm employment constituted 72 per cent of the total. The farm proportion declined to 37.5 per cent in 1900, to 23.9 per cent in 1935, to 12.5 per cent in 1950, and to less than 9 per cent in 1959.

Increased Farming Efficiency

The rapid movement of human resources out of agriculture can be traced to the combination of huge gains in farm output per man-hour and a fairly constant demand for farm products relative to population (see chart). For example, the output of farm products per man-hour increased 62 per cent from 1950 to 1958 compared to a 15 per cent gain in population. Furthermore, in the period 1935 to 1958 output per man hour in agriculture rose 156 per cent compared to a 36 per cent rise in population. With demand for agricultural products determined primarily by the number of consumers, the diverse rates of growth in population and output per man-hour have greatly reduced the number of farm workers required to produce the nation's farm commodity requirements.

Not only has farm output per man-hour moved up faster than demand, output per man-hour in agriculture has increased substantially faster than output per man-hour in the nonagricultural industries. Compared to the increase in output per man-hour in agriculture of 156 per cent from 1935 to 1958, output per man-hour in the nonfarm industries rose only 69 per cent or at less than half the rate of gain in agriculture (Table 1).

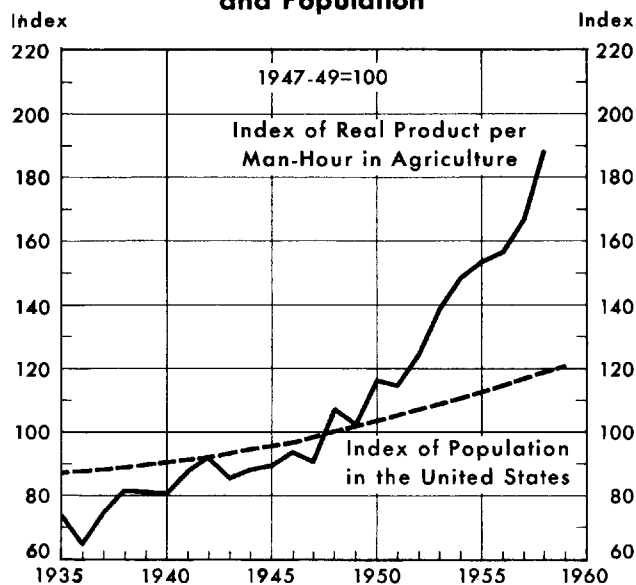
TABLE 1
Real Product Per Man-Hour in the Private Economy

	1947-49 = 100		
	Total Private	Agricultural	Nonagricultural
1935.....	68.3	73.7	74.5
1940.....	81.3	80.3	86.1
1945.....	98.5	89.2	101.3
1950.....	110.4	116.2	108.8
1955.....	128.0	153.5	121.9
1958.....	135.4	188.6	126.3

Source: *Trends in Output Per Man-Hour in the Private Economy, 1909-1958*, United States Department of Labor, Bulletin No. 1249, (BLS data used).

Part of the increase in output per man-hour in agriculture is offset by an increase in nonfarm inputs in agriculture, i.e., instead of spending a given amount of money per unit of output for farm labor, the farm operator purchases other resources. Thus, a portion of the labor normally required for production of farm commodities is now being used for the production of laborsaving farm resources. If the value of all such labor saved was incorporated in the laborsaving resources no gain would have occurred in output efficiency. However, evidence indicates that more than half the increase in output per worker can be explained by real gains in efficiency rather than the simple substitution of nonfarm inputs for farm labor.

Real Product per Man-Hour in Agriculture and Population



An evolution in combining the resources of production in agriculture has been the major factor in increasing output per farm worker. Technical discovery and innovation both from nonfarm industries and from farm research organizations have contributed to the inventory of capital items and knowledge available to agriculture. Individuals such as McCormick, Deering, and others have introduced numerous laborsaving machines and implements. Many private firms have contributed new knowledge to farm production methods. The Federal Government beginning with the Morrill Act of 1862, which provided land grants for the support of agricultural and mechanical colleges, has increasingly taken responsibility for supplying farmers with the know-how for developing productive potential to its fullest. From these numerous sources an ever increasing stream of innovations has flowed to the farm.

A substantial portion of the increased farm output per man-hour is related to economies of larger operations with modern farm machinery. Extremely favorable prices for laborsaving capital equipment in recent years have created opportunities for individual farmers to increase profits through greater mechanization (Table 2). In taking advantage of such opportunities farmers have purchased machinery with which they could readily farm more acres than they had been operating. Thus, a surplus of labor and machinery has developed. As total fixed costs of the machinery were covered in the original unit, net income to the operator was greater on the added than on the initial acres. This higher net product accruing to additional acres has provided the incentive for farmers to greatly enlarge their farming operations.

TABLE 2
Motor Vehicles, Other Specified Machines and Horses and Mules on Farms in the United States

	(Thousands)					
	1910	1920	1930	1940	1950	1959
Tractors	1	246	920	1,567	3,394	4,750
Motor-trucks	0	139	900	1,047	2,207	3,060
Automobiles	50	2,146	4,135	4,144	4,199	4,260
Grain Combines ...	....	4	61	190	714	1,060
Corn-Pickers .....	....	10	50	110	456	760
Pickup Balers .....	....	....	....	....	196	610
Field Forage						
Harvesters .....	....	....	....	....	81	264
Farms with Milking						
Machines .....	....	55	100	175	636	725
Horses and Mules ..	24,211	25,742	19,124	14,478	7,781	3,079

Source: *Numbers of Selected Machines and Equipment on Farms with Related Data*, United States Department of Agriculture, 1960.

Other resources not so directly related to mechanization and spatial size have had an important impact on farm production efficiency. For example, fertilizer,

insecticides, improved seeds and irrigation have greatly increased output per man-hour through increased yields per acre. With fixed costs and a large per cent of operating costs already charged to each acre farmed, the use of the above yield-increasing resources is generally highly profitable.

Output per acre of all crops at constant dollar values increased 50 per cent from 1935 to 1957. But the disparity in the rate of growth has been substantial as noted in Table 3. From the 1935-37 average yield, to the 1957-59 average, corn and cotton more than doubled, sorghum grain yield increased almost three-fold, whereas rye, soybeans, and oats increased less than 50 per cent. All major crops, however, had a substantial increase in yields between the two periods.

TABLE 3
Increased Yields Per Acre, Major United States Crops

	Average Yield		Per Cent Increase
	1957-59	1935-37	
Corn, all-bu.	50.2	22.8	+120.2
Oats-bu.	39.8	29.0	+ 37.2
Barley-bu.	29.2	21.1	+ 38.4
Rye-bu.	16.3	11.9	+ 37.0
Rice-100# bag	3,293	2,215	+ 48.7
Wheat, all-bu.	23.3	12.9	+ 80.6
Wheat, winter	24.4	14.1	+ 73.0
Wheat, spring	19.9	9.8	+103.1
Sorghum (grain)-bu.	34.2	12.5	+173.6
Flaxseed-bu.	7.3	6.4	+ 14.1
Soybeans (beans)-bu.	23.8	16.3	+ 46.0
Hay, all-tons	1.64	1.20	+ 36.7
Tobacco, all-lbs.	1,549	869	+ 78.3
Cotton-lbs.	443	218	+103.2

Source: U. S. Department of Agriculture.

Adjustment Problems

The shift of labor from agriculture to nonfarm pursuits has created numerous adjustment problems. Individual farmers confronted with the important problem of whether or not to shift to a nonfarm job have many factors to consider. The shift to nonfarm occupations for farm reared boys who have not started in farming on their own is apparently relatively easy. Furthermore, there is apparently no significant difference in the earning abilities of farm reared boys and urban reared boys after an adjustment period.⁴ The problem, however, is more difficult for individuals who are already established in farming. Obstacles to the change generally include, disinvestment of accumulat-

ed farm capital, a move of family and household belongings to another location and a start from the apprenticeship level in the new job. Even at this level, employment is usually difficult to obtain by middle aged and older individuals.

Local governments in areas to which farmers migrate have problems of providing for the rapidly increasing population. New schools, utility services, and other facilities often need expanding.

In the past 25 years of extremely rapid increase in farm production efficiency, the Government has attempted to ease the impact on farm commodity prices and farm income. Acreage control programs were initiated to hold down production. Price control programs were used to retain prices above free market levels for many commodities. The programs were only partially successful as farmers often substituted more of other productive factors as fertilizer, irrigation, etc., for land and thus increased yields on the reduced acreages. The Government became the residual purchaser of farm commodities under the price support operations and huge surpluses have been built up, the disposal of which remains a problem.

Large Gains from Increased Efficiency

The gains in total national product from technical developments in agriculture are great. The manpower that has become available through migration from farms has been a major factor in the growth of nonfarm industry. The demand for nonfarm goods and services has generally increased at a much faster rate than demand for farm commodities. As consumers incomes rise, an increasing share is spent on nonfarm goods and services. Agriculture has been able to furnish a substantial amount of labor to meet this demand.

Another beneficial feature of greater efficiency in agriculture is the lower price tags on food than would otherwise be the case. Many of the technological achievements that permit greater output per worker in agriculture are also per unit cost reducing. Since farming is a highly competitive industry, excluding the impact of the acreage control and price support programs, most cost reduction savings are passed on to consumers.

Since greater efficiency in production is one of the major goals in the nation, the gains from rapid flows of technology to the farm apparently outweigh the adjustment costs. Despite the upheaval of rural population, the nation as a whole has gained from greater output of nonfarm goods and services and relatively lower cost farm products are flowing to consumers.

⁴ Buck, Roy C., and Brown, C. Harold, "The Implications of Rural Youth Migration and Occupational Mobility for Agriculture," *Journal of Farm Economics*, Proceedings Issue, December, 1959.