

# MONTHLY *Business Review*

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FINANCE • INDUSTRY • AGRICULTURE • TRADE

FOURTH FEDERAL RESERVE DISTRICT

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Federal Reserve Bank of Cleveland

Cleveland 1, Ohio

## Recent Financial Developments

THE third quarter of 1952 was marked by sustained demand for funds from Federal, State and local governments, from private business, from home buyers and owners, and from consumers. Apparently a considerable part of the requirements for credit was met out of the savings of the nation and from loan repayments. Throughout the period, the Federal Reserve System continued to exert a restraining influence. The growth of bank credit and of the money supply was of modest proportions. On the whole, the expansion of credit does not appear to have added materially to inflationary pressures.

**Growth in the Money Supply** The expansion in credit contributed to a growth of over \$2 billion in the money supply. Nearly all of the increase occurred in deposits; currency outside banks was little changed. The changes are shown in the adjacent table.

The chief factors in the growth in money supply were an increase in bank loans of over \$1 billion, and purchases by the Federal Reserve banks of about \$800 million of U. S. Government securities. Government security holdings of commercial and mutual savings banks showed little net change, but these banks added to their holdings of corporate and municipal securities.

**Treasury Finance** The gross debt of the U. S. Treasury increased by \$3½ billion during the third quarter, the largest increase for any quarter since World War II, with the exception of the

### CHANGES IN THE MONEY SUPPLY

Selected Periods—1951 and 1952

(In billions of dollars)

	Third Quarter		First Half	
	1952 <sup>e</sup>	1951	1952 <sup>e</sup>	1951
Total Money Supply.....	+2.3	+2.3	+1.6	+0.6
U. S. Government Deposits.....	+1.1	-0.5	+2.6	+2.9
All Other Deposits.....	+1.1	+3.4	-1.2	-2.7
Currency.....	+0.1	-0.4	+0.2	+0.4
Principal Factors Affecting				
Money Supply.....	+2.8	+3.1	+2.4	+0.7
Gold Stock.....		+0.2	+0.6	-1.0
Security Holdings.....	+1.6	+1.7	-0.4	-1.7
F. R. Banks.....	+0.8	+0.5	-0.9	+2.2
Other Banks.....	+0.8	+1.2	+0.5	-3.9
Bank Loans.....	+1.2	+1.2	+2.2	+3.4

e—estimated

third quarter of 1949. An issue for cash of nearly \$4¼ billion was offset to the extent of about \$700 million by cash redemption of maturing obligations.

On July 1, 1952, the Treasury issued \$4¼ billion of bonds maturing June 15, 1958, and bearing interest at 2¾ percent per annum to help finance the deficit anticipated for the rest of the calendar year. The 2¾ percent bond was the first marketable Treasury security of a year or more maturity to be offered

for public cash subscription since the Victory loan of late 1945.

In addition to the cash offering of bonds, an 11-month  $1\frac{7}{8}$  percent certificate was issued on July 1 in exchange for approximately \$5 billion of maturing certificates, and in August a 2 percent, 1-year certificate, the highest rate carried by a 1-year security since 1933, was issued in exchange for nearly \$2 $\frac{1}{2}$  billion of certificates maturing August 15 and September 1. It was in these exchanges that the Treasury was called upon to retire about \$700 million for cash.

The most recent, and largest, refunding operation by the Treasury involved nearly \$11 billion of certificates, maturing October 1, for which 14-month notes bearing  $2\frac{1}{8}$  percent interest were offered in exchange in mid-September. Since the actual exchange did not occur until October 1, this exchange had no effect on the volume of Governments outstanding during the third quarter. Apparently, however, it caused some shifting of these securities from other hands into the portfolios of the Federal Reserve banks.

#### Bank Holdings of Governments

The Treasury's financing was accomplished with only moderate recourse to the banking system, most of the increase in the public debt being financed out of the savings of the country. Temporary financing by the banks of brokers and dealers and of the Treasury itself did occur from time to time but these loans were paid off promptly. Changes in the composition of bank portfolios also took place and total holdings of U. S. Government securities by the banking system increased somewhat for the quarter as a whole. U. S. Government securities held by commercial banks showed little net change, but open market purchases added to the holdings of the Federal Reserve Banks.

#### State and Municipal Finance

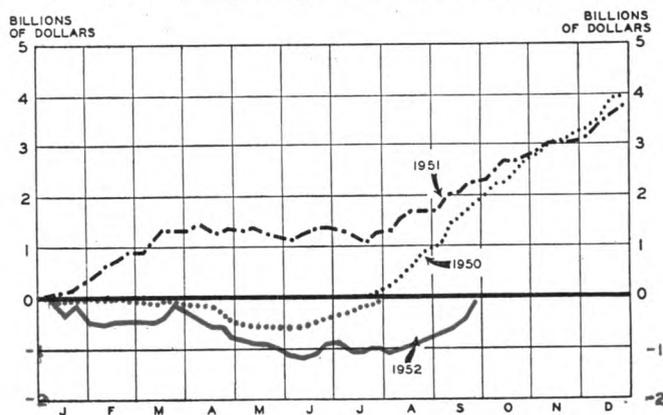
Debts of State and local governments continued to expand during the third quarter of 1952 but the financial demands of these bodies were noticeably lighter than in the first half of the year when borrowing was in substantial volume.

Bank purchases of obligations of State and local governments were reflected in an increase in holdings of "other securities" of about \$1 $\frac{1}{2}$  billion during the nine months of 1952, with about one-third of the expansion occurring in the third quarter. At this rate the total 1952 increase in bank investments in such securities would be close to the record 1950 gain of more than \$2 billion.

Fourth District banks present a sharp contrast to the rest of the country, registering only a small gain in holdings of securities other than obligations of the U. S. Government during 1952 to date. This may be

### COMMERCIAL, INDUSTRIAL, AND AGRICULTURAL LOANS

Cumulative Change, Weekly 1950, 1951, 1952  
(Weekly Reporting Member Banks—U. S.)



... an upswing in commercial and industrial loans got underway in the third quarter, as is usual, at weekly reporting banks throughout the country, and by the end of September the shrinkage during the first half of the year had been cancelled.

NOTE: Latest date plotted, September 17, 1952.

due in part to the more sustained loan demand in this area than in the country as a whole.

#### Bank Loans to Business

The financing of near-record expenditures for plant and equipment and the need for working capital was reflected in a sustained volume of new corporate security issues and in a further expansion of business loans during the third quarter of 1952. Corporate security flotations for new capital in the July-September quarter were not far short of the record \$8 billion annual rate achieved in the first six months of the year.

Bank loans to business, which had declined somewhat during the first half of the year, increased noticeably in the latter part of the third quarter. The recovery for the third quarter brought the total for the weekly reporting member banks close to the all-time high of last December with nearly half of the twelve Federal Reserve districts setting new records.

Outstanding loans to commodity dealers and to processors of food, liquor, and tobacco products, which had been reduced during the first seven months of the year with the movement of merchandise from factories and warehouses into distributive channels and to consumers, rose again during the third quarter with the beginning of harvesting.

The recession in the textile industry in 1951 and early 1952 led to loan repayments during most of that period as textile firms reduced their working capital needs through inventory and production cut-backs. Since the middle of the year textile firms have expanded output somewhat, and have again increased their borrowings at the commercial banks.

The expansion of loans to producers of metals and metal products slowed noticeably in the second quarter of the year, but still constituted an important force bolstering loan totals. In July and August, however, with the steel mills shut down and many of the manufacturers of steel-using products working short-time and reducing inventories, substantial repayments were reported in loans to the metals and metal products group of industries. With production restored, and pipe-lines being refilled, demands on the banks by these firms for cash have revived.

Sales finance companies generally continued to borrow from banks this summer and early fall, in contrast to their virtual absence from the loan market in the comparable period of last year. Increased borrowing by finance companies presumably reflected the growth of consumer credit, in which these companies played a prominent part.

Public utility companies have reduced their indebtedness to reporting banks, with particularly heavy repayments since the middle of the year. These net repayments, in contrast to the continuous borrowing in 1951, may reflect the substantial volume of funds raised through security issues this year, as well as, perhaps, the availability of increased revenues. Capital expenditures of utility companies are being maintained at high levels.

In the Fourth District, the business loan picture turned from slight decline and virtual stability between March and August to a fairly sharp rise in September, which carried the total to new record levels. New loan volume in July and August, particu-

larly for manufacturing and extractive firms, slumped to the lowest rate in at least fourteen months, due almost exclusively to the curtailment of borrowing by firms producing metals and metal products. A marked pickup in new borrowing became evident in September.

The pattern of borrowing by industry groups in this district closely paralleled the countrywide movement in direction, though not in degree. Continuous expansion of loans to public utility companies, however, and frequent loan reductions by firms engaged in wholesale and retail distribution, contrasted somewhat with the over-all picture for the country.

**Real Estate Credit** The volume of new loans made on residential properties during the third quarter of 1952 is estimated to have been larger than in any other third quarter on record except for the boom period in 1950 following the outbreak of the Korean War.

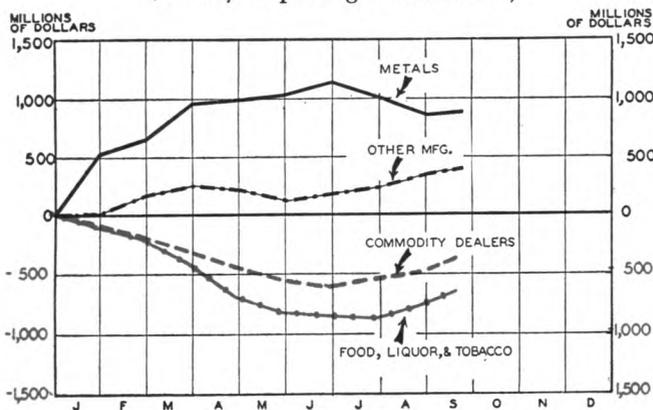
The large volume of lending reflects in part the high volume of residential construction, of real estate transfers, and of refinancing. In addition, higher prices prevailed than in previous years, and increases in the amounts of some loans may have followed the relaxation in June of Regulation X and the companion FHA and VA regulations. The increase in new loans has been in the so-called "conventional" loans; loans insured or guaranteed by the FHA and VA have declined almost continuously in the past two years. The decline in the insured or guaranteed loans is due largely to the tightness in the money market which makes 4 percent and 4¼ percent loans unattractive to lenders even when accompanied by Government insurance or guaranty.

The volume of new loans continued to exceed repayments, and mortgage loans outstanding on residential properties have risen to successive record levels in recent months. The outstanding mortgage debt on nonfarm 1- to 4-family houses now amounts to nearly \$60 billion, or about three times the debt outstanding on such properties at the close of World War II.

The Defense Production Act Amendments of 1952, enacted June 30, provided for a relaxation of the regulations governing the extensions of credit on residential properties whenever the number of new residential starts in each of three consecutive months should fall below an annual rate of 1,200,000 after taking into account normal seasonal fluctuations. Starts were below the minimum rate in each of the three months of June, July and August and, effective September 16, 1952, the Board of Governors of the Federal Reserve System suspended Regulation X in its entirety with reference to both residential and non-residential construction. Concurrently, the Administrator of the Housing and Home Finance Agency instructed the Federal Housing Administration, the

**COMMERCIAL AND INDUSTRIAL LOANS,  
SELECTED BUSINESS GROUPS**

Cumulative Change, Monthly, 1952  
(Weekly Reporting Banks—U. S.)



... loans to producers of metals and metal products continued to rise throughout the first half of the year, but were reduced during and shortly after the steel strike. The usual shrinkage in loans of commodity dealers and producers of food, liquor and tobacco products during the first half of the year was followed by an anticipated upturn in the third quarter.

NOTE: Latest date plotted, September 17, 1952.

# Population and Housing Trends in Fourth District Metropolitan Areas

**G**ENERAL population and housing trends in the Fourth District's metropolitan areas<sup>1</sup> show more differences, from than similarities with, trends in metropolitan areas throughout the country as a whole.

The main similarities noted are: both the population and the housing supply increased faster inside metropolitan areas between 1940 and 1950 than they did in nonmetropolitan areas; the housing supply increased at a faster rate than did the population; and, home owners outnumbered renters for the first time in history.

The major differences between Fourth District and national trends are: the slower rate of growth in population and housing within the District; a greater relative improvement in the District's housing supply; a lower vacancy ratio and fewer substandard dwellings in the District; and a smaller percentage of renters locally.

## Standard Metropolitan Areas

A standard metropolitan area has been established by the Bureau of the Census in cooperation with a number of other Federal agencies in connection with each city of 50,000 or more inhabitants in 1950. Except in New England, each standard metropolitan area is defined in terms of one or more entire counties with the name of the area indicating the central city (or cities). On the basis of the 1950 Census of Population, 168 standard metropolitan areas were delineated throughout the United States. Eighteen of them are in the Fourth District. Sixteen lie wholly within the Fourth District (see map) and two others have roughly one-half of their land area lying in the District. In 1950, nearly two-thirds of the Fourth District's population resided in metropolitan areas on about one-fifth of the District's land area. Nationally, the metropolitan area resident proportion was smaller—only about 56 out of every 100 persons resided within standard metropolitan area boundaries.

## Population increasing faster inside metropolitan areas

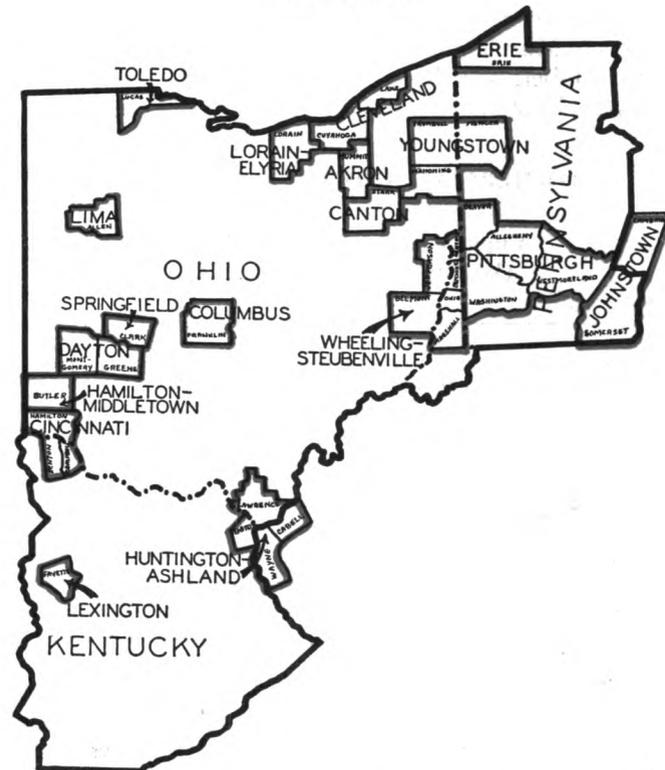
between 1940 and 1950

The population of the Fourth District's 18 standard metropolitan areas increased at a more rapid rate than did the nonmetropoli-

tan population. However, the rate of growth in the 18 District metropolitan areas averaged 14 percent, considerably below the 22 percent gain averaged by the country's 168 metropolitan areas. The nonmetropolitan population of the District grew at a rate of 4 percent over the 1940-50 decade as compared with 6 percent nationally.

Only 5 of the 18 District metropolitan areas equaled or exceeded the average growth rate of the nation's metropolitan areas. Dayton ranked first among the District's 18 areas with a 38 percent spurt in population, followed by Lorain-Elyria, Columbus, Lexington, and Hamilton-Middletown, in that order, with population gains ranging from 32 to 22 percent. On the other hand, both the Wheeling-Steubenville and the Johnstown metropolitan areas lost population. Nationally, the rate of change in population ranged from a 110 percent gain in the Albuquerque, New

STANDARD METROPOLITAN AREAS  
Fourth District



... nearly two-thirds of the Fourth District's population resided within the boundaries of 18 standard metropolitan areas on April 1, 1950.

Source: Bureau of the Census.

<sup>1</sup> Fourth District population trends, both urban and rural, were discussed in the August, 1952, *Review*. Population and selected economic indicators were also presented for the economic areas of Ohio (both metropolitan and nonmetropolitan) in the October 1951, *Review* and the following *Review Supplements*: November 1951; January 1952; February 1952; March 1952; and May 1952.

Mexico, standard metropolitan area to a 15 percent loss in the Scranton, Pennsylvania, area.

Dayton's first place among the District's 18 metropolitan areas in the rate of gain over the 1940-50 intercensal period was partially due to the expansion of Wright-Patterson Air Force Base during World War II and its maintenance as a permanent installation since the end of the War. Population growth in Lorain-Elyria was stimulated by the rapid expansion of industry in that area during the 1940-50 decade.

In 1950, Pittsburgh had the largest resident population of the 18 District metropolitan areas while Lima had the smallest. (Pittsburgh ranked eighth in the number of inhabitants among the nation's 168 metropolitan areas in 1950 and Cleveland ranked tenth.) In terms of land area, Pittsburgh, with 4 counties, was also the largest of the 18 and Lexington was the smallest. However, Cleveland was the most densely populated metropolitan area in the District, having 2,130 people living on each average square mile or nearly twice as many as Cincinnati, the second most densely populated area. Johnstown was the most sparsely populated of the 18 District areas, averaging 164 persons to each square mile of land area.

**Better Housing** The housing supply increased faster than the population over the 1940-50 decade in both the Fourth District and the country as a whole, suggesting that the population is better housed now than in 1940. Again, as was the case with population changes, the rate of increase in the housing inventory of metropolitan areas was well above that of nonmetropolitan areas while the District rate fell short of the national gain.

Even though the number of dwelling units did not increase as rapidly in the Fourth District as they did nationally between 1940 and 1950, the District's inhabitants took more rapid strides in improving their housing supply over this decade than did their national counterparts. In the District, the number of dwelling units increased 19 percent between the last two Census dates as compared with a national gain of 23 percent. But, comparison of these rates of change with population gains made over the same period (Table I) shows that the District's housing inventory increased nearly twice as fast as did its population whereas, nationally, the housing supply increased only about 1½ times as fast as the population.

Furthermore, preliminary reports for the nine largest metropolitan areas in the District indicate that the proportion of the District's inhabitants living in substandard dwelling units is below the national average. About 8.5 percent of all the dwelling units in these nine major areas were dilapidated or without running water in 1950 as compared with a national proportion of 9.2 percent. Most of these substandard units were occupied. Of the nine large District metro-

**TABLE I**  
**COMPARISON OF GAINS IN POPULATION AND HOUSING, 1940 TO 1950**

Fourth District vs. United States

Subject	Percentage Increase, 1940 to 1950	
	Population	Dwelling Units
<b>Fourth District</b>		
In standard metropolitan areas . . . .	14.2	22.0
In nonmetropolitan areas . . . . .	3.8	5.1 <sup>1</sup>
Total . . . . .	10.4	19.3 <sup>1</sup>
<b>Continental United States</b>		
In standard metropolitan areas . . . .	22.0	n.a.
In nonmetropolitan areas . . . . .	6.0	n.a.
Total . . . . .	14.5	22.9 <sup>1</sup>

Source: Bureau of the Census.

n.a. Not available.

<sup>1</sup> Preliminary. Based on a 20 percent sample of Census returns.

politan areas, Cleveland had the smallest percentage of substandard units and Wheeling-Steubenville had the largest.

In spite of the rapid gains in housing relative to population during the last intercensal period, the 1950 Census of Housing revealed that none of the District's 18 metropolitan areas had a vacancy ratio<sup>2</sup> as high as the national average. In fact, the vacancy ratio of 0.9 percent in these 18 areas was about 50 percent below the national average of 1.6 percent. This would seem to indicate the need for further expansion of the District's housing inventory and may help explain why home building has been proceeding at a faster rate in the District than in the 37 states east of the Rocky Mountains for the past two years.

**Home Ownership Rises Substantially** Home ownership grew rapidly in the nine largest metropolitan areas in the District during the 1940's. Preliminary reports show that there were more home owners than renters in these nine areas in 1950, just the reverse of what was true in 1940. In fact, the number of rental units declined between 1940 and 1950 in six of the nine areas even though the total number of dwelling units increased substantially.

Youngstown and Akron ranked first and second, respectively, among the country's 57 largest metropolitan areas in the percentage of occupied dwelling units owned by the occupant. Cincinnati was the only one of the nine largest District metropolitan areas

<sup>2</sup> Includes only those units that were nonseasonal, not dilapidated, and available for sale or rent at the time of enumeration.

TABLE II  
SELECTED POPULATION AND HOUSING CHARACTERISTICS

Fourth District Standard Metropolitan Areas  
April 1, 1950, compared with previous Censuses

Standard Metropolitan Area	POPULATION				DWELLING UNITS					
	1950		Percent Increase		All Units		Occupied Units <sup>1</sup>		Percent of All Units Vacant & Available 1950 <sup>2</sup>	Percent of All Units Dilapidated or Without Running Water 1950 <sup>3</sup>
	Total	Per Square Mile	1940 to 1950	1930 to 1950	1950	Percent Increase 1940 to 1950	1950	Percent Increase 1940 to 1950		
Akron.....	410,032	993	20.8	19.1	122,694	30.5	119,317	30.3	1.1	7
Canton.....	283,194	494	20.6	27.7	83,156	31.0	80,906	30.1	1.1	n.a.
Cincinnati.....	904,402	1,239	14.9	19.6	284,261	18.0	276,700	21.6	1.1	6
Cleveland.....	1,465,511	2,130	15.6	17.9	438,215	20.2	427,117	21.9	1.0	5
Columbus.....	503,410	936	29.5	39.4	147,955	34.8	145,388	37.5	0.7	9
Dayton.....	457,333	519	38.0	49.1	133,680	42.3	130,896	42.6	0.7	11
Erie.....	219,388	270	21.3	25.2	64,776	28.7	61,841	28.8	0.8	n.a.
Hamilton-Middletown...	147,203	313	22.4	29.0	42,154	26.3	41,105	26.5	0.9	n.a.
Huntington-Ashland.....	245,795	175	8.9	16.8	70,186	23.3	67,344	21.9	1.3	n.a.
Johnstown.....	291,354	164	-2.4	2.6	78,868	12.0	76,364	10.8	0.6	16
Lexington.....	100,746	360	27.7	47.0	28,111	28.0	27,330	29.9	0.9	n.a.
Lima.....	88,183	215	20.3	27.0	26,653	29.1	25,959	28.2	1.1	n.a.
Lorain-Elyria...	148,162	299	31.8	35.7	43,178	36.4	41,459	37.2	1.0	n.a.
Pittsburgh.....	2,213,236	725	6.3	9.4	628,338	16.8	614,408	16.9	0.9	10
Springfield.....	111,661	278	16.7	22.8	33,651	22.2	32,877	23.4	1.0	n.a.
Toledo.....	395,551	1,153	14.9	13.8	119,212	19.3	116,662	21.4	0.8	9
Wheeling-Steubenville..	354,092	231	-2.8	1.7	103,826	10.2	100,533	8.9	0.7	20
Youngstown.....	528,498	307	11.6	15.3	149,725	23.7	145,967	23.1	0.8	11
18 Metropolitan Areas <sup>4</sup> .....	8,511,479	566	14.2	18.1	2,500,905	22.0	2,437,414	22.9	0.9	8.5 <sup>5</sup>
Continental United States..	150,697,361	51	14.5	22.7	45,875,000 <sup>3</sup>	22.0	42,856,051	23.0	1.6 <sup>3</sup>	9.2

Source: Bureau of the Census.

n.a. Not available.

<sup>1</sup> Based on 1950 Census of Population count of the number of households, which are the same as occupied dwellings units by definition. However, minor discrepancies may arise between the two series since Population and Housing data are tabulated separately.

<sup>2</sup> Includes only nonseasonal, not dilapidated units available for rent or sale at time of enumeration.

<sup>3</sup> Preliminary. Based on a 20 percent sample of Census returns.

<sup>4</sup> Includes only the Fourth District portions of the Huntington-Ashland and Johnstown standard metropolitan areas.

<sup>5</sup> Average for nine standard metropolitan areas lying wholly within the Fourth District, Johnstown excluded.

where the renters outnumbered the owners in 1950, a situation that prevailed in only 15 of the 57 leading metropolitan areas in the country.

The gain in home ownership that occurred during the last intercensal period was a sharp reversal of a long-time tendency in the opposite direction. Even though the number of owner-occupied dwellings in the United States has increased during each decade since 1890, the proportion of owner-occupied

units has declined. It declined slowly from 1890 to 1920, increased moderately during the 1920's, but dropped sharply during the 1930's so that the percentage of owner-occupied units in 1940 was smaller than any previous year for which data is available. The rapid changes that occurred during the 1940's made 1950 the first Census year in which more than half of the nation's dwelling units were owner-occupied and also marked the first decade on record dur-

ing which there was a decrease in the number of rental units. This trend towards home ownership was accelerated by increased demand for housing, which accompanied the high rate of family formation during and immediately following the war, a record-breaking growth in family incomes, and the discouragements to investment in rental housing resulting from rising costs and taxes and from rent controls.

Indications are that the number of families in the United States increased by about one-fourth between 1940 and 1950 while the median family income in 1949 was roughly 2½ times the 1939 median<sup>3</sup>. New families were formed at a much faster rate than the population was growing over the last decade, intensifying the demand for new living quarters. At the same time, families appeared to be able to afford better housing since living costs (excluding rent) no more than doubled between 1939 and 1949.

Family incomes in the Fourth District's nine major metropolitan areas averaged well above the national median of \$3,068 in 1949, ranging from \$3,996 in Cleveland down to \$3,175 in Wheeling-Steubenville.

<sup>3</sup> Due to changes in definition, the 1950 data on families are not comparable with previous Censuses. However, trends in family income and family formation since 1944 may be traced through the Census Bureau's *Current Population Reports* (Series P-20 and P-60) and, in some instances, comparisons with earlier years may be made.

The median income of Cleveland families was topped by only 3 of the country's 57 largest metropolitan areas while Toledo ranked sixth among the 57 areas in this respect. For the state of Ohio as a whole, the median family income in 1949 was \$3,305. The higher income level may help explain the more rapid growth in home ownership in these nine areas relative to the rest of the country, but other factors must also be considered.

Rent controls, coupled with rising construction and maintenance costs and high taxes, were probably the biggest single stimulant to the trend towards home ownership. Landlords, particularly those renting single family homes, found it uneconomic to continue to rent their property. Caught in the squeeze between rent ceilings and rising maintenance costs and taxes, they sold their houses. The lower tax rates on capital gains permitted them to realize substantial profits from the sale which could be put into alternative forms of investment where the return was not frozen at pre-inflation levels. At the same time, rising building costs discouraged the construction of new rental units. Rent controls put a ceiling on the return from an increasingly costly investment. Congress recognized this in 1947 when it specifically exempted rental units built after 1947 from rent controls.

As a result, the supply of rental housing actually

**TABLE III**  
**HOME OWNERSHIP, FAMILIES AND FAMILY INCOME**  
Nine largest standard metropolitan areas<sup>1</sup> in the Fourth District

Standard Metropolitan Area	Percent of Occupied Dwelling Units Occupied by Owner		Percent Increase 1940 to 1950		Number 1950	FAMILIES <sup>2</sup>			
	1950 <sup>2</sup>	1940	Owner Occupied Units	Renter Occupied Units		Income Level, 1949			Median Income
						Percent Reporting			
					Under \$2,000	\$2,000 to \$4,999	\$5,000 and over		
Akron.....	69	53	69	—15	110,500	15	62	23	\$3,527
Cincinnati.....	49	40	51	6	251,400	21	57	22	3,389
Cleveland.....	55	40	67	—10	396,600	15	50	35	3,996
Columbus.....	53	43	71	12	132,600	14	58	28	3,694
Dayton.....	61	47	81	6	123,000	15	58	27	3,772
Pittsburgh.....	57	41	62	—16	574,300	18	58	24	3,380
Toledo.....	65	50	60	—15	106,500	14	56	30	3,837
Wheeling-Steubenville....	61	47	43	—21	92,900	24	57	18	3,175
Youngstown.....	70	55	54	—17	137,100	17	60	24	3,448
—	—	—	—	—	—	—	—	—	—
All nine Areas.....	58	43	62	— 9	1,924,900	17	56	26	3,568
Continental United States.	55	44	54	— 3	38,788,000	30	50	20	3,068

Source: Bureau of the Census.

NOTE: Percentages may not add to 100 because of rounding.

<sup>1</sup> Containing 250,000 or more inhabitants in 1940.

<sup>2</sup> Preliminary. Based on a 20 percent sample of Census returns.

declined, while demand for living space was increasing. Many families were forced to buy a home in order to have a roof over their heads. Purchasing a home was also easier than ever before—particularly for the veteran—due to higher loan ratios, lower interest rates, and longer maturities on mortgages. If rents had not been controlled over the past decade and had increased proportionally with other living costs, the median monthly rent today would be only a little less than the median monthly payment of principal and interest on a home mortgage; but, the supply of rental housing would have, most likely, been much greater. Families would have had greater opportunity to exercise a choice between being tenant families or owner families. As it turned out, the alternative was not always available and the majority became home owners.

### NOTES ON SOURCE MATERIAL

The foregoing statistics were selected from the wealth of available Census data in order to present a few major trends relating to population and housing in the Fourth District. They represent only a small portion of the data being made available from the 1950 Censuses of Population and Housing. Much of the detailed data is not yet available for small areas but all reports are scheduled for completion by the end of the year. The following reports of the Bureau of the Census were used as source material for the data presented above.

#### 1950 Census of Population

##### Preprints:

Preprint of Volume 1, *Number of Inhabitants*: Report P-A17, *Kentucky*; Report P-A35, *Ohio*; Report P-A38, *Pennsylvania*; and Report P-A48, *West Virginia*. (Totals for cities, small areas, counties, and urban-rural residence.)

##### Advance Reports:

Series PC-9, No. 2, *Population of the United States, by Regions, Divisions, and States, and its Territories, Possessions, Etc.: April 1, 1950*.

Series PC-14, No. 1, *Population of Standard Metropolitan Areas and Cities of 50,000 or More, by Color: 1950 and 1940*.

Series PC-14, No. 2, *Number of Households in Standard Metropolitan Areas, Counties, and Urban Places of 10,000 or More: April 1, 1950*.

##### Preliminary Reports:

Series PC-5, *Characteristics of the Population of Standard Metropolitan Areas, April 1, 1950*: Report No. 1, *Akron*; Report No. 11, *Cincinnati*; Report No. 12, *Cleveland*; Report No. 13, *Columbus*; Report No. 15, *Dayton*; Report No. 23, *Johnstown*; Report No. 37, *Pittsburgh*; Report No. 51, *Toledo*; Report No. 54, *Wheeling-Steubenville*; and Report No. 57, *Youngstown*. (Reports in this series issued for the 57 standard metropolitan areas with 250,000 or more inhabitants in 1940. All data in these reports are preliminary as they are based on a 20 percent sample of Census returns. Data presented includes age and sex of population, marital status, employment status, and income.)

Series PC-6, No. 8, *Characteristics of the Population of Ohio, April 1, 1950*. (Contains same information as series PC-5 on a state basis.)

Series PC-7: Report No. 1, *General Characteristics of the Population of the United States, April 1, 1950*; and Report No. 2, *Employment and Income in the United States, by Regions: 1950*. (Contains same information as PC-5 on a nationwide basis.)

#### 1950 Census of Housing

##### Advance Reports:

Series HC-7, *Vacant Dwelling Units*: Report No. 17, *Kentucky*; Report No. 35, *Ohio*; Report No. 38, *Pennsylvania*; and Report No. 48, *West Virginia*. (Lists final count of dwelling units in state by standard metropolitan areas and urban places of 10,000 or more along with the number and type of vacant units.)

##### Preliminary Reports:

Series HC-3: *Housing Characteristics of Standard Metropolitan Areas*: Numbered the same as population characteristics Series PC-5. (Preliminary data for the 57 standard metropolitan areas with a population of 250,000 or more in 1940. Contains data on tenure, number of rooms, type of structure, condition and plumbing facilities, contract monthly rent, and value of dwelling units.)

Series HC-4, No. 8, *Housing Characteristics of Ohio, April 1, 1950*. (Contains same information as Series HC-3 on a state basis.)

Series HC-5, No. 1, *Housing Characteristics of the United States, April 1, 1950*. (Contains same information as HC-3 on a nationwide basis.)

**RECENT FINANCIAL DEVELOPMENTS**

(CONTINUED FROM PAGE 3)

Veterans Administration, and the U. S. Department of Agriculture to relax down payment requirements on home loans aided or made by the Federal Government.

**Consumer Credit** The volume of consumer instalment credit outstanding reached new record levels during the third quarter of the year. The partly seasonal expansion of consumer instalment credit, which had been under way since February, was sharply accelerated during May when Regulation W was terminated, and has continued to maintain an impressive rate of growth. Dollarwise, the largest expansion occurred in credit to finance automobile purchases, although all types of credit, including repair and modernization loans, personal loans for a variety of purposes, and credit for the purchase of household appliances, furniture, radio and TV sets, also increased noticeably. The near-record expansion in instalment credit during the summer and early fall contrasts with a very moderate increase in the comparable period of 1951.

The recent growth of instalment debt is due in part to an increase in new loan volume and to a slowing down in repayments, the latter resulting from longer maturities granted since the termination of Regulation W in May. In certain instances, such as in consumer durables other than automobiles, the increase in new loans reflects a pickup in the physical volume of purchases. In other cases, for example automobiles and repair and modernization loans, higher prices have necessitated a larger unit loan volume. In all instances, a reduction of down payment require-

ments since Regulation W was terminated has resulted in a higher proportion of the sale price being borrowed and a consequent increase in instalment credit.

The lengthening of terms, which followed termination of Regulation W, was probably the principal cause of the slowdown in repayments and, in turn, of the recent bulge in instalment credit outstanding.

**Federal Reserve Policy and the Money Markets**

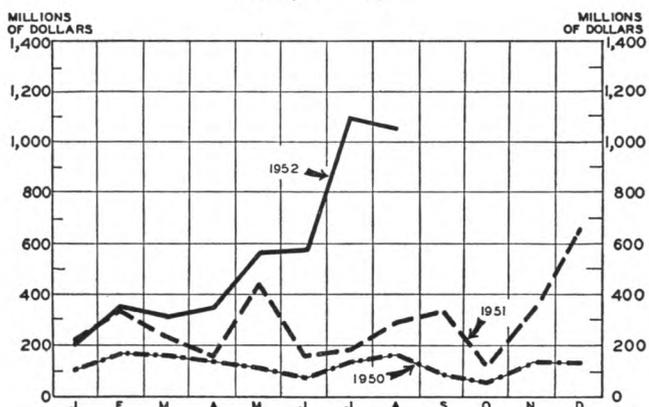
Notwithstanding the termination or relaxation of controls on consumer credit and real estate credit required by law, the Federal Reserve System has continued to follow an effective policy of general credit restraint. The expansion in bank credit and in currency in circulation that accompanied the expanding financial needs of the nation put increased pressure on bank reserves. While some purchases of securities by the System were made in support of Treasury fiscal operations, these purchases were so conducted as to maintain some pressure on the banks, and in recent months member bank borrowings from the Reserve banks have averaged higher than in any comparable period since 1929.

The purchase of securities by the Federal Reserve banks and the borrowing by member banks from the Federal Reserve banks provide the member banks with needed reserves. However, banks are reluctant to rely on borrowed funds for any extended period of time. During periods of indebtedness, consequently, banks are under pressure to adjust their lending and investing activities to bring their operations in line with reserve funds otherwise available.

The ability of the System to avoid excessive purchases of U. S. Government securities has kept the

**DISCOUNTS AND ADVANCES OF THE FEDERAL RESERVE BANKS**

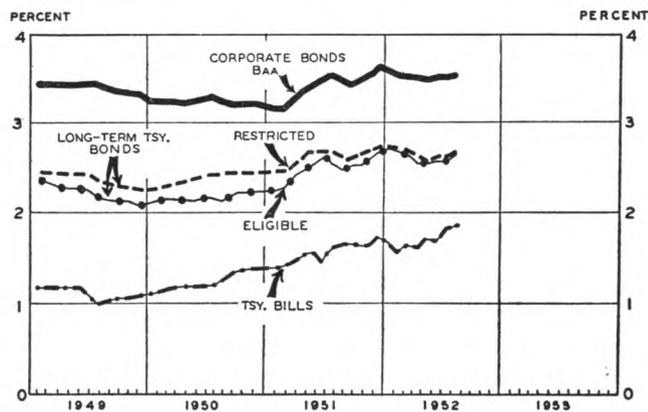
Monthly 1950-1952  
(Daily Averages)



... discounts and advances at the Federal Reserve Banks continued to increase this year, and in July reached a daily average figure of more than \$1 billion, the highest since 1929.

**YIELDS ON SELECTED SECURITIES**

1949-1952



... short-term rates began to rise markedly around the middle of the year, and during August new Treasury bills were sold at the highest average yield in twenty years. Long-term rates also stiffened somewhat around the middle of the year, reverting close to the January level.

banks and money markets under moderate pressure at a time when unchecked influences could readily have brought about a rapid expansion of credit on easy terms and thus could have added materially to inflationary pressures. As a consequence, possible inflationary effects of monetary developments have been kept to a minimum while at the same time the financial needs of the nation have been fully met.

Money rates advanced during the third quarter. Yields on new bills rose from an average of 1.700 per cent in June to 1.876 percent in August, subsequently dipping somewhat to 1.786 percent in September. The rate of 2 percent on 1-year certificates issued in August was the highest since 1933 and even this issue has been quoted periodically at a discount. Long-term rates have also shown some firmness although they are still below the levels reached in January of this year.

**Savings** An important factor in the noninflationary financing of the American economy undoubtedly has been the continued high level of saving. In contractual and liquid form, as well as in the form of debt repayments, the net inflow of savings into such institutions as life insurance companies, savings and loan associations and banks provided a substantial part of the funds required to finance the deficit spending of other individuals, businesses and governments.

The rapid fifteen-month increase in time deposits at commercial and savings banks tended to slow down somewhat in the third quarter, though still exceeding the expansion in several other postwar years. Savings and loan associations also reported a moderate slowing down in the rate of accumulation of private savings.

## SUMMARY OF NATIONAL BUSINESS CONDITIONS

By the Board of Governors of the Federal Reserve System

(Released for Publication September 30, 1952)

Industrial production recovered sharply in August and rose further in September to its previous post-war high. In September, seasonally adjusted sales at department stores are estimated to have declined following a marked rise in August, while expanded output has permitted some recovery in automobile sales. Wholesale prices declined somewhat after mid-August reflecting largely heavy marketings of livestock. Consumers' prices continued at record levels.

### Industrial production

The Board's index of industrial production increased to 215 in August from 193 per cent of the 1935-39 average in July, reflecting mainly the rapid return to full-scale operations at steel mills and a marked gain in nondurable goods output. According to preliminary estimates industrial production has risen further in September to 223.

Steel production rose in August to 92 per cent of rated capacity and by late September was scheduled at a new record rate of 104 per cent. Activity in machinery and transportation equipment industries showed only a limited recovery in August but has apparently increased substantially in September. Passenger auto assemblies this month are estimated to have totaled about 445,000 units, the largest monthly output since June 1951. A substantial pick-up in production of television sets and major household appliances in August and September reflected earlier large inventory declines and increased consumer buying.

Expansion in nondurable goods output in August reflected principally greater than seasonal increases at textile and paperboard mills. There was also a sharp recovery in coke output, and petroleum refining, which was already close to earlier peak rates in August, rose further in September. Total meat production since mid-August has averaged 8 per cent above a year ago, with production of beef and veal up by about a fourth and pork down considerably.

Minerals output has increased sharply in August and September with resumption of iron ore mining and marked gains in output of crude petroleum and coal.

### Construction

Value of construction contract awards declined slightly in August as awards for public nonresidential work dropped sharply following three months of steady increases. Value of new construction put in place was the same as in July, after allowance for seasonal influences. The number of housing units started in August declined more than seasonally to 99,000 from 104,000 in July, but was 11 per cent larger than in August 1951.

### Employment

Employment in nonagricultural establishments, after allowance for seasonal changes rose in August to 46.8 million, an all-time high. In steel-consuming

industries the number employed and employee working time increased but remained below pre-strike levels. Average hourly earnings of factory workers were up about one per cent from July to \$1.66—the level of other recent months. Unemployment declined in August to 1.6 million, reflecting in part the end of the steel strike and in part seasonal factors.

### Distribution

Sales at department stores, which had shown a greater than seasonal rise in August, increased less than seasonally in the first three weeks of September but remained close to year-ago levels. Reflecting in part the rise in sales, seasonally adjusted stocks at department stores are estimated to have declined somewhat in August. Sales of new passenger cars have risen from the sharply reduced August rate and, with output considerably expanded, dealers' stocks are being replenished.

### Commodity prices

The general level of wholesale commodity prices declined somewhat from mid-August to the third week of September. The major decreases were in livestock and products owing partly to a considerable expansion in marketings of cattle. Prices of industrial commodities generally showed little change.

The consumers' price index rose further by .2 per cent in August. Average prices of foods again advanced and rents and fuel prices increased, while prices of apparel declined slightly further.

### Bank credit

Total bank credit outstanding at weekly reporting banks showed little change between mid-August and mid-September. All major types of loans increased, but holdings of U. S. Government securities declined. Business loans increased about three-quarters of a billion dollars, reflecting largely credit for marketing crops as well as some borrowing in connection with tax payments in mid-September.

Bank reserve positions continued tight until mid-September and borrowings from the Federal Reserve generally exceeded excess reserves. Thereafter, borrowings were reduced as banks obtained reserve funds as a result of a decline in Treasury balances at the Reserve Banks and System purchases of U. S. Government securities in connection with the October 1 certificate refinancing.

### Security markets

Yields on Treasury bills declined during the first three weeks of September, while yields on long-term Treasury bonds rose somewhat. The Treasury offered 2½ per cent 14-month notes in exchange for the 10.9 billion dollars of certificates maturing October 1, 1952, and has also announced an offering of 2.5 billion of 161-day tax anticipation bills to be dated October 8 and to mature March 18, 1953.

# Seeing the Invisible

by CLYDE WILLIAMS, Director, Battelle Memorial Institute



A number of outstanding research tools have made it possible for man to extend the range of his own visual powers. The light microscope, for example, magnifies the invisible. The X-ray penetrates it. The Geiger counter detects it. These instruments have brought priceless benefits to mankind in terms of better health, better products, and more efficient production processes.

Another research tool is adding a new dimension to man's conquest of the invisible. This tool is the high-speed motion-picture camera, which stops the motion that makes certain high-speed events invisible. Using this type of camera, scientists hope eventually to find answers to problems that have confronted science and industry for a long time. Used to study the causes of knock in the piston engine, the camera has already brought some valuable results. It is also being used as an aid in solving problems in ballistics, the motion of interacting machine parts, metal-cutting processes, high-speed weaving machinery, and in the operation of jet engines.

The unique advantage of the high-speed motion-picture camera is that it permits visual study of events whose development occurs too fast for the human eye to follow. Many common events take place at much more rapid speeds than we think. A band saw cutting wood moves at the rate of about 130 feet per second, or nearly 90 miles per hour. Jet fighters in flight cover 900 to 1100 feet per second. The main stroke of a lightning discharge pierces the skies at a speed of about 33,000 feet per second. Meteors in space may travel at 130,000 feet per second. With these and hundreds of other rapid events, we can see the total motion, or end result involved. We can not, however, see the individual stages in the development of that motion or result.

Using various types of high-speed motion-picture cameras, it is possible to retard or, for practical purposes, to stop rapid events into a series of still shots. Later projection of the series of still shots at speeds that the human eye can follow creates a slow-motion effect of the high-speed phenomena. The product development engineer can then analyze "what happens" during the individual stages of the event. With this basic knowledge, he has an invaluable aid for devising methods to improve the product or process under study.

Basically, three types of physical changes occur too rapidly to see with the unaided eye, but the high-speed camera can observe them with ease: first, motion of an object, such as metal chip coming from a cutting tool or the rotation of a gear; second, the change in shape or size of an object, as, for example, the distortion of an aircraft

tire when it hits the runway; third, changes in the appearance of a subject, such as the light emitted when a flash bulb explodes or a charge of gasoline burns in an automobile engine.

Many types of high-speed cameras have been developed for engineering and research. The Eastman Kodak High-Speed Camera and the Wollensak Optical Company's Fastax, however, are the only ones that are commercially available. The Eastman Kodak camera takes 16-mm. pictures at speeds up to 3000 frames per second. The Fastax, when exposing 8-mm. film, can run at rates as high as 15,000 frames per second.

Recognizing the advantage that photography at much higher speeds would have in research, Battelle has built a camera which can be operated at speeds up to 100,000 frames per second. Faster cameras have been designed and used. Exposure durations as short as one-billionth of a second have been attained. Generally, however, as speeds go beyond 1/100,000 of a second, picture results tend to become less satisfactory. Equipment, furthermore, becomes very complex and expensive.

One of the most interesting uses of the high-speed camera has been for the study of fuel knock in piston engines. Fuel knock severely limits the performance of a spark-ignited piston engine. Only certain quality fuels can be used in such an engine to achieve proper performance. For decades, no definite knowledge has existed as to just what knock is.

Ten years of research by the National Advisory Committee for Aeronautics has produced some valuable results concerning the fundamental nature of knock. Photographs taken with high-speed cameras like the Battelle camera indicate that knock is essentially an explosive combustion of the last part of the gas to burn in an engine cylinder. The gas that burns explosively, rather than in the normal slow manner of the spark-ignited flame, is usually only a small percentage of the total charge. This "end gas", intimately mixed with air under high compression, usually ignites of itself and an explosive disturbance, or knock, moves through it at speeds of 4500 to 7000 feet per second. The camera captures the different stages of this phenomenon. Research on the knock problem is continuing at Battelle.

The Bell Telephone Laboratories found the high-speed camera very helpful in the development of the best design for telephone hand sets. Many such sets were dropped onto a hard surface and broken. High-speed photographs showed that the breaks did not occur in the manner previously thought. Because of the high-speed photographic results, strength was added in places where strength was previously thought not to be needed. The development of the present hand set, with its great resistance to breakage by dropping, would have been greatly retarded without high-speed photography.

The high-speed motion-picture camera is no longer a laboratory curiosity. It is a vital industrial tool that is playing an increasingly important part in probing the unknown and in bringing higher standards of living to everyone.

Editor's Note — While the views expressed on this page are not necessarily those of this bank, the *Monthly Business Review* is pleased to make this space available for the discussion of significant developments in industrial research.