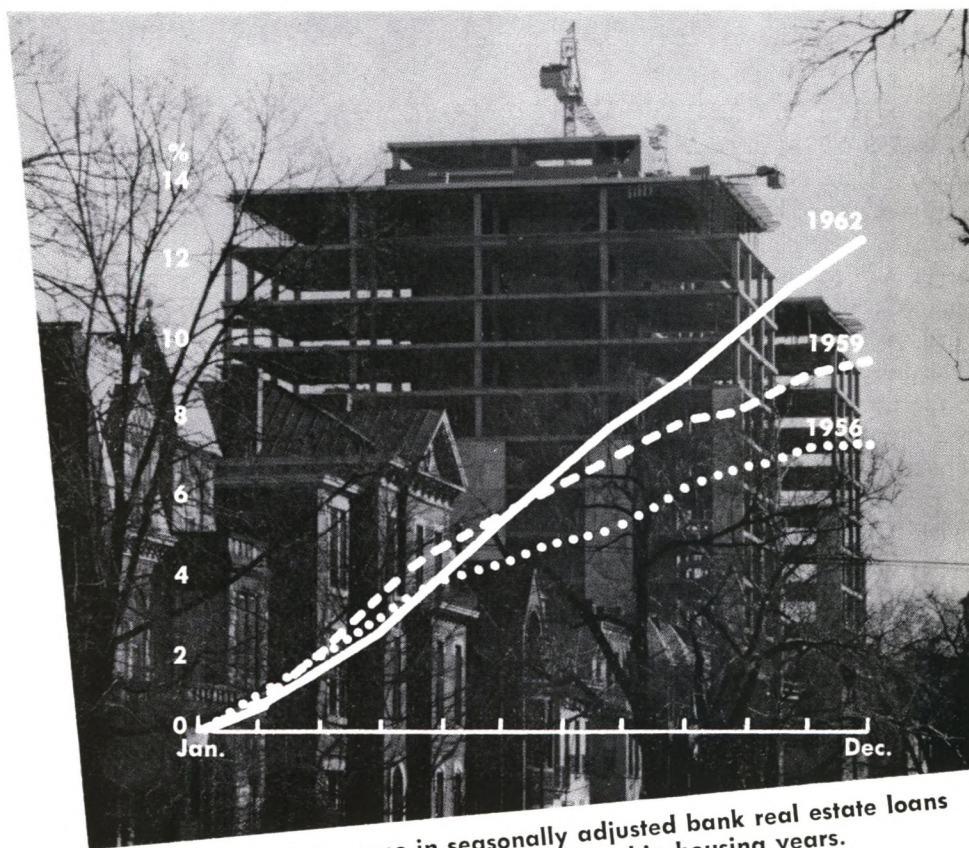


MONTHLY REVIEW



A record 12.5% increase in seasonally adjusted bank real estate loans in 1962 topped gains in previous big housing years.

INTEREST AND CREDIT IN BUSINESS EXPANSION

Monetary and credit conditions in 1962 were influenced to some extent by cyclical factors. Yet the behavior of some important financial indicators last year differed rather markedly from their behavior in the comparable stages of other recent cyclical movements. This article traces the movement of several interest rate and banking series from the troughs of the three most recent recessions. The purpose is to compare their behavior over the course of the latest upswing with their movement in the two previous recovery and expansion periods. Frequent reference is made to the charts at the foot of each page.

INTEREST RATES Interest rates generally rise in a period of business recovery as loan demand quickens with the tempo of business. This rather normal pattern began to develop in the early months of the 1961 recovery but was modified significantly in 1962. This is immediately evident from the charts at the foot of this page.

The horizontal axes of these three charts measure the number of months from the troughs of the three most recent recessions. Trough months were August 1954, April 1958, and February 1961, respectively. The vertical axes show the absolute change in yields from these recession troughs measured in basis points. The vertical line constructed on the eleventh month marks the beginning of 1962, and the solid line to the right of this vertical represents last year's experience.

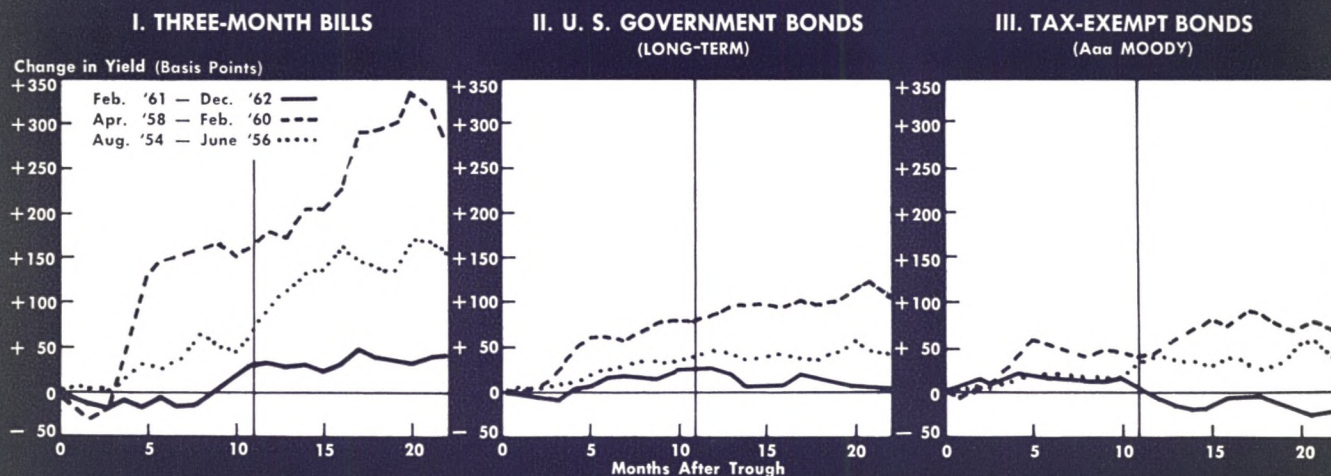
BILL YIELDS The movement of 90-day Treasury bill yields is shown in Chart I. These yields moved

irregularly upward in 1962, closing the year 23 basis points higher than at the beginning. This movement represented a continuation of a gradual upward creep from the recession low in February 1961. Yet in the 22 months after that trough bill rates had risen less than 50 basis points in contrast with increases of over 150 basis points in 1954-56 and almost 300 basis points in 1958-60.

One reason for this is that bill rates did not fall as far in the latest recession as in previous ones and consequently did not have as far to rise in the ensuing upswing. The 1960-61 recession was milder than earlier ones and market factors put less downward pressure on rates generally. Moreover, for balance of payments reasons, monetary and debt management policy actively sought to alleviate downward pressure on bill yields.

The failure of interest rates to fall as far in the last recession is only part of the explanation for the smaller rise of short rates in the current upswing. Especially important has been the posture of monetary policy, which has remained relatively easy in comparison with past periods of business expansion. In addition, the pace of the 1961-62 advance has been more moderate and loan demand has not been exceptionally strong. Consequently, it has not been necessary for commercial banks to liquidate Treasury bills to meet loan demand as in the earlier expansions.

In fact, forces working towards lower bill yields have been so strong over much of 1961-62 that rates might well have declined in 1962 had it not been for the persistent efforts of the monetary authorities and



debt managers. Whenever feasible, the Federal Reserve has supplied reserves by open market purchases outside the bill area, while the Treasury has added significantly to the supply of bills outstanding.

LONG-TERM GOVERNMENT BOND YIELDS Yields on long-term Government bonds, as shown in the second chart, have risen relatively little since the trough of the last recession in contrast to more substantial increases in previous expansion periods. The reasons are essentially the same as those explaining the smaller rise in bill yields.

Perhaps the most interesting part of Chart II is the portion showing the movement of long-term yields in 1962. In previous upswings, these yields continued to rise somewhat even after the eleventh month of recovery, but they declined in 1962. This can be explained in part by easy money policy and by relatively weak loan demand. The downward drift has also been due to the change in Regulation Q in January 1962. This change has had a pervasive effect on the capital markets and has been an important factor in inducing commercial banks to lengthen their portfolios in order to increase earnings.

Bond prices rose and yields fell from January until early summer, when markets were influenced by a widespread discussion of the desirability of a new combination of easy fiscal and tight monetary policies as a solution to the dual problem of a sluggish domestic economy and sticky balance of payments deficits. Through July and early August, prices declined and yields rose. Then, as prospects of an early tax cut faded, the market reverted to the previous trend, with rates declining for the rest of the year.

TAX-EXEMPTS Changes in Moody's Aaa index of yields on State and local government tax-exempt bonds are shown in Chart III. This chart points up

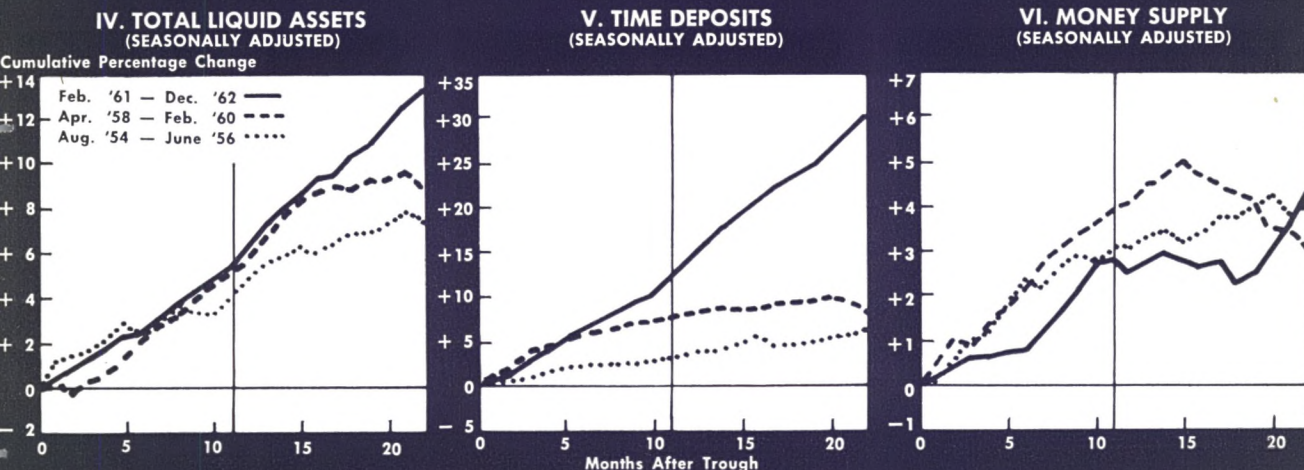
the impact of the change in Regulation Q. Through the first ten months of the latest upswing the change in tax-exempt yields paralleled quite closely the experience of the 1954-56 recovery. A surge of commercial bank buying after December 1961, however, pushed these yields down steadily, and at the end of 1962 they were almost 25 basis points below their level at the preceding trough.

BANKING The money supply has not grown very much during most of this cyclical upswing, and some observers have taken this as evidence that monetary and credit policy has been too tight in the current expansion. Closer attention to banking developments as a whole, and to the growth of total liquid assets and of bank credit in particular, could well lead to an opposite interpretation.

Charts IV through XII are designed to provide a broader view of the results of changes in banking activity in the most recent business expansion. These charts differ from the earlier ones in that cumulative percentage changes are shown on the vertical axes.

TOTAL LIQUID ASSETS This series is a composite of the following six liquid asset types: (1) the money supply adjusted to exclude deposits of mutual savings banks and savings and loan associations; (2) time deposits at commercial and mutual savings banks; (3) savings and loan shares; (4) United States Government securities maturing within one year; (5) United States Government savings bonds; and (6) postal savings accounts.

Chart IV reveals clearly that the public's holdings of liquid assets, seasonally adjusted, have grown more rapidly than in previous expansions. Liquid assets ceased to increase rapidly in the previous upswings after the fifteenth month, but liquidity in the current cycle has continued to grow at a brisk pace



to the present time. Much of this growth can be attributed to rapid growth in time deposits.

TIME DEPOSITS As evidenced by Chart V, time deposits in the past have shown a distinct contracyclical movement, rising rapidly in recessions and tapering off or declining in recovery. In the 1961-62 expansion, however, these deposits continued to move up at a rapid rate. Their growth reflects in part the Federal Reserve's policy of continued monetary ease and in part the tardiness of the 1961-62 pickup in consumer spending. Primarily, however, it has resulted from the change in Regulation Q. This is evident from the sharp break in the curve which occurred in December 1961, when the change in Regulation Q was announced.

MONEY SUPPLY The money supply is defined as adjusted demand deposits of commercial banks plus currency and coin outside the Treasury and commercial banks. Chart VI indicates that the money supply has grown less rapidly throughout most of the latest business expansion than in the corresponding periods of previous cycles. Following a sharp rise in late 1961, it remained virtually unchanged at about \$145 billion until October 1962. Stability in this period resulted in part from the public's shifting of demand deposits to time deposit accounts and in part from a drain on private deposits as large United States Government deposits were accumulated. Since late last year, however, the money supply has grown rapidly and has finally caught up with its growth in previous upswings.

BANK CREDIT Time deposits are not the full equivalent of demand deposits. Nevertheless, in periods when significant amounts of demand deposits are being converted to time deposits, changes in bank credit may be a better indicator of the posture of

monetary policy than the money supply. In the latest business expansion, bank credit has grown considerably more than in previous upswings. From the trough of the 1961 recession through 22 months of expansion, it increased over 14% as compared with an increase of only 7% in the two preceding expansions. In 1962 alone bank credit grew by \$18 billion, or 9%. Changes in the composition of bank credit in the latest upswing have also differed significantly from those in earlier business expansions.

GOVERNMENT SECURITIES Cumulative changes in commercial bank holdings of United States Government securities, seasonally adjusted, are shown in Chart VII. Normally banks begin liquidating Government securities in the early months of recovery in order to make loans which yield a higher return. In the latest upswing, however, little liquidation has taken place. This is another evidence of continuing easy money policy and also an indication of the sluggish pace of the current business advance. Banks have had ample reserves and have been able to meet the modest loan demand without liquidating Government securities to any appreciable extent.

Although total holdings of Government issues have remained virtually unchanged since the fifth month of recovery, the composition of holdings has changed significantly. As noted earlier, rapid time deposit growth induced portfolio lengthening. As a fraction of total investments, under-one-year issues and issues maturing within five years have decreased, while holdings maturing in over five years have increased.

OTHER SECURITIES This series consists primarily of tax-exempt State and local government bonds. Generally other securities form a rather stable fraction of total investments since many State and local government bonds possess limited marketability. As

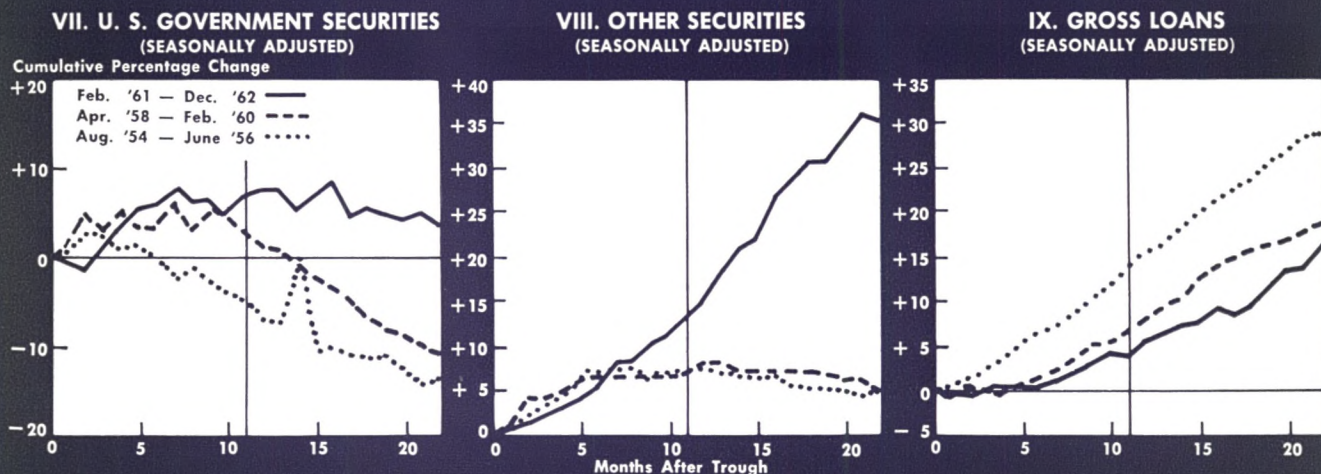


Chart VIII reveals, however, bank holdings of these issues have increased at a remarkable rate over the past two years. From the trough of the recession through 22 months of upswing, banks expanded their holdings of these securities by 36% as compared with 5% increases in each of the two previous expansion periods. About 22% of the increase in the latest expansion came in 1962.

LOANS Loans at commercial banks in the present cyclical expansion have lagged behind earlier experience. As shown in Chart IX, the behavior of total loans, seasonally adjusted, in the early months of the latest upswing paralleled the 1958-60 experience. They soon fell behind earlier expansion rates, however, and after 22 months of recovery loans at all commercial banks had risen only 16%, as compared with increases of 19% and 29%, respectively, in the two earlier upswings.

Several factors account for the slower loan growth in the latest experience. In the first place, the latest business expansion has been more moderate and expenditures for inventories and plant and equipment have increased more slowly. Moreover, corporations have lately enjoyed large cash flows and an easier availability of low-cost funds in the capital market. As a result, business loans, as shown in Chart X, increased only 13% over the first 22 months of this recovery as against gains of 35% and 16%, respectively, in the preceding two cyclical expansions.

In addition, the demand for consumer credit at commercial banks has been weaker in this expansion than in the previous ones. As shown in Chart XI, consumer loans actually declined during the first seven months after the February 1961 trough and were below the trough level for the first full year of recovery. After 22 months, these loans had grown

only 9% as compared with a 32% increase in 1954-56 and a 24% increase in 1958-60.

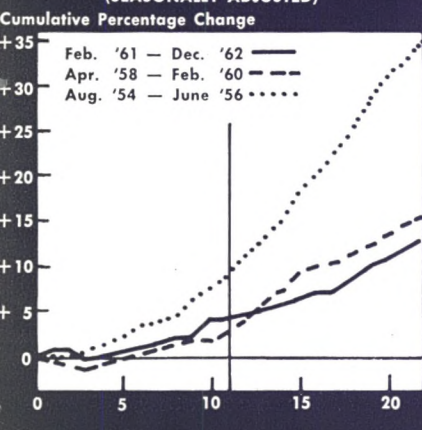
Finally, real estate loans have not increased as rapidly in the current as in previous expansions. Despite a sharp rise after the revision in Regulation Q, Chart XII shows that the percentage increase in these loans in the current expansion still lagged slightly behind increases in the previous upswings.

SUMMARY Monetary policy remained basically easy in 1962. The degree of ease was considerably greater than in the comparable stage of earlier cyclical movements and this greater ease was reflected in money and capital markets and in the behavior of important banking statistics. Until late 1962, growth of the money supply was slow, with the total increase since the latest cyclical trough lagging behind the increase in the comparable period of earlier business recoveries. On the other hand, expansion in bank credit, commercial bank time deposits, and the public's holdings of liquid assets continued well in advance of previous cyclical upswings.

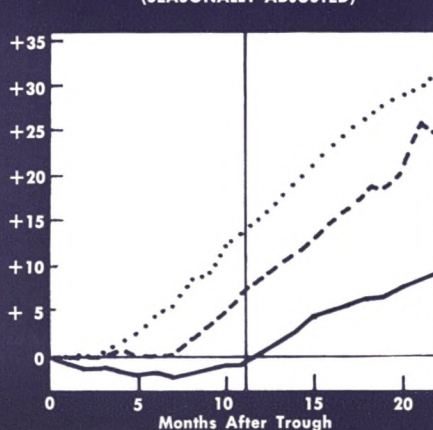
The composition of bank credit changed significantly in 1962, with banks moving more heavily into investments, particularly tax-exempt securities, and into real estate loans. This was attributable in part to a rapid increase in time deposits and in part to sluggish loan demand in other areas.

Interest rate movements in 1962 displayed some notable departures from normal patterns. Yields on mortgages, tax-exempts, corporates, and long- and intermediate-term Governments declined, while money market rates remained stable or rose slightly. This divergent movement of long and short yields resulted primarily from a record inflow of savings into financial institutions, including time deposits at commercial banks, and from upward pressure on short rates exerted by the Federal Reserve and the Treasury.

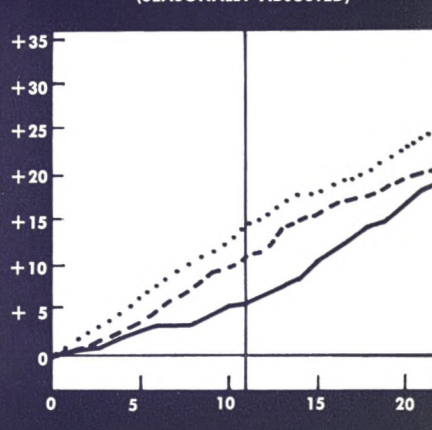
X. BUSINESS LOANS
(SEASONALLY ADJUSTED)



XI. CONSUMER LOANS
(SEASONALLY ADJUSTED)



XII. REAL ESTATE LOANS
(SEASONALLY ADJUSTED)



WHO HOLDS THE NATIONAL DEBT?

\$ Billion
300



Commercial Banks Federal Reserve Banks U. S. Govt. Investment Accounts Individuals Insurance Companies Mutual Savings Banks Corporate State and Local Governments Foreign and International Other

The relative importance of classes of Federal Government creditors has undergone some interesting changes in the past dozen years. The accompanying chart shows the growth of the national debt from the end of fiscal 1950 to the end of fiscal 1962, with each bar divided to indicate the amount held by principal lender classes. The numbers within each division show the percentage of the national debt which that division represents.

The proportion held by several classes of Federal Government creditors declined over the period. Commercial banks, for example, liquidated Government securities through most of the 1950's in order to make higher yielding loans. Since 1960, however, the proportional importance of bank holdings of Government debt has increased somewhat, reflecting relatively easy monetary policy and the absence of strong loan demand. All this increase came in 1961.

The proportion held by insurance companies and mutual savings banks declined steadily after 1950 as these institutions moved more heavily into real estate loans. The share held by individuals also declined, due in part to shifts out of savings bonds and other Government securities into stocks and higher yielding bonds.

By contrast, several lender groups increased their proportional holdings. Federal Reserve System holdings grew steadily, from \$18.3 billion or 7.1% of the total in 1950 to \$29.7 billion or 9.9% at the end of fiscal 1962. Foreign and international investors also became increasingly important holders of Federal debt through the investment of large quantities of liquid funds acquired as a result of persisting deficits in the United States balance of payments.

The growing relative importance of United States Government investment accounts reflects chiefly the expansion of Social Security and Civil Service pension funds up to 1957. State and local governments have become relatively larger holders of Federal debt chiefly as a result of two developments. In the first place, they have themselves raised large volumes of borrowed funds to finance capital improvements and other outlays and have invested the proceeds in short-term Government securities pending their use. Moreover, rapidly growing State and local trust funds have been heavy buyers of Government issues.



THE INTERNATIONAL MONETARY FUND

Among the crucial institutional props of the present international payments system is the International Monetary Fund, a cooperative financial venture in which more than 80 nations participate. Born in 1944 primarily of the monetary chaos that followed the breakdown of the gold standard in the early 1930's, the Fund has emerged in the postwar years as an important key to the successful functioning of the modern substitute for the old gold standard—the gold exchange standard.

The International Monetary Fund is committed to the goals of expanding the volume of world trade and thus the domestic prosperity of member countries. Its vast resources of gold, national currencies, and borrowing rights in member countries, and its machinery for consulting with countries and collaborating with other international organizations are directed toward these ends. By providing needed support to distressed currencies, by actively working for realistic and stable exchange rates, and by seeking to eliminate restrictions on payments among countries, it has contributed to a growing volume of world trade and prosperity.

HISTORICAL BACKGROUND After the gold standard broke down in the early 1930's, chaos developed in the system of international payments. In an effort to restore domestic prosperity, to insulate themselves from foreign economic disturbances, and to maintain balance in their international accounts in the face of drastic monetary changes, countries adopted numerous controls and devices designed to allow manipulation of payments to and from foreigners. These measures seriously disrupted the flow of international trade and investment and, on balance, probably hampered recovery from the Great Depression.

Sentiment for an institution like the International Monetary Fund represented in large measure a reaction against nationalistic fetters on foreign commerce. The Fund and its sister institution, the International Bank for Reconstruction and Development, were established at the United Nation's Monetary and Financial Conference held at Bretton Woods, New Hampshire, in July 1944, as a foundation on which international cooperation in the field of economic and monetary policy could be built in the postwar period.

SPECIFIC OBJECTIVES The specific objectives spelled out in the Fund's Articles of Agreement reflect the conviction that the monetary nationalism of the 1930's could only diminish, over the long run, the level of world prosperity. Among these objectives are the elimination of exchange controls and of such practices as competitive exchange rate depreciation, the achievement of stable exchange rates, and the restoration of multilateralism in international payments among the important trading countries.

Although these objectives have not been fully achieved, important progress has been made, especially over the past five years. Against a background of stepped-up international monetary cooperation, world trade has expanded, and relatively high levels of employment have been maintained. While many exchange rates have been altered, sometimes without the Fund's approval, widespread rate manipulation as an instrument of trade policy has been substantially eliminated. Many countries continue to maintain some controls over capital movements, and some countries even continue to limit current transactions in goods and services. But since 1958, especially among the more important trading nations, giant strides have been taken toward greater freedom in both trade and foreign payments. Financial assistance to countries having balance of payments problems has permitted this to be achieved with measures less severe and more gradual than would have been necessary otherwise. The Fund has not been solely responsible for this progress but its contribution has been significant.

ORGANIZATION The Fund has a membership of more than 80 nations, each represented on its policy-making Board of Governors. The Fund's basic powers are vested in the Board. Among them are the power to admit new members, the authority to require members to withdraw, the right to approve changes in quotas, and the authority to permit uniform changes in the par values of currencies of all member countries.

Voting rights of member countries are roughly proportional to their contributions to the Fund's capital. Contributions in turn are related to various factors including the size of national income and foreign trade of members. Small nations are slightly favored in voting rights since each nation has a

minimum number of votes plus an addition proportional to its quota. Thus the relative voting strength of large countries diminishes as new small members are added.

The Fund's Executive Directors, partly appointed by the five important member countries having the largest quotas and partly elected by the remaining countries, are responsible for day-to-day operations. They select a Managing Director who conducts the ordinary business of the Fund with the help of some 500 employees drawn from more than 50 nations.

RESOURCES The Fund has at its disposal the equivalent of more than \$20 billion for loans to support currencies under stress in foreign exchange markets. These resources are made up of \$3.2 billion of gold and \$11.2 billion of national currencies subscribed by member countries, plus \$6 billion of borrowing rights recently made available by 10 major industrial nations. Some of the Fund's gold has been invested in short-term United States Government securities and most of the national currency holdings is in the form of nonnegotiable, noninterest-bearing demand obligations, payable at face value by members in their currencies.

QUOTAS On admission, each member is assigned a quota, which represents that country's contribution to the Fund. Quotas originally were calculated from a formula based on such factors as the size of national income and foreign trade of member countries, but today they are negotiated. Quotas of large, wealthy countries and countries that engage extensively in foreign trade are much greater than those of smaller nations having little external commerce. The quota of the United States, for example, is \$4,125 million, while the quotas of Laos and Nepal are only \$7.5 million each.

Quotas are broken down into gold and currency subscriptions. The total subscription of a country equals its quota. Normally, a country pays 25% of its quota in gold and 75% in its national currency. But the monetary gold stock was so poorly distributed when the Fund was established that gold subscriptions then were set at the lesser of either 25% of quotas or 10% of net official holdings of gold and United States dollars. Since 1948 gold and currency subscriptions of new members have been set by the Board of Governors as fixed amounts or as fixed proportions of official reserves. About 21% of the quotas have been paid in gold, and about 74% have been paid in currencies. Some \$762.5 million, roughly 5% of total quotas, has not yet been paid. The composition of the Fund's resources is shown in the accompanying table.

BORROWING AUTHORITY In recent years the movement toward greater freedom in making international payments has stimulated international trade and investment and has led to the accumulation of large international balances that are subject to shifts among countries. Such shifts can place great strains on the international payments system and many observers felt that larger Fund resources were needed to meet this new situation. Accordingly, by way of supplementing the \$14.4 billion of paid-in subscriptions, the Fund obtained authority last year to borrow up to \$6 billion equivalent from 10 leading industrial nations: Belgium, Canada, France, West Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States. This new borrowing authority becomes operative on agreement between the Fund and the countries concerned that supplementary resources are needed to prevent disruption of the international payments system.

ACTIVITIES The Fund engages in a variety of activities. In addition to its programs of financial assistance to member countries, it conducts regular consultations with member countries, collaborates with international organizations on international monetary problems, undertakes economic and monetary research, conducts training programs for qualified persons from member countries, and publishes many periodic and special publications.

Extending financial assistance to members is, of course, the Fund's most important activity. Loans and stand-by credits are made available to member countries which experience or anticipate balance of

INTERNATIONAL MONETARY FUND RESOURCES			
November 30, 1962			
Member	Quota	Subscription	
		Gold	Currency
	\$ Million	\$ Million	\$ Million
United States	4,125.0	1,031.2	3,093.8
United Kingdom	1,950.0	398.8	1,551.2
France	787.5	173.7	613.8
Germany	787.5	147.4	640.1
India	600.0	77.5	522.5
Canada	550.0	137.5	412.5
Japan	500.0	125.0	375.0
Netherlands	412.5	103.1	309.4
Australia	400.0	58.4	341.6
Belgium	337.5	84.4	253.1
Other	4,738.7	881.8	3,094.4
Total	15,188.7	3,218.8	11,207.4

Source: International Monetary Fund.

payments deficits resulting in pressure on the value of their currencies in foreign exchange markets. In this sense the Fund is a prop for distressed currencies. Through use of the Fund's resources, countries supplement their own reserves of gold and foreign exchange. They are thereby afforded additional time to solve their balance of payments problems without resorting to measures which militate against international prosperity.

Loans are usually referred to as "drawings." Broadly speaking, a member may borrow up to twice the amount of its quota. A country seeking a loan buys one or several currencies from the Fund, paying the equivalent value in its own currency. The United Kingdom, for example, when borrowing from the Fund might receive United States dollars, German marks, and French francs and pay to the Fund an equivalent value in pounds at the same time. Loans must be repaid within three to five years. Repayment takes the form of a repurchase of the borrowing country's currency with either gold or any one of 20-odd convertible currencies. It is not necessary to repay the loan in the same currencies which were originally borrowed.

A member which has agreed to an initial par value of its currency unit and has paid its subscription may borrow almost automatically an amount equal to its quota minus the Fund's holdings of its currency. A request by a member for an additional 25% of its subscription is also likely to be viewed favorably by the Fund, provided the member is making reasonable efforts to solve the problems which make the borrowing necessary. But requests which carry the Fund's

holdings of that member's currency beyond 125% of its subscription require substantial justification. They are likely to be favorably received, however, when accompanied by a program of monetary and fiscal policies aimed at establishing and maintaining a realistic exchange rate. The Fund may also waive the 200% of quota limitation on drawings.

While the Fund has total resources of over \$20 billion, this amount does not represent the maximum volume of loans that can be outstanding at any one time. Loans are made only to countries suffering balance of payments deficits, and all countries cannot simultaneously have deficits. A deficit in one country implies a surplus in some other country or countries. As a rule, probably no more than one-half of the total resources could be outstanding in loans at one time. Since beginning operations in 1946, the Fund has made total advances of \$6,745.8 million. At present \$1,611 million in loans is outstanding, most past drawings having been repaid.

STAND-BY AGREEMENTS In recent years member countries have come to depend more on stand-by arrangements than on actual drawings. Most drawings today, in fact, are made against such arrangements, which resemble line-of-credit agreements at commercial banks. Members enter into agreements with the Fund under which drawings may be made up to specified limits and within agreed periods. The member must observe the conditions of the agreement, however, to be eligible to make drawings. The Fund insists, for example, that borrowing countries adopt sound exchange, monetary and fiscal policies. Stand-by arrangements made since their inception in 1952 amount to \$5,517 million, but only \$1,565 million has been drawn against them. Most of the agreements have expired or have been cancelled. At present, about \$1,500 million is available under stand-by arrangements.

CONSULTATION Another important activity of the Fund is its program of frequent consultations with member countries. Members which maintain exchange restrictions on payments for current transactions are required to consult annually with the Fund. At these meetings efforts are made to assist members in progress toward elimination of multiple exchange rate systems and liberalization of exchange controls. While many countries continue to rely upon multiple currency practices and more or less stringent exchange controls, the trend seems clearly to be in the direction of greater freedom in exchange markets. Inflationary domestic policies have been an important cause of the failure of many countries to free international payments.

EXCHANGE TRANSACTIONS
Through November 30, 1962

Member	Total Drawings
	\$ Million
United Kingdom	2,361.5
India	575.0
France	518.8
Brazil	368.4
Argentina	327.5
Canada	300.0
Japan	249.0
Australia	225.0
Indonesia	152.5
United Arab Republic	145.2
Netherlands	144.1
Chile	139.7
Other	1,239.1
Total	6,745.8

Source: International Monetary Fund.

THE FIFTH DISTRICT



Changes in manufacturing employment reflect opposing forces, both of which are aspects of economic growth. Factory jobs tend to increase to meet the growing demand for goods as population grows and living standards rise. Technology's steady improvement of method and machine has the opposite effect. Over relatively short periods these trends may be obscured by more abrupt movements associated with business cycles. But over longer periods factory employment will tend to rise if demand increases faster than productivity and will fall if the reverse occurs.

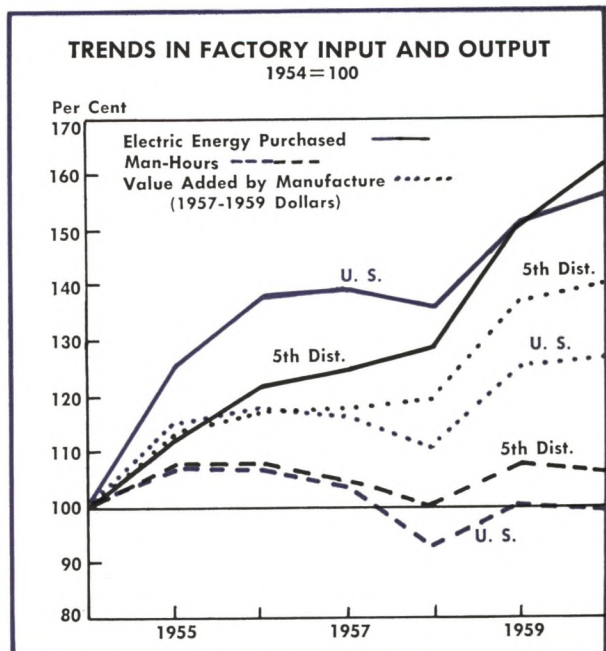
FACTORY JOBS: DISTRICT UP, NATION DOWN During the past decade manufacturing employment has continued to rise in the Fifth District even though the national trend has been slightly downward. In 1953 the number of jobs in District factories returned to the World War II high, 1,353,000. The figure fell below this level again in 1954 and 1955 but moved to new highs in 1956, 1959, 1960, and in 1962 when it reached 1,466,000. For the nation as a whole, private manufacturing employment crested at 17.6 million 20 years ago in response to the stern demands of war. Thereafter the figure declined to a postwar low of 14.4 million in 1949, recovered in 1950, and has fluctuated since 1951 between a high of 17.5 million in 1953 and a low of 15.9 million in 1958. By 1962 it was back up to 16.7 million. In general, the country appears to have been in a period of transition during which the effects of rapid progress in manufacturing technology caught up with and began to outdistance the impact of growing demand for manufactured goods.

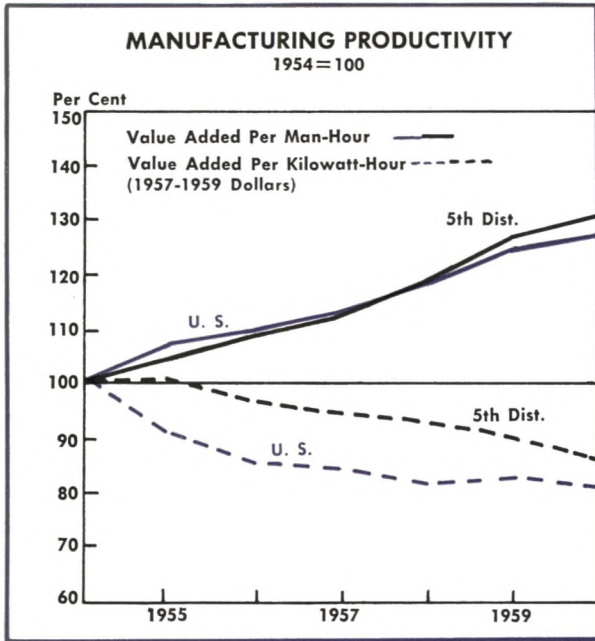
PRODUCTIVITY RISING When large, diverse groups of people pool their resources of capital, labor, management skill, technical and scientific knowledge, and market insights to produce and sell, they create an organism of great complexity. Changes in any of its productive factors or in any pertinent aspect of its market will change its mode of operation. The purpose always is to offer the customer the best product at the lowest price. No summary treatment of these relationships can adequately explain or even describe them. But comprehensive statistics that are readily available can shed some light on the way in which manufacturers in general are shifting their

combinations of human and mechanical resources to get more output per unit of input.

Between 1954 and 1961 factory man-hours changed little, purchases of electrical energy representing machine utilization rose sharply, and value added by manufacture, adjusted for price changes in order to approximate physical output, followed a rising path about halfway between them. The chart on this page shows these trends through 1960 (1961 data were not available in time to be included) for the Fifth District and the nation with all data converted to percentages of 1954 levels. District man-hours and value added paralleled national figures from 1954 through 1957, while District power use lagged. After 1957, however, the District overtook and passed the nation in growth of power utilization, moved significantly ahead in man-hours, and markedly ahead in value added.

Electric power has steadily replaced manpower in the processes of production. In the District the typical manufacturer increased his use of electricity from 7.3 kilowatt-hours for each production worker man-hour in 1954 to 11.0 in 1960 and 11.7 in 1961. The figures were a little higher for the nation—7.7 in 1954, 12.1 in 1960, and 12.8 in 1961. In the





process, as the chart above shows, productivity with respect to labor advanced sharply. Price-adjusted value added per man-hour rose 35% between 1954 and 1961 in the District and 33% in the nation as a whole. Physical productivity with respect to electric power declined, of course, as shown by the lower lines. But between 1954 and 1961 the price of factory labor rose about 30% while the price of industrial power dropped nearly 5%.

In only seven years manufacturers as a group have improved methods and equipment sufficiently to increase output per unit of labor one-third. Since this is a national average, many have raised productivity at a substantially faster rate. The fact that productivity rose more rapidly locally than nationally suggests that the District has a good share of the more progressive industries.

PRODUCTIVITY RATES Some major industries that have achieved large gains in productivity are well represented in the Fifth District. Since rates and ratios can confuse as easily as clarify, it is helpful to make pertinent comparisons first and then look at the numerical values involved.

Industries differ in productivity. Some create high value per man-hour, some low, the differences reflecting competitive conditions, internal technology, and many other factors. Industries also differ with respect to rates at which they are able to raise productivity. An industry with low productivity may show the biggest gain in a given span of time.

Of the nation's major industries with importance in the District, chemical plants were the most

productive with respect to labor. This industry achieved a level of \$9.66 for price-adjusted value added per man-hour in 1954 and raised this figure to \$16.00 by 1961. Tobacco manufacturers, second in productivity, raised value added per man-hour from \$6.57 in 1954 to \$11.45 in 1961. Other important District industries listed in order of declining productivity per man-hour are: foods; transportation equipment; primary metals; machinery; paper; stone, clay, and glass; fabricated metals; furniture; lumber; textiles; and apparel. The textile business, near the bottom of the list according to value added per man-hour, was high in rate of improvement.

EFFICIENCY RATINGS RISE When emphasis centers on rates of increase in efficiency with respect to labor, tobacco and chemicals change places at the head of the list, and textiles rank third. The tobacco industry raised price-adjusted value added per man-hour three-fourths between 1954 and 1961. Comparable increases amounted to two-thirds in chemicals and one-half in textiles. Other industries ranked as follows: foods; transportation equipment; apparel; stone, clay, and glass; lumber; paper; primary metals; furniture; machinery; and fabricated metals.

VARIATIONS IN POWER USE The ranking of District industries shifts again when the rate of increase in purchases of electric power is the criterion. Here the striking fact is that chemicals remain at the top, but tobacco products and textiles drop to the middle and the bottom of the range. Between 1954 and 1961 chemical plants raised purchases of electric energy 98%. The apparel industry occupied second place with a 95% gain. Most industries raised power purchases between 40% and 60%. The figure for tobacco products was 56%, for textiles 23%.

Manufacturing as a whole raised price-adjusted value added per man-hour one-third while increasing purchases of electric power three-fifths. Textiles increased value added per man-hour one-half while power purchased rose less than one-fourth. Fabricated metals provide a sharp contrast with a 40% gain in power purchased accompanied by a mere 9% rise in value added per man-hour. The rapid changes that have occurred within industries and the wide variations that exist between the various industry groups provide convincing evidence of the dynamic nature of the nation's manufacturing enterprise.

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