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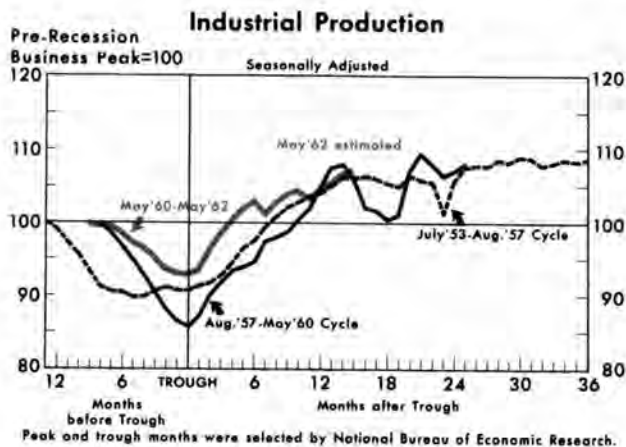
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Monetary Developments

Business Background

SINCE JANUARY of this year there has been a marked improvement in production, employment, and incomes. The increase has been widespread, but has been especially marked in automobile production. The gains have more than offset a decline in steel output.

Two years ago (May 1960) business activity was at a peak. For the following nine months, until February 1961, activity slowed progressively, but the contraction was less severe than during the previous two recessions (see chart on industrial production). Business activity



expanded from February last year to May of this year, but less rapidly than in the two earlier upswings. The net increase in activity over the last two years has been about the same as took place from peak to fifteen months following trough in each of the two previous cycles.¹ Price developments during the past two years have been similar to those during the comparable phases of the earlier cycles.

Unemployed resources at the present time probably are greater than at similar stages of the two

¹ While substantial comparability exists between the most recent business cycles, it admittedly is imperfect; each cycle contains distinctive elements. For example, the 1960 peak in business activity probably was lower, relative to output capacity, than the two previous cycle peaks.

previous business expansions. Capacity utilization for production of major materials was estimated to be 81 per cent during April, compared with approximately 87 per cent and 92 per cent at the similar stages of the 1957-59 and 1953-55 cycles. Unemployment as a portion of the civilian labor force amounted to 5.4 per cent in May 1962. This may be compared with rates of 5.1 per cent and 4.2 per cent in the comparable stages of the 1957-59 and 1953-55 cycles, respectively.

Summary of Monetary Developments

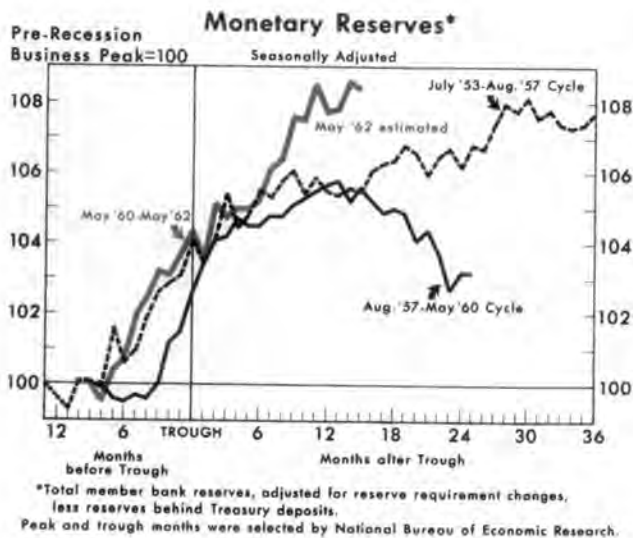
Since the beginning of the year, member bank reserves and the money supply have changed little on balance. During the same period commercial bank credit and time deposits in commercial banks have been rising at relatively rapid rates. Excess reserves of member banks have declined somewhat since the beginning of the year. Member bank borrowings at Reserve Banks have remained at low levels, an unusual development for this stage of the cycle. Although interest rates normally rise during periods of business expansion, in recent months yields on Treasury bills have been about unchanged and rates on most other marketable securities have drifted downward.

Over the two years since the May 1960 peak of business activity, the money supply of the nation has increased at an annual rate of about 2 per cent, approximately the same rate as in the two previous cycles. During the same period bank reserves, bank credit, and time deposits have risen at comparatively sharp rates. Excess reserves rose during the recession and have remained relatively high during the business recovery and expansion. Borrowings of member banks from Reserve Banks declined in the recession and have generally remained below \$100 million during the recovery and expansion, in contrast to marked rises in the two earlier periods of business expansion. Interest rates have remained relatively stable over the past two years following a decline associated with the 1960 economic downturn. In the past, rates usually have declined during recessions, then have risen during economic expansions.

Member Bank Reserves

Changes in bank reserves are important because they affect the volume of bank credit and the money supply. In the last several months, from around the turn of the year to early May, total member bank reserves and monetary reserves,² seasonally adjusted, were about unchanged.

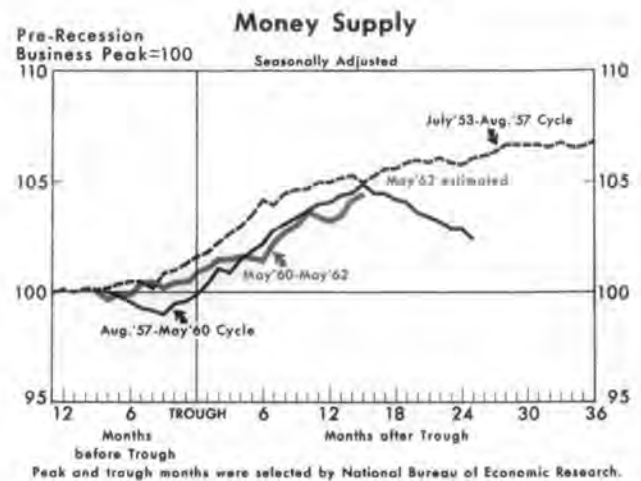
Over the past 24 months, from the May 1960 peak in business activity to May 1962, monetary reserves grew at an annual rate of 4.1 per cent. During the comparable periods of the two previous business cycles (peak to fifteenth month after the trough) monetary reserves increased at lesser rates. In these earlier periods there were decreases in the rates of growth beginning about six months after the troughs (see chart). The growth in bank reserves since May 1960 has resulted primarily from net System purchases of United States Government securities and from changes in regulations which permitted banks to count vault cash as reserves. An outflow of gold partially offset the expansive effect of these System actions on bank reserves.



Money Supply

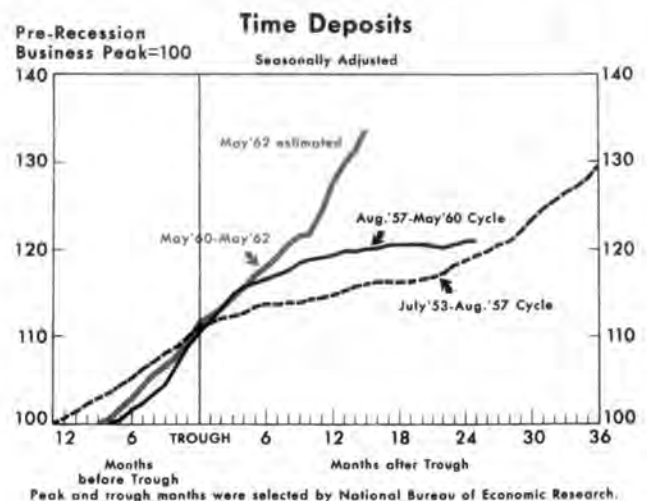
During the period from the second half of December 1961 to early May the money supply (demand deposits adjusted plus currency outside banks) increased at an annual rate of about 1 per cent. Over the longer interval from May 1960 to May of this year the money supply expanded at an annual rate slightly in excess of 2 per cent. This rate of increase was about the same as in the two previous business cycles (see chart).

² Monetary reserves are defined as total member bank reserves less reserves behind Treasury deposits.



Judged by monetary reserves and the money supply, monetary conditions have shifted repeatedly during the course of the recent recession, recovery, and expansion. During the recession, in the last half of 1960 and early 1961, monetary reserves and money rose at relatively rapid rates. In the early recovery period, spring and summer 1961, reserves and money changed only slightly. During the last four or five months of 1961 reserves and money again rose rapidly, but since the turn of the year they have changed little.

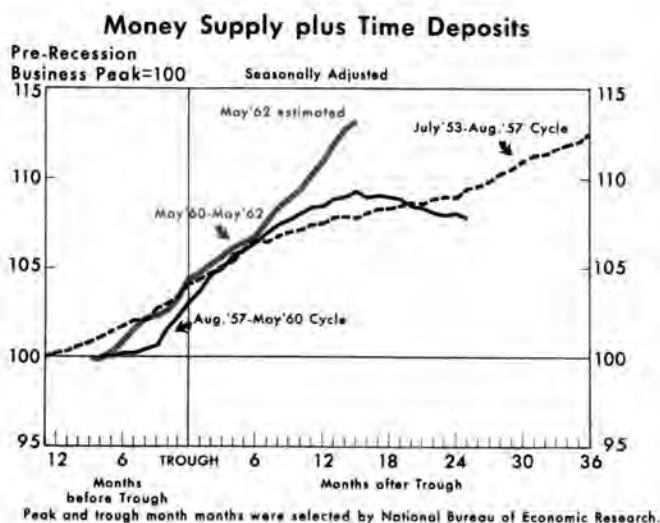
Time deposits in commercial banks increased at an annual rate of 20 per cent from December 1961 to May, slightly more than the 16 per cent rate of increase for the entire period since the May 1960 peak. In the corresponding 1957-59 and 1953-55 periods (peak to fifteen months following trough) the annual rates of growth were 10 per cent and 7 per cent, respectively (see chart). The rapid rate of growth



in time deposits since last fall has been unusual; after about six months of recovery in the two previous cycles there was a slackening in the rate of time deposit expansion. The relatively high interest rates cur-

rently being paid on time deposits compared with market interest rates may have stimulated the recent time deposit growth.

The money supply plus time deposits increased at an annual rate of about 7 per cent from May 1960 to



May 1962. Total bank credit, changes in which are usually about the same as changes in money supply plus time deposits, increased at an annual rate of 8 per cent during the same 24 months. The largest expansion was in bank investments, but loans also rose markedly. Both the money supply plus time deposits and total bank credit increased more rapidly during the decline and the first fifteen months of recovery of the current business cycle than during the corresponding periods of the two previous cycles. The greater increases during the current cycle reflect both more rapid expansion in member bank reserves and the sharp increase in time deposits, which require fewer reserves than demand deposits.

Excess Reserves and Borrowings

Monthly average excess reserves increased during each of the past three recessions. Shortly after the August 1954 and April 1958 troughs of business activity, excess reserves declined to approximately their former levels. By comparison, during the 1961-62 recovery average excess reserves have remained above the pre-recession level.

The behavior of interest rates during the recent period may provide a partial explanation for the continuing high level of excess reserves. During a recession short-term interest rates generally decline and, as a result, the alternative cost of holding excess reserves is reduced. Following the two previous troughs

in business activity, short-term interest rates rose markedly, increasing the alternative cost of holding excess reserves. Since the February 1961 trough, however, interest rates have remained unusually steady. Consequently, the alternative cost of holding excess reserves has not risen as much in this recovery as in former recoveries.

There was a moderate decline in excess reserves early this year. Many banks began paying higher rates on time deposits at about this time. With the rise in costs banks may feel they have an added incentive to utilize their assets more efficiently. Some banks reduced their excess reserves, increased their holdings of municipal securities and real estate mortgages, and lengthened the average maturity of their portfolios of Government securities in order to increase gross earnings.³

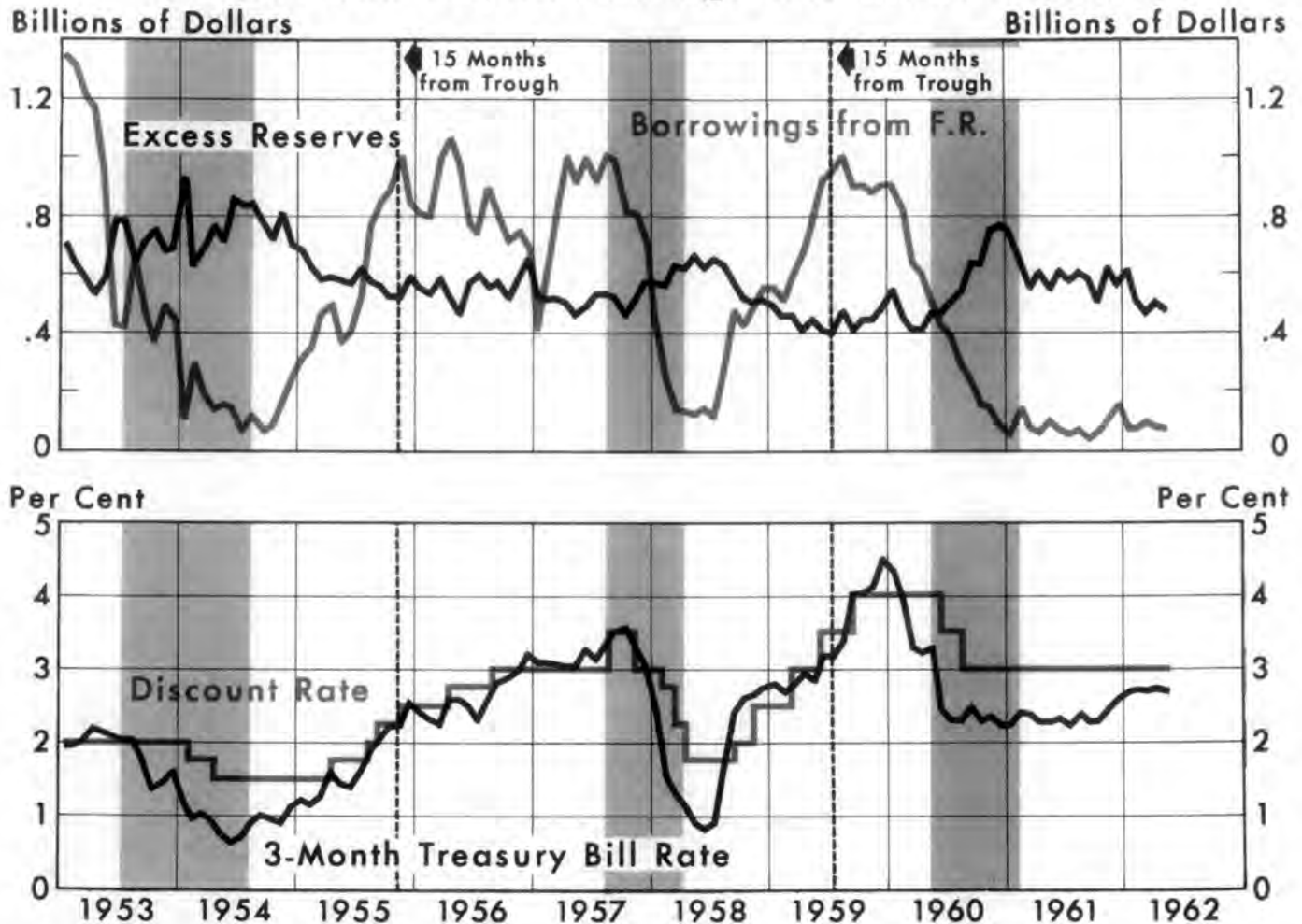
Member bank borrowings from Reserve Banks declined markedly during each of the three most recent recessions. Borrowings rose sharply during the two previous business expansions, averaging \$990 million fifteen months after the trough. In contrast, borrowings have remained at a nominal level throughout the current recovery.

Banks have several means of adjusting to short-run fluctuations in their reserve positions. Borrowing from Reserve Banks and purchases and sales of short-term Government securities are two important methods. The choice between these alternatives appears to be influenced to a great extent by the relationship of short-term rates to the discount rate. Since mid-1960 the discount rate has been at 3 per cent and the three-month Treasury bill rate has moved within a 2.25-2.75 per cent range. Consequently, banks have been making most of their short-run adjustments in the money market rather than through borrowing from Reserve Banks. During both of the two preceding upswings in business activity the Treasury bill rate increased to levels approximating or surpassing the discount rate and borrowings from Reserve Banks expanded.

Excess reserves have remained relatively high and borrowings relatively low during the current cycle for a variety of reasons, as discussed above. Consequently, the arithmetic difference between them (excess reserves less borrowings), often referred to as "free reserves," has been substantially larger and more stable during the current business expansion than during similar phases of the two previous cycles.

³ See pages 4 and 5 of the May 1962 issue of this *Review*.

Excess Reserves, Borrowings and Interest Rates



Latest data plotted: May preliminary

Interest Rates

Monetary conditions, to the extent that they are measured in the level or movement of interest rates, have been singularly stable during the past two years. In recent months short-term interest rates have changed only slightly while long-term interest rates have moved somewhat lower. Since the decline in interest rates associated with the decline in business activity in mid-1960, however, interest rates have been relatively steady. During the two previous business cycles interest rates declined markedly during the recessions and rose sharply during economic expansions.

Interest rates reflect numerous factors affecting the supply and demand for funds. On the supply side, bank credit and personal saving have expanded at a

rapid pace in the past two years. Debt-management activities of the Government have contributed to stability of rates. The outflow of funds from the country helped place upward pressure on short-term rates during the recession. However, the biggest difference with regard to rates between the current and the two previous cycles may have been in the behavior of the demand for funds. The 1960-61 recession was relatively mild, and the demand for credit probably did not decrease as much as in the two previous recessions; the 1961-62 rise in economic activity was slower and the demand for funds appears not to have expanded as rapidly as in previous business upswings.

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CHANGES IN THE VELOCITY OF MONEY

1951-1962

Introduction

ARTICLES in the October 1961 and March 1962 issues of this *Review* examined changes in the quantity of money since the beginning of 1951. This article is a tentative and exploratory analysis of the changes in the rate of turnover of the money supply over the same period. No definitive conclusions are reached, and the tentative analysis does not necessarily reflect the opinion of this bank or of the Federal Reserve System.

There is a considerable body of theory and opinion which suggests that the money supply¹ can be managed in such a way as to moderate cyclical movements in economic activity and thereby contribute to stable growth in the economy. However, some observers argue that changes in the money supply can be, and typically are, offset by perverse shifts in the rate at which the public spends its money balances, commonly referred to as the "velocity" of money.² If the supply of money is increased, total spending may be unchanged. The public may simply increase the amount of money it holds relative to its income (thus, velocity declines). If the money supply grows at a lesser rate or is permitted to fall, the public may make a more efficient use of the diminished supply (velocity increases).

This article points out a few of the major factors that may affect the velocity or "turnover" of money. It also examines historical movements in velocity, with chief emphasis on experience during the period from 1951 to early 1962. An attempt is made to gain insight into the extent to which changes in velocity have offset, dampened, or supplemented changes in the money supply.

¹ The measure of the money supply used in this article is a common one, demand deposits adjusted plus currency outside of banks. Other measures of money may include such highly liquid assets as time deposits.

² See, e.g., Warren L. Smith, "On the Effectiveness of Monetary Policy," *American Economic Review*, Sept. 1956, pp. 588-606. For another interpretation, in which changes in velocity are interpreted as serving to moderate the otherwise "harsh" effects of monetary actions, see L. S. Ritter, "Income Velocity and Anti-Inflationary Monetary Policy," *American Economic Review*, March 1959, pp. 120-129.

There are two commonly used measures of velocity: "transactions velocity" and "income velocity." Transactions velocity is the ratio of total spending during some period of time to the average amount of money held during that period.³ Income velocity is the ratio of total expenditures on current output, or gross national product, during a period to the money stock during that period.

This article discusses movements in income velocity because, by definition, it is the connecting link between changes in money and changes in spending on current output, two variables of prime concern. This measure has certain defects, however. Government deposits are not included in the money supply as usually defined, but Government expenditures are included in gross national product.

Influences on the Demand for Money

The economy of the United States is made up of nearly 5 million businesses and more than 50 million households. These units are motivated by a wide range of forces which vary from unit to unit and over time. In order to understand better the functioning of the economic system several theories have been developed which attempt to describe how the economy works. None of the theories completely explains the behavior of the economy, but several of them contribute insight into its performance. For example, it is meaningful at times to view an expansion in total activity as resulting from adaptations of the economy when intended investment exceeds planned savings; intended investment may be increased by either a decline in interest rates or a rise in the marginal efficiency of capital.

³ Because data on total spending are not available, transactions velocity is estimated by dividing checks and other debits to demand deposit accounts by the average balances in these accounts. See, George Garvey, *Debits and Clearings Statistics and Their Use*, Board of Governors of the Federal Reserve System, 1959, and *Deposit Velocity and Its Significance*, Federal Reserve Bank of New York, 1959.

Other ways of viewing changes in total activity concentrate on the financial side of the economy. One such view focuses attention on the role of money. This theory is developed briefly in the following paragraphs. The analysis which follows builds on this framework.

Turnover of money occurs when a holder exchanges money for some other item or service. In an effort to understand turnover, or velocity, one might study the reasons why people spend. Another approach to the analysis of velocity involves inquiring why holders of money have not spent it.⁴ These approaches are complementary. The decision to spend may be viewed, alternatively, as a decision not to hold money. Hence, those factors which serve to increase spending may be viewed, alternatively, as serving to reduce the desire for holding money.

Money (hand-to-hand currency and demand deposits) is useless in itself, but can be exchanged readily for things urgently needed or desired. Why then is there some \$140 billion being held by businesses and individuals of the country? One answer is that the volume of money outstanding is determined (within fairly narrow limits) by the monetary authorities. And, regardless of how rapidly each individual spends his balances, all the amount in existence at any given time is being "held," either by the spender or by the seller. Although some money is held because owners have just received it and have not had time to spend it, most is not passed on as quickly as technically possible.

There are a number of sound motives for holding money.⁵ A major reason is to be in a position to buy and sell between periods when receipts are expected. Wage and salary earners must make their funds last from one payday to the next, or live frugally near the end of the period. Similarly, businesses need cash balances to survive periods when planned expenditures exceed expected receipts.

Money is useful to meet financial emergencies. There are many uncertainties in the movements of funds, and it seems that misfortunes tend to be bunched. In the course of operating a business, anticipated receipts may fail to materialize and unexpected outlays may arise. Even if insolvency is avoided

at such times great inconvenience, expense, annoyance, or loss of financial respectability may result. Ample money balances serve to cushion the ill effects of such events. On the other hand, availability of credit at a reasonable cost or large holdings of near monies (assets which readily can be exchanged for money) reduce the amount of funds needed to provide for a margin of safety.

In addition, some people gain positive satisfaction from holding a portion of their assets in money. A large balance in a checking account or a cache of currency may provide a feeling of security or prestige; or, the owner may not know of a more expedient way of keeping his wealth. Also, cash is frequently held in anticipation of price declines. That is, households and firms may hold cash temporarily even though they are actively interested in owning such items as securities, real estate, inventories, productive equipment, or foreign exchange.

In short, it seems reasonable to suggest that at any one time there is a fairly definite range of cash balances that conforms to the needs or desires of each household and business firm in the economic system. Over time the range of desired balances may change as incomes, tastes, interest rates, prices, liquid assets, economic conditions, and other factors change. For example, a rise in yields on highly liquid assets increases the alternative cost of holding money balances, thereby tending to reduce the amount of idle cash desired.

If desired cash balances exceed the amount of funds available, the theory states that spending units in attempting to build up balances reduce outlays. Satisfaction of one spending unit's desire to hold money is at the expense of another; the second, in turn, may take similar action to rebuild his balances. Thus, a paradox emerges: individuals attempt to build up their money balances to fit their income streams; in aggregate, however, the total income stream is reduced to fit the existing money stock.

This explanation of the economy does not imply that all or even most changes in activity are the result of changes in the money supply. As outlined above, there are numerous forces that can influence the demand for, and hence, the velocity of money. For example, in 1955 there was a marked increase in automobile sales. This increase in sales might be viewed as resulting from changes in consumer tastes, an enthusiastic model acceptance, buoyant economic

⁴ A. C. Pigou, "The Value of Money," *Readings in Monetary Theory*, Richard D. Irwin, Homewood, Illinois, 1951, pp. 162-183.

⁵ For an excellent discussion of the motives for holding money, see Albert Gailord Hart, *Money, Debt, and Economic Activity*, Third Edition, Prentice-Hall, Inc., 1961, pp. 230-244.

conditions, easier credit terms and effective advertising. Within a monetary framework these same developments may be viewed in terms of a reduced demand for money. Any development which decreases the demand for money relative to other goods causes velocity to rise, and *vice versa*.

Increases or decreases in the supply of money may cause changes in velocity. Indeed, a rapid change in the money supply may not even have an immediate impact on actual money balances as viewed by the public. The cash balance from the point of view of the public may not be the actual balance at the moment. Because most spending units have frequent and uneven receipts and expenditures, their money holdings usually fluctuate over a range. Hence, spending units may not realize that their actual holdings have changed until the new range is confirmed by an accumulation of experience. Such confirmation lags may cause a delay between changes in the money supply and the effects of such changes on spending decisions.

To illustrate the point, if the money supply is expanded rapidly, an initial impact may be a decline in measured velocity, resulting from about the same rate of expenditures but an increased stock of money. The rise in money will have been occasioned by voluntary transactions between the public and the banking system. The public will have exchanged financial assets (e.g. Government securities, promissory notes) for deposits at commercial banks. This act itself represents at least an initial willingness on the part of the public to hold additional quantities of money. Later, as spending and investing plans of the initial transactors are implemented, additional spending units begin to feel the impact of the increase in the money stock. As the change in the money stock is confirmed in the mind of the public, a discrepancy may develop between its actual and its desired money balance. In order for individuals and firms to reduce their balances, they exchange them for securities, goods, and services.

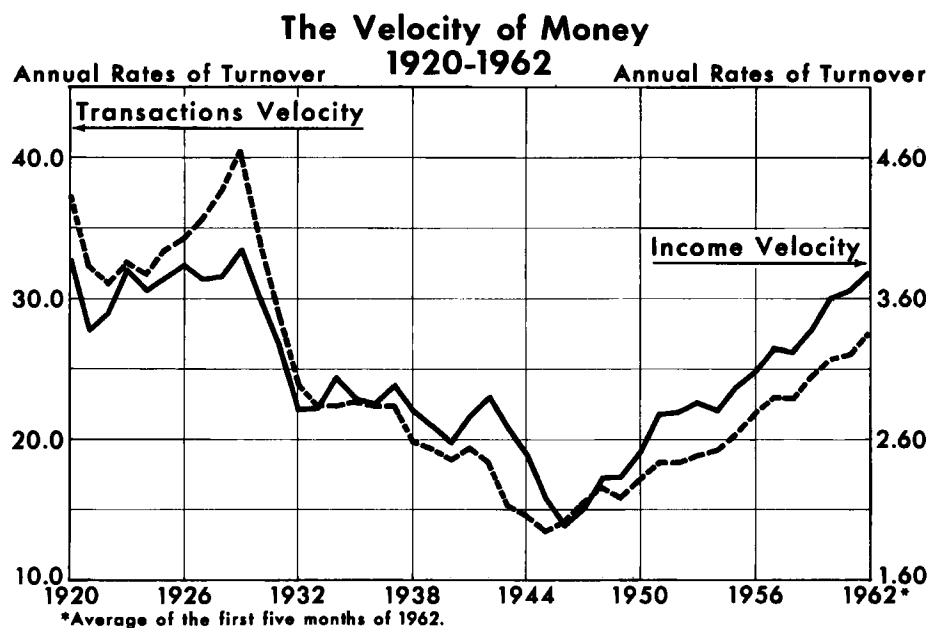
The Historical Record

Secular Movements in Velocity

During the period from 1946 to 1962, income velocity rose 91 per cent and transactions velocity rose 95 per cent (see Chart 1). The financing of World War II had created a huge volume of money and of holdings of liquid Government securities. Reflecting the abnormally high degree of liquidity in the economy, the velocity of money was unusually low at the end of the War. Following the War, however, the desire for money holdings appears to have declined. Because the public had postponed spending during both the Great Depression and the War, goods and services were eagerly sought, but sufficient goods were not immediately available. In addition, fears of an expected postwar recession were gradually replaced by confidence resulting from burgeoning prosperity. The abatement of these fears tended to cause a decline in the attractiveness of money balances relative to goods and services.

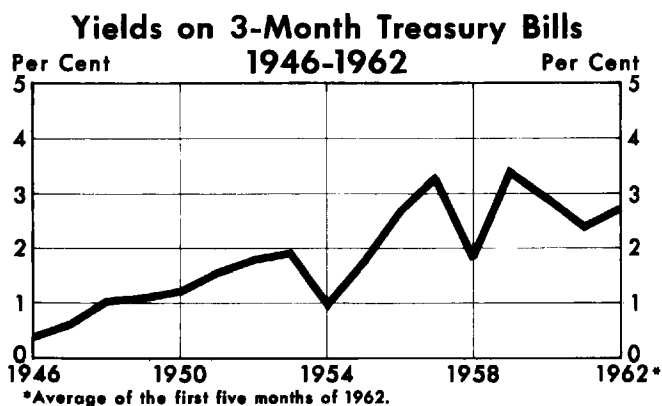
Other factors which probably have contributed significantly to the postwar decline in the demand for money, and, hence, to the rise in velocity, include a rise in interest rates, a growth in liquid asset holdings of the public, growing confidence in the viability of the economy, and expectations regarding inflation. A decision to hold money instead of other liquid assets has grown increasingly costly, providing an incentive

Chart 1



to reduce cash balances. Chart 2 presents annual averages of yields on 3-month Treasury bills. Yields on

Chart 2



Treasury bills increased from 0.38 per cent in 1946 to 2.72 per cent in the first quarter of 1962. In addition, interest rates and dividend payments on savings by thrift institutions were revised upward during the period.

The volume of liquid assets other than money rose substantially in the postwar period. Short-term Government securities⁶ held by the nonbank public rose from \$20.8 billion in 1946 to \$40.3 billion in early 1962. Over the same period savings and loan shares rose from \$8.0 billion to \$71.5 billion, and deposits in mutual savings banks increased from \$19.4 billion to \$39.2 billion. Relative to GNP these three types of liquid assets combined rose from 23 per cent in 1946 to 28 per cent in early 1962. With greater quantities of liquid assets which perform some of the functions of money, the desire to hold cash balances may have moderated.

In the postwar period institutions have been developed which make it easier to economize cash balances. For example, there has been a revival of commercial paper and bankers' acceptance markets, providing holders of temporarily idle cash balances an increased opportunity to utilize funds for short periods. Along this same line, there has been a growth in short-term loans to dealers. In addition, the movement of funds has been accelerated by the widespread use of airmail and by wire transfer. Corporate treasurers have probably become more adept at forecasting their daily cash requirements; as a result, idle balances have become less essential to meet unexpected withdrawals.

⁶ Includes all marketable securities maturing within one year (adjusted to include partially tax-exempt securities twelve months prior to first call date) and, prior to 1956, nonmarketable Treasury savings notes with maturities up to 24 months; figures include holdings of insurance companies, brokers and dealers, State and local Governments, nonbank corporate pension funds, non-profit institutions, foreign accounts, and individuals.

Despite the upward trend in velocity during the past seventeen years, velocity of money is no higher now than during most of the period of the late nineteenth and early twentieth centuries. The turnover of money declined markedly during the depression of the 1930's, when uncertainty was prevalent. Velocity remained low during World War II with the large expansion of money coupled with severe restrictions on consumer spending for goods (see Chart 1).

Cyclical Movements in Velocity

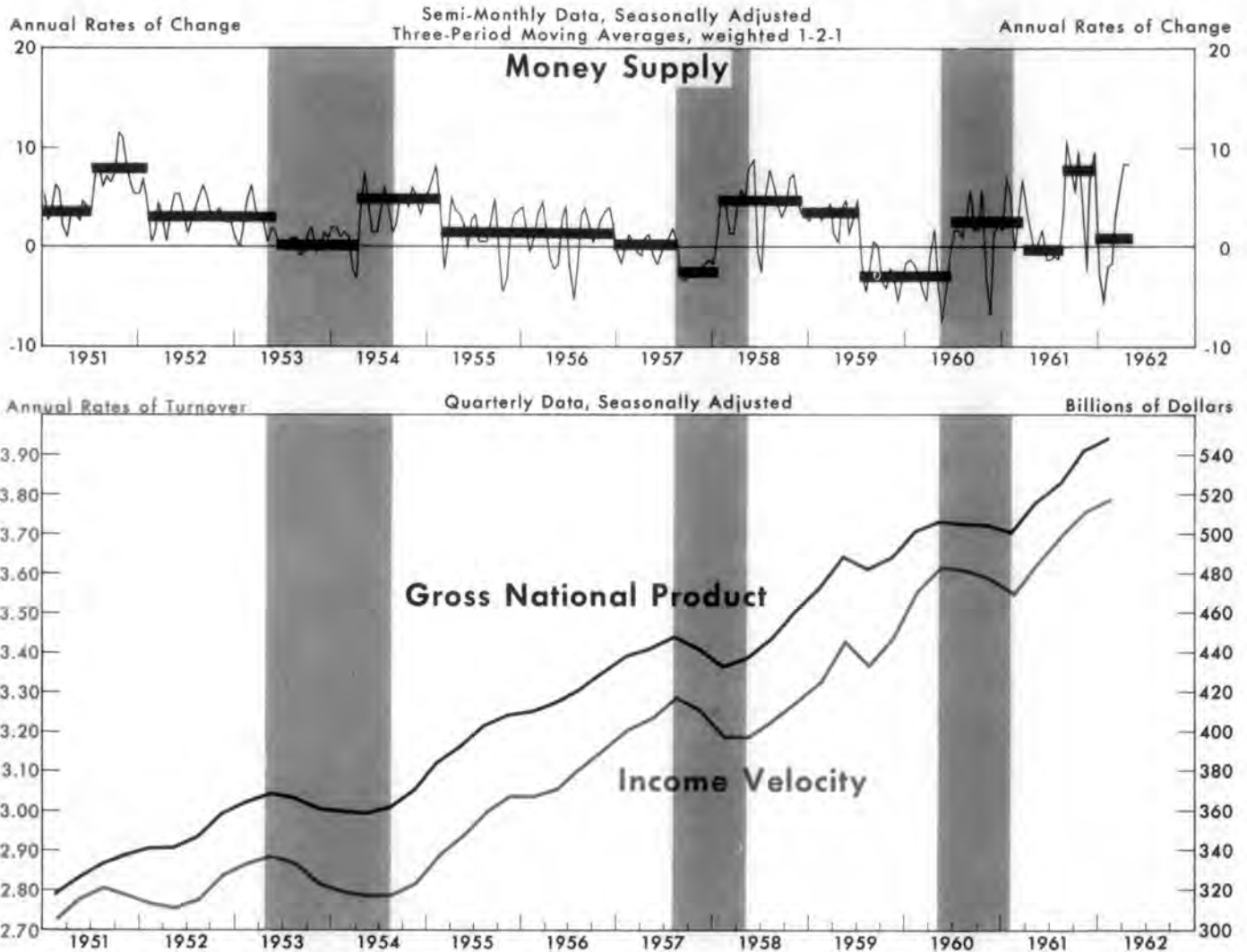
The period since the beginning of 1951 covers four business expansions and three contractions. The periods of expansion in business activity were from early 1951 to the summer of 1953, the third quarter of 1954 to the late summer of 1957, from the spring of 1958 to the spring of 1960, and from early 1961 to the present. Expenditures for goods and services rose markedly in each of these periods, rising at annual rates of 7 per cent, 8 per cent, 8 per cent, and 10 per cent, respectively.

Prior to each of the periods when business activity turned up, the money supply had been rising for several months at more than double the 1951-61 average annual rate (2.1 per cent). In 1954, money rose at an annual rate of 4.8 per cent for five months preceding the trough; in 1958 money rose at an annual rate of 4.7 per cent for about four months prior to the upswing in activity; and in 1961 money rose at an annual rate of 4.5 per cent for about four months before the pickup in business. Despite the smaller volume of cash transactions, such factors as relatively low interest rates and uncertainties about the future course of the economy may have contributed to a further increase in desired balances during the periods just preceding the trough in business activity.

Immediately prior to the upswings in business in 1954 and 1958, the velocity of money changed little. During each of these periods the money stock was increasing at advanced rates. The velocity of money declined during the period immediately prior to the 1961 recovery. During this period it may be that, initially, the public had not fully recognized the extent to which its balances had been altered; therefore, some time was required before adjustments could be completed.

In the early stages of each of the four recoveries in business activity since 1951, the money supply continued to rise at relatively rapid rates. Moreover, within a short time the public's conception of its money balances may have more fully incorporated the earlier

Money Supply, Gross National Product,



Periods of No Marked or Sustained Change in the Money Supply

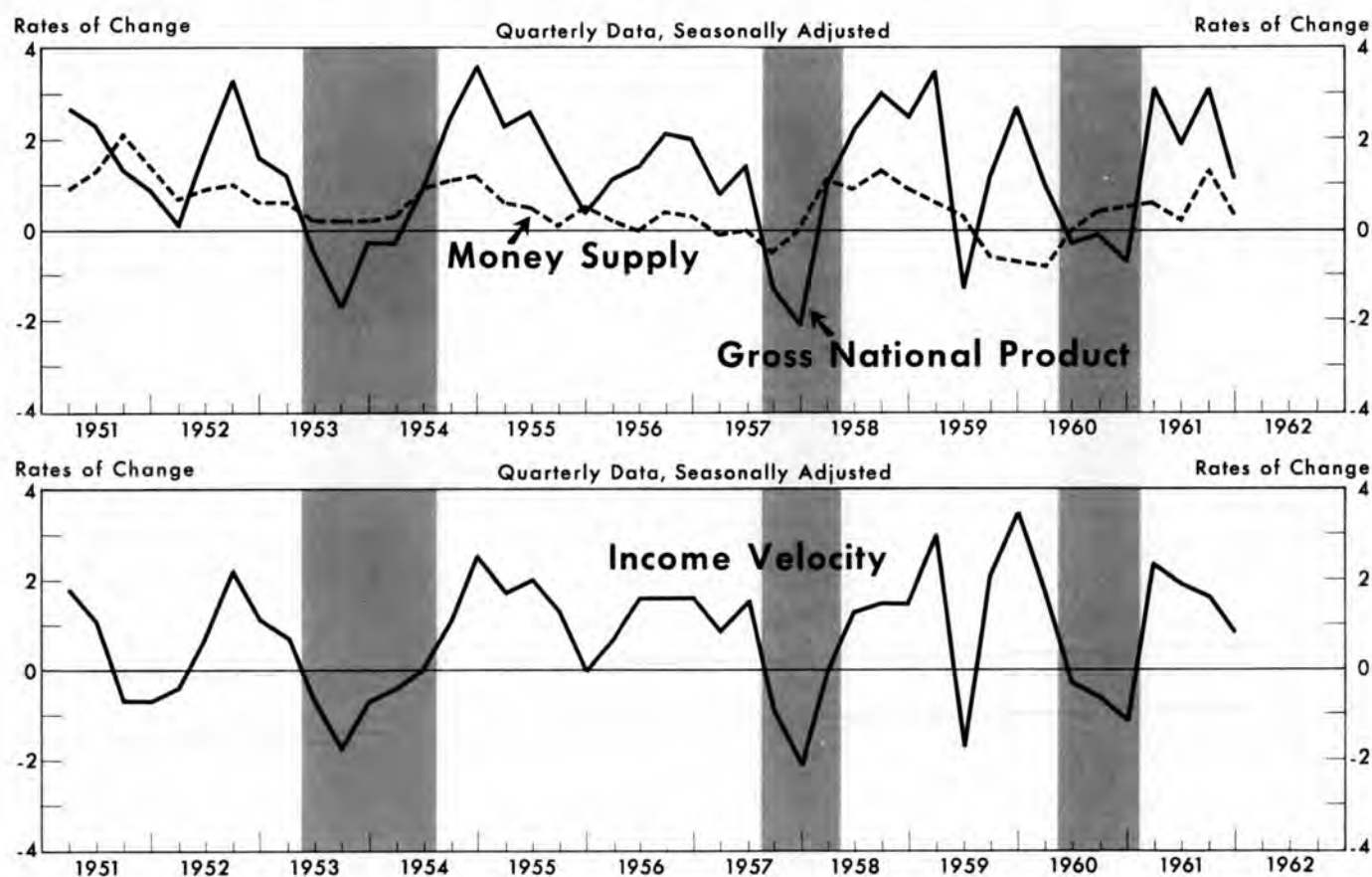
Represented by Bars on Charts

Period Changes at Annual Rates

2nd half Dec. '50	1st half July '51	+3.5
1st half July '51	1st half Feb. '52	+7.9
1st half Feb. '52	1st half June '53	+3.0
1st half June '53	1st half Apr. '54	+0.1
1st half Apr. '54	2nd half Feb. '55	+4.8
2nd half Feb. '55	2nd half Dec. '56	+1.3
2nd half Dec. '56	2nd half Aug. '57	+0.1
2nd half Aug. '57	2nd half Jan. '58	-2.6
2nd half Jan. '58	1st half Dec. '58	+4.7
1st half Dec. '58	1st half July '59	+3.4
1st half July '59	2nd half June '60	-3.1
2nd half June '60	2nd half Mar. '61	+2.5
2nd half Mar. '61	2nd half Aug. '61	-0.3
2nd half Aug. '61	2nd half Dec. '61	+7.8
2nd half Dec. '61	1st half May '62	+0.9
Average Annual Rate of Increase 1951-1961		+2.1

THE MONEY SUPPLY SERIES has been divided into a number of time periods. These periods represent intervals in which no marked and sustained change was observed in the rate of change of the money supply. The rather wide short-run fluctuations in rates of change in money make the determination of these periods somewhat arbitrary. It is believed, however, that most analysts would arrive at substantially similar periods. The average annual

and Income Velocity, 1951-1962



rate of change for each period is shown by bars superimposed on the line chart and in the accompanying table.

Rates of change of the money supply may at times be usefully described in terms of trends rather than of discontinuous levels. The analysis here presented is not meant to preclude such a view. However, in the interest of simplicity, the analysis has been confined to the use of plateaus of rates of change.

SHADED AREAS ON CHARTS represent periods of business recession: Prerecession Peaks: second quarter 1953, third quarter 1957, second quarter 1960; Recession Troughs: third quarter 1954, second quarter 1958, first quarter 1961. National Bureau of Economic Research reference dates are used.

increases. There may have been some decline in the demand for money balances, further decreasing the public's desired balances relative to its actual position. With greater confidence in the economic outlook, individuals and businesses found goods, services, and securities more attractive. In most of these periods interest rates rose markedly, raising the alternative cost of holding cash balances. Stock prices generally rose, adding to the feeling of wealth and liquidity of investors.

With the money supply rising at a relatively rapid rate and desired balances apparently declining, spending generally rose sharply in the first few quarters of each recovery. Thus, in the early stages of the 1954 and 1958 recoveries, after a short lag, rapid increases in money were accompanied by increases in velocity, not by declines. The early stage of the 1961 recovery presents a somewhat different picture. The money stock was approximately unchanged from late March 1961 to late August. Spending continued to rise during this period, suggesting that desired balances of the public continued to be less than actual cash balances. The rise in spending coupled with a stable money stock resulted in an increase in measured velocity.

During the expansion phase of the 1951-53, 1954-57 and 1958-60 cycles, the money supply rose, but at successively lower rates (see charts). The direction and rate of movement in desired cash balances during these periods are not clear, however. On the one hand, some factors tended to make the holding of cash balances less attractive. Confidence was strong during these periods of rising activity, and with production approaching capacity there were some increases in prices. The volume of the nonbank public's holdings of short-term Government securities, a close substitute for money, rose markedly.

On the other hand, as business activity continued to rise, it seems reasonable to assume that there was an increase in the demand for cash balances for transactions purposes. In any case, as the growth in the money supply slowed, the increases in spending were at somewhat reduced rates (see Chart 3), suggesting that the margins between actual and desired balances had narrowed. Despite the slower rates of increase in spending, velocity continued to rise in these periods.

During the final few months of each of the expansion periods the money supply was virtually unchanged or declined. Just prior to the 1953 peak in general business activity, the rate of increase in money declined sharply. Prior to the 1957 downturn the money stock had been virtually unchanged for eight months.

As suggested above, there may have been some lag before the public recognized and responded to these shifts in its cash position. The money supply had declined 3 per cent during the year prior to the 1960 peak in activity, providing the most striking instance in which increases in velocity matched, for an extended time, the declines in money.

Even though indications are that desired cash balances did not expand markedly in these late expansionary periods, there probably was an increase in the demand for money for transactions purposes. At some point desired cash balances exceeded actual balances and expenditures declined. Spending decreased more rapidly than the money supply. Hence, the velocity of money, which had been rising, declined.

Three recessions in economic activity have occurred during the period since 1951 (see the shaded areas of Chart 3). The periods of recession were from the summer of 1953 to the third quarter of 1954, from the late summer of 1957 to the spring of 1958, and from about mid-1960 to early 1961. There were declines in spending for goods and services at annual rates of 3 per cent, 7 per cent, and 1.5 per cent, respectively.

In the early recession periods actual cash balances were virtually stable or were declining. Desired cash balances probably rose in response to uncertainties and lower alternative costs of holding cash (interest rates declined). With an unchanged or a declining money stock, and with desires for cash apparently rising, the public sought to build up its balances by reducing its outlays for goods, services, and earning assets. The declines in spending were even greater than the declines in the stock of money in most early recessions. Reflecting these developments, the velocity of money declined.

Within a few months following the beginning of each of the recessions, the money supply began increasing at relatively rapid rates (see Chart 3). However, spending continued to decrease for a time. In part this may have reflected a lag in holders' recognition of their greater cash balances, and in part it may have reflected still greater demands for cash balances. One factor that may have caused an increased demand for money was that short-term Government securities held by the nonbank public declined during each of the three recessions. The velocity of money declined in these periods. However, after a few months both total spending and velocity turned up, indicating that actual cash balances exceeded desired balances.

Conclusion

Changes in the rate of turnover of money reflect a combination of forces. In terms of the tentative framework used in this article, changes in total expenditures (or GNP) may be viewed as being determined by the relationship between actual cash balances and desired balances. Desired money balances, in turn, appear to be influenced by numerous factors, including incomes, tastes, interest rates, the volume of other liquid assets, and the economic outlook. However, it is only by inference and judgment that we can say when and how much the demand for cash balances has changed. Expenditures for current output (GNP) are divided by the actual money supply in order to calculate velocity. But, the actual money stock may not be the immediately relevant variable for cash balances that influence spending decisions; for, there may be a lag between changes in the actual money stock and the recognition by the public that a change has occurred in its cash balances. In addition, some time may elapse before spending plans are formulated and executed.

At the outset of this article the question was posed whether movements in velocity tend to offset, dampen, or supplement changes in the money supply. A review of the past eleven years suggests that there has been a tendency for a rapid change in money to be matched temporarily by an opposite change in velocity. For example, rapid increases in the money supply during the late phases of the last three recessions were accompanied for a short period by further declines in velocity, but not by increases in the rate of decline. These declines may have reflected continued increases in the demand for money or lags in the public's adjustment to the expanded money stock.

The review of experience during the last three business cycles also suggests that, when a change in the rate of change of the money supply is marked and sustained, it is not long until holders begin making adjustments in their spending for goods, services, and investments in an effort to reach their desired cash balance levels. Within a few months after money began expanding at a rapid rate in 1954, 1958 and 1961, spending and the velocity of money began rising.

The general pattern of movement in the velocity of money seems to have been as follows: There appears to have been a tendency for a large injection of money to be accompanied initially by a further decline in velocity. Later, as the public recognized the change in its balances, a discrepancy emerged between its actual and its desired balances; there was an increase in spending, and velocity moved upward. The rise in spending may have set into motion other changes—

increases in incomes, confidence, interest rates, prices—which, in turn, may have produced a decline in desired cash balances and a further increase in spending and velocity. Hence, after a few months' lag, movements in velocity tended to supplement changes in the money supply. Conversely, a marked and sustained decline in the volume of money has usually been accompanied at first by rising velocity, but, after a short lag, by a declining rate of turnover of money.

Average Labor Productivity as a Guide to Wage Adjustments

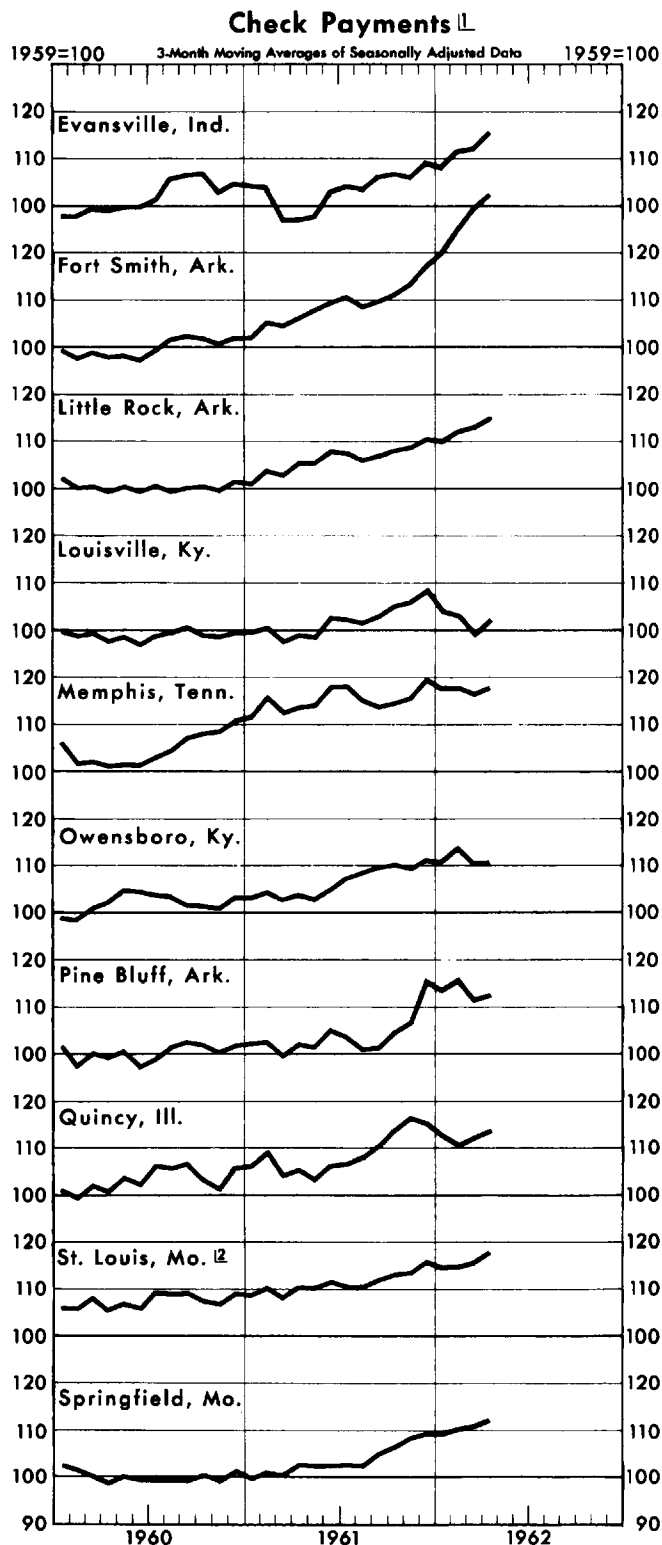
THE FEDERAL RESERVE BANK OF KANSAS CITY recently published a discussion on average labor productivity as a guide to wage adjustments. The article observes that stemming inflationary pressures has been a prominent consideration in determining public policies since World War II. Some analysts have pointed to price pressures caused by increased labor costs and have proposed that negotiated wage increases follow changes in the average productivity of labor as a means of avoiding inflation.

Average labor productivity is commonly defined as the total real output of goods and services divided by the total number of man hours during a given period. It is simply an arithmetic measure relating output to input and is not affected either by changes in the level of prices or in wage rates. If total dollar income paid to workers rises at the same rate as total production, then average labor costs per unit of product remain constant. By keeping the rates of increase equal, the upward pressure on price levels is avoided. Labor is not the only beneficiary of increased output, however, because by definition, total non-labor income (rent, interest, profits, etc.) also increases proportionately.

This productivity guide, however, has major drawbacks when applied on an individual basis. Productivity gains are always selective, occurring in different firms and industries at different times. A standard based on national averages used without discrimination would result in freezing relative wages between industries. This would prevent reallocation of the labor force among industries through wage differentials, which is contrary to free-market precepts.

The article concludes that average labor productivity trends be used only as a benchmark in wage negotiations. The complete discussion appears in the March-April issue of the *Monthly Review* and can be obtained by writing the Research Department, Federal Reserve Bank of Kansas City, Federal Reserve Station, Kansas City 6, Missouri.

Check Payments



¹ Debits to demand deposit accounts, except interbank and U.S. Government accounts.
² Includes St. Louis, Mo., East St. Louis-National Stock Yards, Ill., and Alton, Ill.
 Latest data plotted: April, which includes May estimated

at the Ten Largest Cities of the Eighth District

DEBITS to deposit accounts, that is, the dollar volume of check payments and other charges to bank demand deposits, are often used as an indicator of economic trends. Since the major part of money payments is made by checks and other transactions affecting deposits, debits figures are quite sensitive to changes in economic activity. The accompanying charts show the movements of debits at the ten largest reporting centers in the Eighth Federal Reserve District. Three-month moving averages have been used to reduce erratic month-to-month movements characteristic of debits data.

Reflecting different local and regional developments, debits at Eighth District reporting centers show a variety of patterns.

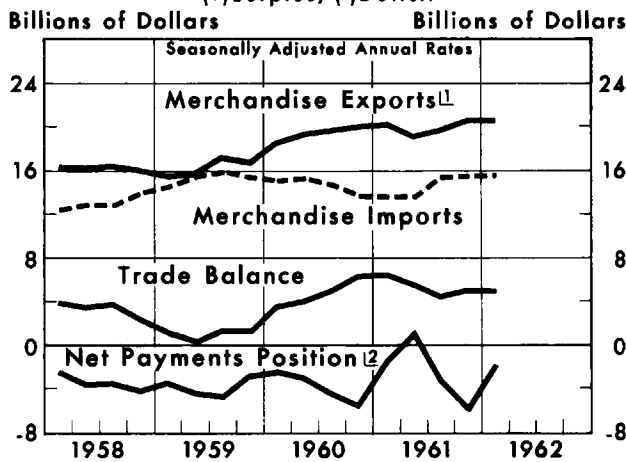
Although the volume of bank debits is often used as an indicator of local business conditions, these data should be used carefully and in conjunction with other local economic indicators. The usefulness of debits as an economic indicator is limited because of: (1) financial transactions from outside the area or not related to production and consumption; (2) payments not resulting in debits at local banks; and (3) outlays recorded several times.

Balance of Payments

The United States balance of international payments during the first quarter of this year was considerably improved compared with the last quarter of 1961. From an annual rate of about \$6 billion in the fourth quarter of 1961, the payments deficit dropped to about a \$1.8 billion rate in the first quarter of 1962.

United States Balance of Trade and Net Payments Position

(+) Surplus; (-) Deficit



1 Excluding Military Transfers under Grants.
 2 Measures net transfers of gold and liquid dollar assets. Deficit reflects net decline in U.S. gold and net increases in foreign-held dollar assets.
 Source: U.S. Department of Commerce
 Latest data plotted: 1st Quarter '62 estimated

A substantial reduction in short-term capital outflows, partly offset by a slight reduction in the trade surplus, accounted for most of the first-quarter improvement. The decline in the Treasury gold stock continued in the first quarter and through May amounted to \$455 million. In the comparable period of 1961 the transfer of gold to foreign ownership amounted to \$364 million.

According to scattered reports, not all of the gold stock attrition of recent months reflects the payments deficit, which pumps new dollars into the international financial streams. Some gold transfers reflect the fact that the existing volume of foreign-held dollars is shifting from countries whose monetary authorities traditionally maintain low gold ratios to countries with high ratios.

Recent reports indicate that foreign long-term borrowing in the United States has increased substantially this year. This borrowing involves the placement of long-term bank loans as well as bond issues. Foreign borrowers are attracted to American money markets by relatively favorable interest rates and the large volume of available funds. The relative attractiveness of American money markets to foreign bond sellers is enhanced by capital market restrictions existing in some foreign money markets. This upsurge in foreign borrowing could offset the lower rate of outflow of short-term capital.

The Prime Rate

THE FEDERAL RESERVE BANK OF NEW YORK recently published in the April and May issues of its *Monthly Review* a two-part article on the prime rate—the rate that banks charge their most credit-worthy customers. Although banks have always reserved the lowest rate for their best customers, the prime rate apparently was not nationally published and uniform throughout the country until the depression of the 1930's. Since then, the prime rate has moved infrequently, usually in amounts of 1/4 or 1/2 of a percentage point at a time.

Changes in the prime rate are often regarded by the public and the banks as one of the chief indexes of credit conditions. The article analyzes the relation of the prime rate to other lending rates, concluding that as far as the interest rate on bank loans is concerned, the prime rate appears to be a reliable index. However, it is doubtful that the prime rate is a dependable indicator concerning other factors which determine general credit conditions such as loan availability, standards of credit-worthiness and the like.

The article further analyzes the changes in the prime rate and their causes, indicating that it is one of the last indexes to register a shift in the credit climate. As such, rather than acting as a signal, a change in the prime rate confirms that a sizable alteration in the credit situation has already taken place. In order to obtain free copies of this informative two-part article, write the Public Information Department, Federal Reserve Bank of New York, 33 Liberty Street, New York 45, New York.

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