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IN THIS ISSUE

The Federal Funds
Market Revisited 3

Inflation: Problems of the
1960's and Implications
for the 1970's 14

THE FEDERAL FUNDS MARKET REVISITED

A number of major changes took place in financial markets during the 1960's. One very important development was the increased willingness of commercial banks to develop new sources of funds, often by tapping nondeposit sources. The funds obtained from these sources generally represented borrowed money. One example of the increased bank use of borrowed funds was the growth in purchases of Federal funds.

The Federal funds market has existed for many years, primarily as a bank market. That is, the major participants are those commercial banks that are members of the Federal Reserve System. However, Federal funds are also commonly used in connection with payments in the U. S. Government securities market. In both functions, Federal funds have come to be accepted as an important money market instrument.

ECONOMIC REVIEW

ORIGIN OF FEDERAL FUNDS

Basically, Federal funds represent money that is immediately available. Any check drawn on a deposit at a Federal Reserve bank is payable immediately, in contrast to checks drawn on individuals, banks, or businesses. The latter checks are payable through a clearinghouse on the following business day at the earliest and are differentiated from Federal funds in the money market by being called clearinghouse funds.

The major suppliers of Federal funds are banks holding excess reserves.¹ Commercial banks that are members of the Federal Reserve System are required to hold a proportion of their deposits as reserves. In any reserve week, required reserves are computed on the basis of the average level of a bank's deposits (at the close of business) in the reserve period two weeks prior to the reporting week. Member banks may hold their required reserves in the form of vault cash and nonearning deposits with Federal Reserve banks. On any given day, the volume of funds actually held as reserves may be more or less than the required volume because of short-run fluctuations in deposits. Those reserves over and above the amount required to be held against deposits are called excess reserves, and membership in the Federal Reserve System carries with it the ability to write checks against excess balances at the Federal Reserve banks.

Member banks do not have to maintain their required reserves on each business day; instead, they must manage their reserve positions to

¹Federal funds also arise from checks written in payment for Federal Reserve purchases of U. S. Government securities and from checks drawn on the U. S. Treasury or foreign balances held at Federal Reserve banks.

achieve a weekly settlement or balance. (The banks' reserve week begins on Thursday and ends at the close of business on the following Wednesday.) Because member banks do not receive interest on reserves held with the Federal Reserve banks, the banks prefer to keep excess balances at a minimum and try to find other uses for the funds, such as the extension of new loans. Consequently, most banks watch their daily reserve positions carefully in order to achieve an optimum weekly reserve balance as well as the most efficient use of nonearning assets. Since September 12, 1968, the Federal Reserve System has required all member banks to submit reports on daily deposit and vault cash balances.

On any day, some banks may have surplus or excess reserves, while other banks may be deficient in required reserves. Frequently, a bank may have excess reserves for only one or two days before the reserves are absorbed by an expected change in deposits. Similarly, unexpected shifts in deposits may produce temporary demands for reserves. The Federal funds market evolved as a means of selling the excess reserves of "surplus" banks to banks with temporary reserve deficiencies. In this manner, Federal funds transactions represent an additional use of existing bank reserves, rather than the creation of new funds.

In most cases, a telephone call is the only step necessary to arrange a Federal funds transaction. No physical transfer of funds occurs, although some types of Federal funds transactions involve the exchange of collateral in the form of U. S. Government securities.

NATURE OF THE MARKET

Federal funds transactions were first arranged

in 1921 in New York City.² Trading in funds spread quickly to banks in the large money centers throughout the nation. The participation of U. S. Government securities dealers and the investment frenzy of the era stimulated growth of the market during the 1920's. The stock market crash of 1929, however, preceded a long period of low interest rates and substantial amounts of unused bank reserves; as a result, demand for and trading in Federal funds was depressed until the postwar years when excess reserves again became relatively scarce. During the postwar period, and particularly since 1955, Federal funds activity has increased substantially; recently, the average daily volume of Federal funds transactions in the nation has ranged from \$13 to \$18 billion, compared with an estimated average daily volume of less than \$2 billion in 1955. In the 1960's alone, the net volume of funds purchased daily increased more than fivefold, reflecting increased bank participation in and use of the market.

The market for Federal funds has widened perceptibly, with more institutions in more cities becoming active. For example, agencies of foreign banks have joined United States commercial banks and U. S. Government securities dealers as participants in the market. (Federal funds transactions with securities dealers are usually in the form of bank loans that are used to carry inventories of U. S. Government securities.) The dollar volume of transactions involving other institutions, such as mutual savings banks and foreign banks, is relatively small, amounting to about \$1 billion, and is concentrated in New York City. This discussion concentrates on flows of Federal funds among

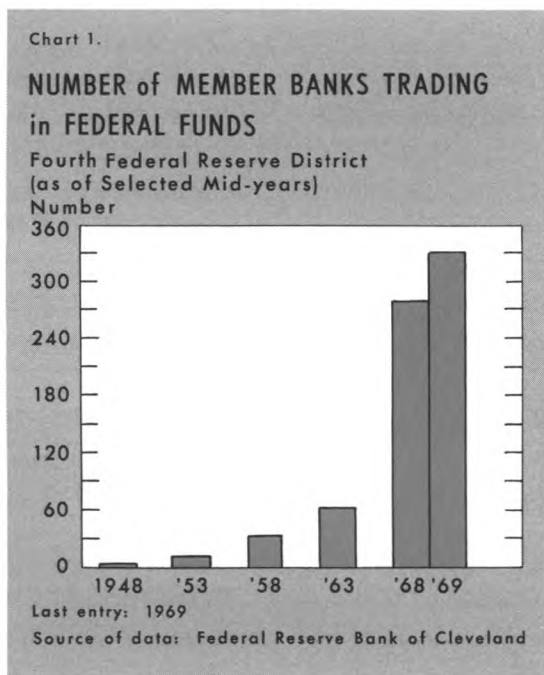
member banks, reflecting changes in Federal Reserve Regulations D and Q that became effective February 12, 1970.³

Although the total number of banks throughout the nation that have entered the Federal funds market at one time or another is not known, there is considerable evidence that the number of participating banks increased sharply during the 1960's. As shown in Chart 1, in the Fourth Federal Reserve District alone, the number of banks trading in Federal funds has skyrocketed since 1948, with most of the newer entrants being relatively smaller banks that have deposits of less than \$100 million. Such banks are usually sellers of Federal funds, often over fairly long periods of time, because of their preference for holding some excess reserves to cushion deposit fluctuations. Each trading bank is not active in the market every day; on the contrary, some banks trade in Federal funds only a few times in a three-month period, while others are inactive for as much as a year at a time.

The growing participation of smaller banks has been due in part to the rise in interest rates as well as to an increasing awareness of the opportunities afforded by trading in Federal funds. The chart suggests that these determinants have been very important since 1963, a period characterized by rapidly rising interest rates and a sharp increase in the number of active banks. Correspondent relationships have also contributed to increased bank

³The regulation changes had the effect of narrowing the definition of Federal funds transactions to those short-term transfers of immediately available funds among banks and their subsidiaries, various Governmental institutions, or in certain cases, securities dealers. In turn, "banks" include domestic and foreign commercial banks, savings banks, savings and loan associations, and the Export-Import Bank of the United States.

²For a more complete discussion of the early phases of the market, see Parker B. Willis, *The Federal Funds Market—Its Origin and Development*, Federal Reserve Bank of Boston, Third Edition, 1968.



participation in the Federal funds market, because some of the smaller banks have been drawn into the market by their larger correspondent banks.

In the Fourth District, most of the dollar volume of trading in Federal funds is carried out by banks located in the larger cities. In fact, there are only about 30 banks in the District that regularly buy and sell Federal funds in the same week. These banks account for about 95 percent of all purchases and 65 percent of all sales of Federal funds in the District. This market concentration seems to be true for the nation as a whole. A three-year study of 258 banks active in the Federal funds market, conducted by the Federal Reserve System in 1959-1962, led to the conclusion that "while a substantial and fluctuating number of banks around the country may enter the Federal funds market on the selling side of any particular day, the group of banks that accounts

for most of the purchases is relatively stable and relatively small."⁴ That is, purchases are concentrated at the aggressive money market banks that manage their balance sheet positions very closely and try to balance their excess reserve positions close to zero. As a result, the Federal Reserve System confines its collection of daily data on Federal funds transactions to 46 large banks in the United States, with six of these banks located in the Fourth District. The national reporting sample now accounts for an estimated one-third of the total volume of funds transactions (see Appendix).

TYPES OF TRANSACTIONS

In the 1959-1962 survey, several different types of Federal funds transactions were revealed, with substantial differences in the relative usage of each type. Probably the most frequently used transaction involved the sale of Federal funds for one day with repayment being made on the following day. In these so-called straight transactions, the exchange is made by debiting the selling bank's reserve balance at its Federal Reserve bank and crediting the buyer's balance at its Federal Reserve bank. On the following day, the bookkeeping is reversed, with the buyer usually paying the interest in a separate transfer. Customarily, Federal funds are traded in standard units of \$1 million, although the standard denomination for smaller banks seems to be \$200,000, and sales as small as \$10,000 have been reported.⁵

These transactions are essentially one-day unsecured loans, and there are at least two constraints

⁴"New Series on Federal Funds," *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System, August 1964, pp. 944-953.

⁵Willis, *op. cit.*, p. 91.

on lending Federal funds. First, banks have traditionally been reluctant to make unsecured loans. There are indications that the jump in participation in the Federal funds market by the smaller (and less known) banks has led to some insistence on collateralized Federal funds loans. Second, national banks are forbidden under the provisions of the National Bank Act from making an unsecured loan to a single borrower in excess of 10 percent of the lending bank's capital and surplus. A national bank is also prohibited from borrowing in excess of its capital stock plus 50 percent of its surplus. In June 1963, the Comptroller of the Currency ruled that Federal funds transactions of national banks were exempt from these restrictions, although similar rules still apply to many state banks.

Second in dollar importance in Federal funds trading are one-day *secured* transactions. Before 1958, most secured transactions were in the form of repurchase agreements in which the bank selling Federal funds did so by *buying* U. S. Government securities (actually taking title to the securities) from the borrower for immediate cash delivery. Simultaneously, the borrower made a commitment to repurchase the securities the next day at the same price plus a predetermined rate of interest. Repurchase agreements were popular among smaller banks before 1958 because such agreements were not controlled by the 10 percent loan limitation.⁶

In April 1958, however, the Comptroller of the Currency ruled that the limitation on loans to single borrowers would be removed if the loan

were secured by U. S. Government securities that were to mature within 18 months. Secured Federal funds transactions that were not repurchase agreements came to be used frequently by smaller banks, not only because they could sell ten times the amount of funds to a single borrower as compared with a straight sale, but also because neither the cost nor the inconvenience of transferring securities and titles was increased between the buyer and the seller. Instead, in a transaction of this type, the bank purchasing Federal funds places U. S. Government securities in a custody account for the seller for one day until the funds are repaid.

During the 1959-1962 Federal funds study, a differentiation was made between one-day funds transactions and those outstanding for more than one day. The proportion of longer term purchases and sales to the total gross volume of Federal funds transactions proved to be quite small (only 3 percent in the Fourth District). In addition, most of these transactions were secured and had been extended during Treasury financing operations. Consequently, it was decided that this type of information would no longer be collected because the data were not needed for current money market analysis. Moreover, it was clear from the study that Federal funds were most important to banks as a means for making short-term adjustments in their reserve positions. In fact, statistics for Federal funds transactions arranged by banks as a service to their customers, plus transactions with foreign bank agencies and mutual savings banks, are not included in the Federal funds data now published by the Federal Reserve System.

The interbank nature of the Federal funds market was revealed in the Fourth District data gathered in the 1959-1962 study. Less than 10

⁶For a discussion of repurchase agreements in the money market, see "Repurchase Agreements: Their Role in Dealer Financing and in Monetary Policy," *Economic Review*, Federal Reserve Bank of Cleveland, November-December 1969.

ECONOMIC REVIEW

percent of the dollar amount of District transactions was made with U. S. Government securities dealers, corporations, and others, whereas more than 90 percent of the purchases and sales was made with other banks. As mentioned earlier, most of the nonbank participants concentrate their Federal funds activity in New York City. There are several Federal funds brokers in New York City operating to bring together the suppliers and users of funds. It has been the general Fourth District experience, however, for banks to deal directly with buyers and sellers, working from lists of approved borrowers or in the context of a correspondent bank network.

FLOWS OF FEDERAL FUNDS

A large fraction of Federal funds purchases and sales move to and from New York City, which is not surprising since New York is the money center of the nation. The major New York banks are not only more sensitive to the factors that affect bank reserves but are also known to manage their money positions very closely. That is, these banks adjust their reserve positions continuously and, as a result, have a substantial short-term demand for and use for Federal funds. The New York banks are primarily borrowers or purchasers of Federal funds, drawing on supplies of surplus reserves owned by banks in other parts of the country. In the second half of 1969, eight New York banks accounted for about 30 percent of the dollar amount of the Federal funds purchases made by the 46 banks from which daily data are collected.

In the 1959-1962 survey period, nearly 60 percent of the dollar volume of Federal funds traded by banks in the Fourth District flowed to banks in New York City. Such flows of Federal funds illustrate the use of the market in redistributing bank reserves to locations where banks have

deficiencies in reserve positions. The mobility of existing reserves is increased, thus conserving the use of Federal Reserve bank credit by decreasing the amount of borrowed reserves that banks would otherwise have pulled into the money market. Generally, banks outside the money market centers of the United States hold the bulk of excess reserves that can be loaned to the large city banks. Because of the preponderance of relatively small banks in the Fourth District, the volume of Fourth District sales of funds has generally tended to exceed purchases. In December 1969, for example, District sales averaged \$6.2 million a week, while purchases averaged \$5.7 million.

A substantial portion of Federal funds transactions in the nation move to and from San Francisco and other West Coast cities, due in part to the financial structure of that area. Specifically, the importance of branch banking in the West, plus the time differential, contribute to the increased volume of transactions. Some of the larger banks in the San Francisco District act as clearinghouses for funds from the numerous branch banks in that area as well as from banks in the Dallas, Kansas City, and Minneapolis Federal Reserve Districts. As a result, banks in the San Francisco District can often be counted on to have a supply of Federal funds to sell, or to be able to absorb or distribute purchases of funds after banks in the East are closed.

Additional flows of Federal funds crisscross the nation. Again, using the Fourth District banks as an example, transactions have been made with banks in as many as 50 cities outside the major money centers of the nation. Over and above the large volume of funds moving to New York City and the West Coast, a relatively large share of District purchases and sales is directed to Chicago,

Minneapolis, Philadelphia, and Boston. The patterns of distribution change over time, as shifts in the supply of and the demand for Federal funds occur within each area. Because needs for additional reserves are revealed in the overall volume and number of banks reporting net Federal funds purchases, however, the Federal Reserve System has discontinued collecting information on the location of the second party to each Federal funds transaction.

A sizable amount of Federal funds purchases and sales is carried out within an individual Federal Reserve district, as opposed to those transactions between banks widely separated geographically. In fact, there is evidence that intradistrict transactions have increased substantially in size and number, probably because of the growing participation of smaller banks in the Federal funds market. Correspondent bank relationships have played an important part in the expansion of this aspect of the market. Many large banks buy and sell funds from smaller banks as a correspondent service; such transactions are made without concern about the reserve position of the large banks themselves but entirely as an accommodation to the smaller banks. In addition, when Federal funds have been relatively scarce, the major banks have relied on their correspondent systems to draw new or additional supplies of funds into the market.

USES OF FEDERAL FUNDS

Accommodating transactions make it difficult to evaluate current developments in the Federal funds market, when analysis of bank reserve adjustments is the primary concern. To overcome this difficulty, the Federal Reserve System introduced a *net Federal funds* concept, in which the amount of each reporting bank's purchases and sales that offset each other in the same week is

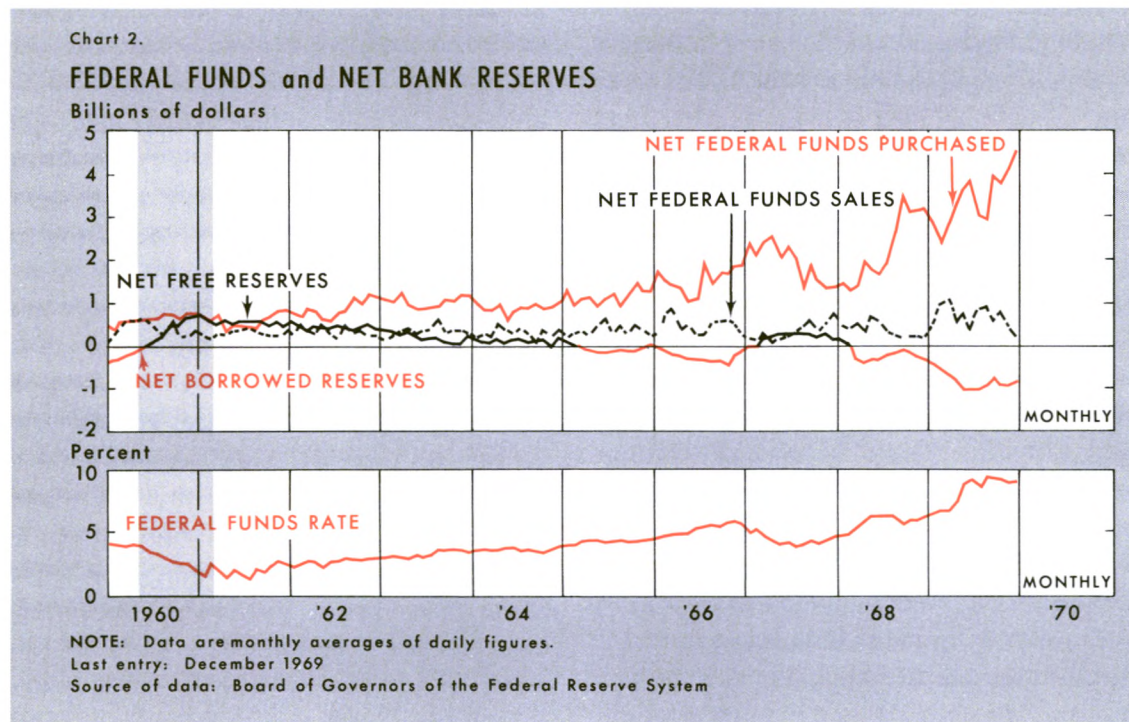
subtracted from the total amount of gross purchases and sales. For example, a bank reporting \$10 million in average purchases and \$8 million in sales in one week would have net purchases of \$2 million. Without this adjustment, it is believed that figures for gross purchases and sales do not reveal shifts in reserve needs or in the availability of reserves for reporting banks.⁷

In the short run, because of the use of the Federal funds market to adjust bank reserve positions, it should be possible to distinguish certain patterns and trends in funds transactions as related to bank reserves.⁸ Because a money market bank works toward a balance over the reserve period, a bank that may experience a surplus in reserves early in the reserve week would try to reverse its position in the Federal funds market toward the end of the week, selling funds in a large enough amount to bring its average excess reserve position for the week close to zero. Because of the intraweek pattern, the cost of obtaining Federal funds tends to decline as the week progresses, providing the opportunity for banks to play the yield curve. Most published data on Federal funds are currently expressed as weekly averages of daily figures. The Federal Reserve System also publishes statistics on outstanding Federal funds at large commercial banks as of each Wednesday.

Over a longer period, the patterns in Federal funds trading are more difficult to isolate. Several major influences are said to be evident: the costs of alternative sources of funds; changes in bank

⁷"New Series on Federal Funds," *op. cit.*, p. 951.

⁸See also Dorothy M. Nichols, *Trading in Federal Funds—Findings of a Three-Year Survey*, Board of Governors of the Federal Reserve System, 1965.



loan demand and deposit levels; seasonal and cyclical factors; changes in monetary policy; and random elements. These influences combined to cause wide fluctuations in net purchases and sales for the 1960-1969 period (see Chart 2).

There are several separate seasonal movements. For one, the volume of net purchases tends to fall off in January-February (and to a lesser extent, at mid-year), because the banks accumulated reserves at the end of their accounting years and market factors, such as the post-holiday return of currency in circulation to the banks, increase their reserves. These influences reduce the need and the demand for Federal funds. The funds market also responds to seasonal money market pressures that usually have the effect of increasing net purchases in the second half of the calendar year.

Within any month, net Federal funds transactions are affected strongly by changes in market factors that influence bank reserves. A relationship is particularly apparent between increases in the volume of float and net Federal funds purchases. As the *Federal Reserve Bulletin* states:

One cause of short-run similarity...may be that System actions taken to offset increases in float initially affect U. S. Government securities dealers and the banks, chiefly those in New York City, providing them with marginal financing. These actions cause banks lending to dealers to need reserves and, therefore, to increase their purchases of Federal funds.⁹

⁹,"New Series on Federal Funds," *op. cit.*, p. 948.

Some of the other market factors affecting bank trading in Federal funds include financing operations of the United States Treasury, withdrawals by the United States Government from its tax and loan accounts, and deposit shifts due to tax payments made by businesses and individuals. These flows of funds affect bank loan demands and deposit levels, as well as other short-term interest rates. In other words, market factors influence the cost of and the demand for Federal funds.

Cyclical influences on Federal funds and changes in monetary policy are generally associated. Using net reserves as a rough indicator of bank reserve pressures, it is evident from Chart 2 that monetary policy allowed a build-up in reserves in 1960 and early 1961, coincident with the business recession. In succeeding months, net free reserves declined steadily (net borrowed reserves increased) until the end of 1966. After an easing in both monetary policy and business conditions during 1967, net bank reserves once again turned increasingly negative, because of tightening monetary policy. There is some evidence in the chart that net purchases of Federal funds increase as the level of economic activity rises and as free reserves decline. Conversely, net sales decrease with the level of economic activity; i.e., net purchases and net sales tend to move in opposite directions. (The dollar volume of purchases exceeds sales in the chart because the daily reporting sample of 46 banks includes a greater number of large borrowing banks than lending banks.)

More recently, the association between a bank's Federal funds activity and its reserve position has become less precise. In late 1964, a large New York City bank announced that it planned to use

purchases of Federal funds as a longer term source of funds for loans and investments, rather than only as a means of temporary reserve adjustment. In other words, when convenient, some banks now borrow Federal funds continuously, at any reasonable cost, to maintain their balance sheet positions. The change in demand has had two implications for economic analysis: it freed the Federal funds rate from its former ceiling of the Federal Reserve discount rate, and it had the effect of broadening bank reserve and asset analysis to a study of all the sources and uses of commercial bank funds, including Eurodollars and CDs, among others.

FEDERAL FUNDS RATE

One major facet of the Federal funds market remains to be discussed. That is the interest cost of a typical transaction. The "effective" rate on Federal funds is estimated each day by the Federal Reserve Bank of New York on the basis of direct reports from trading banks and brokers about the volume of trading and quotes on rates. The effective rate is a modal or representative rate of the interest costs of Federal funds transactions throughout the country on that day. The rate is determined primarily by the supply of and demand for Federal funds, but it is also highly responsive to changes in the cost of alternative forms of bank borrowing, such as the Federal Reserve discount rate, the Treasury bill rate (representing the cost of obtaining reserves from the sale of U. S. Government securities to other banks or their depositors), and the Eurodollar rate, as well as to the financing needs of Government securities dealers. The Federal funds rate does not include commissions paid to brokers or accommodating banks. Although these agents may charge a

ECONOMIC REVIEW

commission of 1/16 to 1/8 of 1 percent, they are usually compensated by their correspondent relationships or the referral of other business.

There is a tendency for the Federal funds rate to rise with the volume of net purchases (see Chart 2). That is, as purchases are increased by the 46 banks in the sample, the rate is pushed up toward a point at which it may become cheaper for the banks to obtain funds from other sources. The effective rate can fluctuate widely from hour to hour and day to day, reflecting changes in supply and demand conditions. This has been particularly true since the Federal Reserve discount rate ceased to act as a ceiling on the Federal funds rate. Within a reserve settlement period, the funds rate tends to be higher on Thursday and Friday but lower on Wednesday. On the other hand, the intraday

variance is the greatest on Wednesday. This pattern may be explained in part by the bank reserve adjustments described earlier. Because of the volatility of the Federal funds rate and because the supply of and demand for bank reserves have a strong effect on it, the rate is considered a sensitive indicator of money market conditions.

In summary, analysis of Federal funds trading is useful in discerning pressures that are evolving on bank reserve positions. In turn, the pressures may indicate developments such as the changing need for funds by U. S. Government securities dealers and the possibility of changes in other money market interest rates. Thus, the Federal funds market not only reflects efficient use of bank reserves, but also shifting patterns in the money market as a whole.

APPENDIX

SOME LIMITATIONS OF THE FORTY-SIX BANK FEDERAL FUNDS SERIES

There are at least three shortcomings of the currently published Federal funds series as a measure of the total use of Federal funds in the reserve adjustment process.

First, the biannual call report summaries of all commercial banks published by the Federal Deposit Insurance Corporation since December 1965 indicate that the share of total trading done by the 46 banks has been diminishing.¹ For

example, over the December 31, 1965 to June 29, 1968 period, the share of total purchases reported by the 46 banks on call report days fell from 55 percent to around 35 percent. This decline in proportion must be interpreted with caution. The total volume of trading falls sharply on call dates, due to the reluctance of banks to report an indebted position, and the one day figures, therefore, may not be representative. Further, the transactions reported on the 1965 call report did not include purchases in the form of repurchase agreements. Thus, total purchases were understated, which had the effect of increasing the computed share of the 46 banks.

¹*Assets, Liabilities, and Capital Accounts, Commercial and Mutual Savings Banks, Report of Call, Federal Deposit Insurance Corporation, Washington, D. C., beginning with December 31, 1965.*

The 1968 estimate of the share of total purchases carried out by the 46 banks is corroborated by the Federal funds reports of approximately 340 weekly reporting banks. This series, which began June 25, 1969, shows recent daily funds purchases, including repurchase agreements, between \$13 billion and \$18 billion, or about two and a half to three times the gross purchases reported by the smaller sample of 46 banks. The 46-bank series may, therefore, increasingly understate the total volume of funds traded as the number of trading banks grows.

Second, the series includes an unknown amount of double-counting. This results from inter-bank trading among the 46. Double-counting occurs, for instance, as Bank I purchases funds from Bank II and sells to Bank III. Both I and III report purchases, while I and II report sales, even though I was an intermediary rather than a principal. To the extent that the series contains such double-

counting, it overstates the use of Federal funds in the reserve adjustment process. One can use net purchases (gross purchases minus gross sales) as a substitute for gross measures of purchases and sales. Although total gross purchases must equal total sales for the entire market, for a sub-group of banks, such as the 46 reporters, net purchases show the combined use of the market by that set of banks for reserve adjustment. Net figures, on the other hand, may hide great differences in the use of the funds market by individual members of the group.

A third shortcoming is introduced into the data by the inclusion of transactions involving immediately available correspondent balances in reports of Federal funds traded. The reporting banks are asked to include these amounts even though title to Federal Reserve bank balances does not change hands. The fraction of reported Federal funds made up of correspondent balances is not known.



INFLATION: PROBLEMS OF THE 1960's AND IMPLICATIONS FOR THE 1970's

Inflation was one of the major domestic economic issues in the United States during most of the latter half of the 1960's, and there is widespread sentiment that inflationary pressures will continue to be an important factor in public economic policy decisions in the early 1970's. In addition to personal inequities and hardships, the inflationary situation has caused serious dislocations and imbalances in the flow of domestic economic activity, and it has been an important factor in the deterioration of the United States foreign trade balance. Furthermore, persistent and widespread price increases over such an extended period have generated an inflationary psychology that has hampered the effectiveness of monetary and fiscal policies.

In view of economic developments during the 1960's, it would seem that properly formulated monetary and fiscal policies can be important factors in directing the economy onto a long-run growth path, where increases in spending are consistent with the expansion of productive capacity. In addition, it is apparent that the management of high-employment prosperity in an environment of stable prices presents some difficult choices in the determination of appropriate public economic policies. Therefore, as the 1970's begin, some of the key economic issues that must be

resolved are: is it possible for stabilization policies to restrain the forces of inflation without generating an intolerable level of unemployment; what is the time path of the reduction in the rate of inflation; and what magnitude of a reduction can reasonably be expected. Obviously, the answers to these questions involve judgments about the effectiveness and timing of public policy measures that are designed to reduce upward price pressures and to eliminate inflationary expectations. Judgments about such matters are usually controversial.

This article examines some of the fundamental aspects of inflation in the United States during the 1960's within the generally accepted economic theories. The analysis involves a review of alternative causes of inflation and inflationary psychology and considers the various public policy tools that are available to attempt to stabilize prices in an inflationary situation. Finally, some implications for price behavior in the early 1970's are discussed.

DEFINITION AND MEASUREMENT OF INFLATION

The predominant view of economists is that inflation means *a persistent and appreciable rise in the general level of prices*. However, opinions differ about the meaning of the general price level

as well as what the magnitude and duration of an increase in some index of prices must be to warrant the label of inflation.

As a practical matter, there is no perfect price index currently available to measure the general price level. (Even at the theoretical level, economists do not always agree on what they want a price index to measure.) The widely followed Consumer Price Index (CPI) and the Wholesale Price Index (WPI) have limitations when they are used to analyze price developments. Although the CPI is *not* a perfect cost of living index, it is the best available measure of retail prices. In addition, the behavior of the CPI (especially in a period when the index is rising rapidly) is an important consideration in many wage and salary negotiations. Frequently the CPI is used in labor contracts to provide automatic wage adjustments (commonly called "escalator clauses").

The WPI, in contrast, does not relate to any particular sector of the economy, nor to any special group of buyers or sellers. However, components of the WPI can be used to gauge price developments in many industries, or at various stages of the productive process.¹

¹The Consumer Price Index measures average price changes of approximately 400 goods and services bought by urban wage earners and clerical workers. The "market basket" remains essentially unchanged between decennial surveys of consumer buying patterns; thus, current pricing techniques used to construct the CPI do not allow for the practice of consumers to reallocate their expenditures towards those commodities whose prices may have risen relatively less than others. The Wholesale Price Index measures average price changes of approximately 2,300 items (farm products, processed foods, and industrial commodities) at the first significant stage of commercial transaction. Because the index is based largely on producers' prices, it is not representative of price changes at the wholesale market level.

One index that attempts to measure the general price level is the implicit price deflator for Gross National Product. The deflator is mainly derived from components of the CPI, WPI, construction and transportation cost indexes, and certain earnings indexes. Although the overall GNP price deflator is the most comprehensive indicator of the general price level that is available, it measures only prices of the *current* production of goods and services, not prices of existing assets (tangible or intangible).

The entire increase in the overall GNP price deflator, however, should not be regarded as a true price rise, because of the measurement techniques utilized for the government sector and for the construction industry. Increases in wage and salary scales for government employees (Federal, state, and local) are treated as price increases, and no allowance is made for productivity gains. Today, many government employees work with greater amounts of physical capital, or technologically improved capital, compared with ten or twenty years ago. This should result in an upward trend in "output" per government employee. Although some attempts at measuring productivity in limited areas of government have been made, the overall problem of measuring physical output of the many and diverse activities of the public sector remains unsolved. Therefore, it is assumed that there are no productivity increases in this sector of the economy. The price deflator for GNP originating in the general government sector is actually an earnings index and movements in this index conform closely to changes in the Bureau of Labor Statistics' index of compensation per manhour in the private economy.

In view of the upward bias attributable to the treatment of the government sector, many analysts believe that the price deflator for GNP originating

ECONOMIC REVIEW

in the private sector is a better measure of the general price level. The private GNP price deflator, however, is also generally thought to have some upward bias. The goods portion of this deflator is thought to be reasonably accurate because efforts are made to adjust for price increases associated with quality improvement. No allowance is made for quality improvement (or deterioration) in the prices of services. If, in fact, prices of services are not biased upward, such prices have an inherent tendency to rise because, unlike the goods sector, many service industries are characterized by low productivity growth. The price deflator for the structures portion of GNP is mainly based on the costs of materials and labor, with little allowance for productivity gains and, therefore, tends to overstate the true price increase in construction.

Data for the behavior of the various GNP price deflators during the 1960's are summarized in Tables I and II. In Table I, changes in the price deflator for private GNP are the weighted summation of changes in the price deflators for GNP originating in private nonfarm businesses, farms, households and institutions, and in the rest of the world. In effect, the price deflator for households and institutions is an earnings index. The price deflator for the farm sector has been extremely volatile in recent years and has significantly influenced short-run changes in the deflator for private GNP. Accordingly, some price analysts prefer the price deflator for GNP originating in *private nonfarm business*.

CAUSES OF INFLATION

There is some disagreement about the principal cause of rising prices.² The various analyses

explaining inflation will probably never be completely satisfactory. Indeed, some economists have argued that a single-cause theory of inflation would not be in accord with actual developments in the economic system.³ In a highly developed country as the United States, the inflationary process is extremely complex. There is general agreement that the mechanism of inflation involves the interaction of two basic forces—demand and cost (or supply). However, there is much debate concerning the relative roles of demand and cost in the determination of prices. The conventional view is that the greater the economy's unused resources, the more likely it is that increases in aggregate demand will lead to increases in output rather than to increases in costs and prices. The closer the economy is to full employment, the more likely it is that further increases in aggregate demand will be translated into both increased output and higher costs and prices.

Demand Inflation. Theoretically, the pure demand-pull version of inflation states that if aggregate demand exceeds aggregate supply at full employment, prices will rise. In practice, it is recognized that at some stage *before* the economy has achieved full utilization of human and physical resources, bottlenecks occur in certain markets and the general price level will have already begun to rise.

The cause of excess aggregate demand can be viewed in several ways. In some circumstances, large increases in private consumption or private investment may be the major factors that lead to excess demand. Such increases may be induced

²Martin Bronfenbrenner and Franklyn D. Holzman, "Survey of Inflation Theory," *American Economic Review*, LIII (September 1963).

³Paul A. Samuelson and Robert M. Solow, "Analytical Aspects of Anti-Inflationary Policy," *American Economic Review*, L (May 1960).

TABLE I

Change in Gross National Product Price Deflators
By Sector
1960–1969

Year	Total GNP (100.0%)*	General Government (8.5%)*	Private (91.6%)*	Private Nonfarm Business (85.4%)*	Farm (3.3%)*	Households and Institutions (2.2%)*
1960	1.7%	4.2%	1.4%	1.3%	0.5%	4.6%
1961	1.3	4.6	0.9	0.9	0.5	3.2
1962	1.1	2.6	1.0	0.9	0.5	3.5
1963	1.3	4.2	1.1	1.0	– 1.7	4.0
1964	1.5	5.7	1.1	1.1	– 2.4	4.5
1965	1.9	4.0	1.7	1.4	8.0	4.2
1966	2.7	5.1	2.6	2.0	11.5	4.9
1967	3.2	5.6	2.9	3.2	– 7.5	6.6
1968	4.0	7.6	3.6	3.5	3.8	7.7
1969	4.7	7.0	4.5	4.3	7.4	4.2

NOTE: Deflators for the sector, "rest of world" (0.6% of GNP) are not published, mainly because constant dollar GNP originating in "rest of world" is computed by means of the somewhat unreliable unit value export and import price indexes.

* Shares of 1968 GNP, measured in constant 1958 dollars.

Source: U. S. Department of Commerce

through previous changes in income or profits, or through expectations of favorable changes in income or profits. As an alternative, changes in consumer or business spending may largely be independent of income or profits, such as the consumer buying spree that occurred at the outbreak of the Korean War. In other circumstances, increases in spending for goods and services by the government sector may generate excess demands that could, in the absence of an offsetting increase in taxes, result in additional deficit financing. (Many economists, however, do not consider a Government deficit inflationary—as distinct from stimulative—if the economy is operating with a substantial margin of unused resources. On the other hand, additions to the Government deficit incurred at or close to full employment

could tend to be inflationary if the method of financing involves the creation of new money; the deficit would not tend to be inflationary if it is financed by borrowing from the nonbank private sector, which is, in fact, a reallocation of existing credit.)

A growing number of economists hold the view that monetary and credit conditions can be one of the initial cause of excess demand, or at least permit excess claims of the government and private sectors against potential output to be exercised. If, for example, at existing income, price, and interest rate levels, there is too much money in the hands of spending units, they will attempt to decrease their cash balances by purchasing securities, goods, or services. In the process, expenditures, income, and prices should

ECONOMIC REVIEW

TABLE II

Change in Gross National Product Price Deflators
By Major Type of Product
1960–1969

Year	Goods (49.8%)*	Services (40.1%)*	Structures (10.1%)*
1960	0.8%	3.1%	1.1%
1961	0.5	2.2	1.1
1962	0.7	1.6	1.9
1963	0.4	2.3	2.2
1964	0.5	2.8	2.7
1965	1.5	2.3	2.8
1966	2.3	3.2	4.0
1967	2.3	4.0	4.4
1968	2.8	5.1	5.3
1969	3.6	5.6	6.9

* Shares of 1968 GNP, measured in constant 1958 dollars.

Source: U. S. Department of Commerce

rise until the real value of cash balances is reduced to the point at which the public is satisfied to hold the existing supply of dollars. Professor Milton Friedman, one of the leading proponents of the "monetary school," succinctly described the position of the monetarists:

Inflation is always and everywhere a monetary phenomenon, *resulting from* and accompanied by a rise in the quantity of money relative to output...It follows that the *only* effective way to stop inflation is to restrain the rate of growth of the quantity of money.⁴ (*Italics supplied*)

Empirical studies seem to indicate that excess aggregate demand played a major role in the initial stages of each of the four waves of inflation in the

United States in the post-World War II period (during the immediate postwar period, the Korean War, the mid-1950's, and the late 1960's). There is, however, considerable disagreement about the role of the money supply *as a causal factor* during those inflationary periods. Regardless of the source of excess demand, both the monetarists and those who emphasize the income-expenditure approach agree that inflation would not, in all likelihood, be initiated or sustained at full employment unless validated by the monetary authorities through an increase in the supply of money; unless, of course, there is an offsetting increase in velocity. However, the income velocity of money (GNP/money supply) usually rises during business expansions and declines during business contractions. When monetary authorities attempt to reduce excess demand by sharply restricting the growth of the money supply, or by permitting no growth at all, the income velocity of money tends to accelerate—for a time. For example, during the most of 1966 and again in the latter half of 1969 (periods when the money supply virtually leveled off), a faster turnover of the existing money stock enabled GNP and prices to continue rising.

Partly because of the unpredictable behavior of velocity (which is to say, uncertainties concerning the extent to which the money supply, and changes thereof, actually *determine* income, output, and prices), income-expenditure theorists would supplement traditional tools of monetary policy with fiscal measures to curb excess demand. Decreases in Government expenditures and increases in taxes clearly have a direct impact on income and, in turn, induce cutbacks in private spending (in the absence of a decrease in the saving rate). However, just as an increase in the income velocity of money can temporarily offset the

⁴ Milton Friedman, "What Price Guideposts?" *Guidelines, Informal Controls, and the Market Place*, ed. G. P. Schultz and R. Z. Aliber (Chicago: The University of Chicago Press, 1966).

impact of monetary restraint on spending, so also can a decrease in the saving rate offset or retard for a time the restrictive impact of fiscal actions. Because there are practical short-run limits on the magnitude of changes in the income velocity of money, as well as the saving rate, restrictive monetary and fiscal policies—if pursued long enough—ultimately register their impact on aggregate demand. In practice, once excess demand has been eliminated through restrictive public policy measures, inflation is unlikely to end immediately, however, reflecting the undetermined lag effects of policy actions on prices as well as various cost-price rigidities in some areas of the economy.

Cost Inflation. The demand-pull theory of inflation stresses the influence of spending actions on prices. The alternative approach is usually labeled cost-push or supply inflation,⁵ which tends to focus on cost increases as the principal sustaining source of inflation. Unlike demand-pull inflation, cost-push inflation is not generally considered to exert a significant *initiating* role in the inflationary process, although cost pressures are widely thought to play a reinforcing or sustaining role once prices have started to rise. The reason is that in the early stages of a business recovery, profits and profit margins begin to improve as productivity rises faster than wages, and overhead costs are spread over a larger volume. As aggregate demand rises relative to supply (or as capacity ceilings are approached), price increases tend to follow profit gains. Finally, in the later stages of the expansion, productivity gains become harder to achieve and wage increases become larger,

thereby raising unit labor costs.⁶ However, the timing sequence of the movements of profits normally rising first, followed by price increases, and finally upward pressures on unit labor costs does not necessarily prove anything with regard to causal roles in the inflationary process.

Because of the cyclical nature of economic activity, the relative magnitudes of changes in key variables, such as profits, prices, wages, and unit labor costs, depend upon the arbitrary choice of which stage in the business cycle the measurements begin. Furthermore, it may not be correct to measure changes in all variables from the same point in time because there is never a wage level or a price level to which everyone has fully adjusted.

By the same token, a rise in wages or compensation per manhour in excess of the productivity gain *per se* may not necessarily be evidence of cost-push inflation.⁷ Increases in unit labor costs can reflect impersonal market forces—that is, employers bidding up prices of productive inputs. Indeed, under conditions of actual (or anticipated) excess demand, it might be expected that wage increases would tend to exceed productivity gains, even if all markets were perfectly competitive. All markets are not, in fact, perfectly competitive.

⁶This typical sequence of events is the rationale for the classification by the National Bureau of Economic Research of corporate profits and profit margins as “leading” economic indicators, wholesale prices of industrial commodities and of manufactured goods as “coincident” economic indicators, and unit labor costs in manufacturing and in the corporate sector as “lagging” economic indicators. See the monthly publication, *Business Conditions Digest*, U. S. Department of Commerce.

⁷Samuelson and Solow, *op. cit.*, and Fritz Machlup, “Another View of Cost-Push and Demand-Pull Inflation,” *The Review of Economics and Statistics*, XLII (May 1960).

⁵Variations of cost inflation include terms such as sellers’ inflation, administered inflation, and structural inflation.

ECONOMIC REVIEW

Thus, increases in unit labor costs also can be the result of unions negotiating wage increases larger than those that would occur under perfectly competitive market conditions.

Whatever the cause, increases in unit labor costs exert essentially similar upward pressures on prices as do natural or artificial constraints on supply. The latter would include limitations on agricultural production, import quotas, power of certain firms to control output, and power of certain trade and professional groups to limit membership. Accordingly, economists generally attribute cost inflation, and many of its variants, to imperfect competition in labor and product markets. As a general matter, for any given rate of inflation, the greater the margin of unused resources in the economy, the greater the role of cost-push elements. (For example, a 4 percent rate of inflation is more likely to reflect cost pressures if the economy is operating with a 7 percent rate of unemployment as compared with a 3½ percent rate of unemployment.)

In 1966, the Council of Economic Advisers commented on the problem of rising prices during years when there was no general excess demand or when demand was clearly inadequate.

The exact diagnosis remains a matter of some disagreement among economists. But almost all agree that an important part of the explanation lies in the fact that, in many industries, unions or managements or both possess considerable discretionary power to set wages and prices, and that in too many instances they have used that power to raise wages and prices in ways not consistent with basic supply and demand forces in the market.

The apparent 'inflationary bias' in our wage-making and price-making institutions has been of almost continuous concern for the Council of Economic Advisers for many years.⁸

The inflationary bias (imperfect competition or discretionary market power) also tends to obscure the distinction between cost-push and demand-pull inflation. Even without generalized excess demand, market imperfections can cause the overall price level to rise. For example, it is perfectly normal for prices to rise in those markets or sectors that experience excess demand. In some industries, a decrease in demand or a decrease in unit costs of production normally leads to a price decline. Failure of prices to decline under such circumstances usually suggests elements of imperfect competition. Thus, one major source of inflation may be lack of sufficient flexibility in wages or prices in the demand deficient, excess capacity sectors.⁹

At present, there are no perfect tests to distinguish the timing of the effects of excess demand and cost factors in the inflationary process. Many economic studies have, however, suggested that certain symptoms may be indicative of one or the other sources of inflation. Signs of a demand inflation, for example, would include a

⁸*Economic Report of the President*, together with the *Annual Report of the Council of Economic Advisers, 1966*.

⁹This special version of inflation (commonly called demand-shift inflation) was developed to explain the problem of rising prices during the late 1950's, when aggregate demand was not considered excessive. See Charles L. Schultze, "Recent Inflation in the United States," Study Paper No. 1, Joint Economic Committee, *Study of Employment, Growth and Price Levels* (Washington, D. C.: Government Printing Office, 1959).

tight labor market (low or declining unemployment rates and high or rising overtime payments) and rapidly increasing profit margins and profit share of national income. A cost-based inflation, which can reflect increased nonlabor costs as well as collective bargaining settlements or employers bidding up wage rates because of demand considerations, would tend to cut into profits or profit margins, and labor's share of national income would increase.¹⁰ Signs of a *pure* cost-push inflation, according to some economists, would be a rise in both the unemployment rate and prices in the face of declining physical output.

Instead of emphasizing either of the extreme positions of demand-pull and cost-push, it seems more reasonable to take an eclectic view of the inflationary process and to recognize that the general price level depends upon a number of interrelated factors, some of which were recognized by the British economist, John Maynard Keynes.

The general price-level depends partly on the rate of remuneration of the factors of production which enter into marginal cost and partly on the scale of output as a whole, i.e. (taking equipment and technique as given) on the volume of employment.¹¹

Equipment and technique do not remain unchanged in an economy that is growing. Productivity, therefore, generally increases and provides a cushion against upward cost-price pressures.

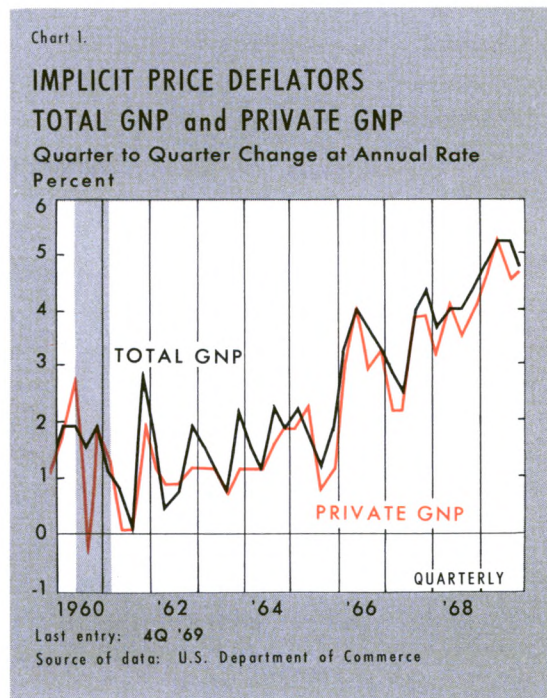
¹⁰The process of various factors of production attempting to increase their respective shares of national income is sometimes referred to as income claims inflation.

¹¹John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace, and Co., 1936), Ch. 21.

Accordingly, most explanations of inflation incorporate a number of economic variables, such as productivity, labor compensation, profits, and the scale of output as a whole (commonly gauged by the unemployment rate or the ratio of actual GNP, in 1958 prices, to potential GNP, in 1958 prices).

THE GENERAL PRICE LEVEL DURING THE 1960's

This section reviews the behavior of prices during the past decade in light of the foregoing theoretical considerations. Chart 1 reveals the pattern of quarterly changes, at annual rates, in two measures of the general price level—the implicit price deflator for total GNP and for private GNP. The generally higher and more erratic rate of increase in the deflator for total GNP reflects pay increases for general government employees.



ECONOMIC REVIEW

After the 1960-1961 recession, the President's Council of Economic Advisers established guideposts for noninflationary wage and price behavior. The rate of growth of productivity (output per manhour in the private economy) over a period of several years was to serve as the benchmark for appropriate wage and price performance. The Council suggested that if compensation per manhour (including fringe benefits) were to increase in line with the trend rate of productivity improvement, stable prices would be warranted in those industries where the productivity gain was average; price declines would be desirable in those industries where productivity gains were above average; and price increases would be appropriate in industries where productivity gains were below average. The guidelines were not compulsory and did include in the informal specifications exceptions for wage and price behavior in certain industries that would otherwise be unable to attract the resources needed for expansion. The assumption was that compliance with the guideposts would result in relative cost-price stability for the entire economy and, at the same time, would preserve a degree of price *flexibility* necessary for the allocation of resources.

Indeed, the wage-price guideposts apparently were successful—for a time. From the beginning of 1962 until the latter half of 1964, the quarter-to-quarter annual rate of change in the price deflator for private GNP hovered around 1 percent (see Chart 1). Because of the upward biases in the data used to construct the deflator for private GNP, most economists considered that prices were nearly stable in this period. If, in fact, there was any inflation, it did not exceed a range of a 1 percent annual rate of increase in prices, which was tolerable.

Whether or not the wage-price performance in the United States during the early and mid-1960's would have been less satisfactory in the absence of the widespread publicity given to the guideposts is a matter still subject to debate among economists.¹² There is little disagreement, however, that the most important restraining force on wages and prices during the first half of the 1960's was the considerable margin of unused resources in the economy. As shown in Table III, during 1960-1964, the rate of unemployment for the civilian labor force averaged 5.7 percent and the real output of the economy was substantially below its potential output.

In an attempt to reduce unemployment and raise the nation's growth rate, President Kennedy proposed reductions in personal and corporate income tax rates in 1962. To encourage new capital investment, Congress enacted the investment tax credit and accelerated depreciation allowances in 1962. In 1964, Congress legislated the tax cuts, which were an important stimulus to aggregate demand, particularly capital spending. During 1964, there was a significant improvement in the ratio of actual to potential GNP and in the rate of unemployment, although the latter was still at an undesirable level of 5.2 percent. (The Administration wanted to attain the interim goal of a 4 percent rate of unemployment.) Upward

¹²The contributions in Schultz and Aliber, *op. cit.*, provide a well balanced discussion of the pros and cons of the guideposts. Because the work of George L. Perry is frequently cited as evidence to support the efficacy of the guideposts, see also Paul S. Anderson, "Wages and the Guideposts: Comment"; Michael L. Wachter, "Wages and the Guideposts: Comment"; Adrian W. Throop, "Wages and the Guideposts: Comment"; and George L. Perry, "Wages and the Guideposts: Reply," *American Economic Review*, LIX (June 1966).

TABLE III

Selected Economic Data
1960–1969

Year	Private Economy				Percent Change in Corporate Profits, After Taxes	Corporate Profit Margins* (percent)	Unemploy- ment Rate	Ratio: Actual GNP to Potential GNP
	Percent Change in Output per Manhour	Percent Change in Compensation per Manhour	Percent Change in Unit Labor Costs	Percent Change in Implicit Price Deflator				
1960	1.5%	3.9%	2.3%	1.4%	− 6.3%	10.6%	5.5%	93.8%
1961	3.4	3.7	0.3	0.9	1.9	10.4	6.7	92.4
1962	4.8	4.5	−0.3	1.0	14.7	11.2	5.5	95.1
1963	3.6	3.9	0.4	1.1	6.1	11.3	5.7	95.4
1964	3.9	5.1	1.1	1.1	16.0	12.1	5.2	96.9
1965	3.3	4.1	0.7	1.7	21.1	13.5	4.5	99.2
1966	4.0	6.9	2.8	2.6	7.3	13.2	3.8	101.7
1967	2.0	5.8	3.8	2.9	− 5.2	11.9	3.8	100.2
1968	3.3	7.6	4.2	3.6	5.3	11.4	3.6	101.1
1969	0.9	7.3	6.3	4.5	− 4.1†	11.0‡	3.5	100.0

* Ratio of profits, after taxes, to income originating in all corporate industries.

† Annual rate of change, first three quarters of 1969.

‡ Average, first three quarters of 1969.

Sources: U. S. Department of Commerce; U. S. Department of Labor; Council of Economic Advisers

price pressures began to accumulate in 1964, as the deflator for private GNP accelerated from a rate of 1.1 percent during the first half of the year to a rate of 1.8 percent by yearend. Because of a somewhat tighter labor market, compensation per manhour rose faster and unit labor costs, which had been relatively steady during the preceding three years, rose moderately. As a result of the higher level of aggregate demand, there was a large increase in corporate profits after taxes and profit margins in 1964. The corporate profit share of national income also began to rise in 1964 (see Table IV).

In 1965, despite a further significant decline in the unemployment rate and the virtual closing of the gap between potential and actual GNP, compensation per manhour and unit labor costs in the private economy rose at *slower* rates. The employee compensation share of national income

actually declined in 1965, while the corporate profit share rose further. Corporate profits after taxes and profit margins continued to rise sharply during the period. In 1965, corporate profit margins reached 13.5 percent and were at the highest level since 1955, when they had reached 13.6 percent.

Economic activity was reinforced during 1965, as production in the defense industries was stepped up. Actual defense expenditures (as measured in the national income and product accounts) did not rise significantly until the latter half of 1965. The increase in Federal outlays, superimposed on the capital goods boom that had been underway for some time, was the primary reason for the overheating that occurred. Although there was a temporary easing in the rate of inflation during the second half of 1965, the year-to-year increase in the price deflator for

ECONOMIC REVIEW

TABLE IV

Distribution of National Income
1960–1969

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969*</u>
Employee compensation	71.0%	70.8%	70.7%	70.8%	70.6%	69.8%	70.2%	71.5%	71.9%	73.0%
Business and professional income	8.3	8.3	8.1	7.9	7.8	7.5	7.3	7.2	6.9	6.5
Farm income	2.9	3.0	2.8	2.7	2.3	2.6	2.6	2.2	2.0	2.1
Rental income	3.8	3.7	3.6	3.6	3.5	3.4	3.2	3.2	3.0	2.8
Net interest	2.0	2.3	2.5	2.9	3.0	3.2	3.4	3.8	3.9	4.0
Corporate profits	12.0	11.8	12.2	12.2	12.8	13.5	13.3	12.1	12.3	11.7
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NOTE: Details may not add to totals because of rounding.

* First three quarters.

Source: U. S. Department of Commerce

private GNP accelerated. The evidence strongly suggests that the economy experienced classical symptoms of excess demand-induced inflation.

In 1966, wage demands and wage settlements grew larger, which is not surprising in view of the extremely good profit performance of earlier years and the stepped up increase in the cost of living. Much of the stimulus to the rise in retail prices between 1964 and 1966 stemmed from a sharp increase in wholesale prices of farm products and processed foods, which ordinarily are largely independent of general business conditions. The coincidence of a significant upswing in agricultural prices and rapid expansion in business activity between 1964 and 1966 intensified the cyclical elements of inflationary pressures. As corporate profits continued to increase in 1966 (and profit margins remained at a relatively high rate), the economy's resources became overburdened, and compensation per manhour began to outstrip productivity gains significantly. Unit labor costs accelerated in 1966 (see Table III). Although labor's share of national income rose slightly in

1966, it remained below the average of the early 1960's. The rate of increase in the deflator for private GNP was at an interim peak in mid-1966 and then decelerated for about a year (see Chart 1). The easing in the price deflator reflected, in part, tight monetary and credit conditions during most of 1966 and was accompanied by some reduction of demand pressures.

In 1967, the Council of Economic Advisers conceded that the wage-price guideposts had proven to be less effective than the Council had originally expected. The guideposts, of course, were originally formulated to temper the discretionary economic power of unions and businesses under conditions of less than full employment. As stated by one of the proponents of the guideposts, ...if total demand in the economy exceeds the ability of the economy to produce goods and services with reasonably full employment of the available resources, then inflation is inevitable. Under such circumstances

of generally excess demand, guideposts can play no significant part in avoiding inflation.¹³

In 1967, labor had recouped its depressed share of national income, while corporate profits after taxes, profit margins, and the profit share of national income all declined. Pressures on unit labor costs intensified, and the year-to-year rise in the price deflator continued to accelerate. Those were symptoms, but by no means conclusive evidence, of cost inflation. Aggregate demand was still very strong for 1967 as a whole; the unemployment rate averaged less than 4 percent; and actual GNP remained above potential GNP. The labor market generally remained tight in the face of a temporary decline in real output during early 1967.

It now seems clear that *anticipation* of the resumption of strong demand helped to sustain high employment, large wage increases, and inflation. Employers were reluctant to lay off workers because they anticipated a brief slowdown and expected that the economy would resume a strong growth path in the latter part of 1967. By the second half of 1967, the rate of inflation began to accelerate again and the price deflator continued to advance at an intolerable rate the following year.

Renewed pressures on resource utilization were evident in 1968. The unemployment rate resumed its decline and the ratio of actual GNP to potential GNP began to rise again. Fiscal restraint was necessary to help cool an overheated economy, to relieve pressures in financial markets, and to help strengthen international confidence in the dollar.

¹³Gardner Ackley, "The Contribution of the Guidelines," in Schultz and Aliber, *op. cit.*

Congress enacted the surtax in mid-1968. Although the rate of real economic growth began to slow during the second half of 1968, there was little impact on prices. In fact, the rate of increase in the price deflator for private GNP began to accelerate in late 1968 and reached a new high for the decade in 1969 (see Chart 1). During the latter half of 1968, some of the major monetary variables (for example, bank credit and the money supply) expanded at rates greater than intended by the Federal Reserve authorities. Although monetary policy turned toward restraint in December 1968, some observers attributed the succeeding acceleration in prices to the lagged effect of an overly expansionary monetary policy during the latter half of 1968.

During 1969, monetary and fiscal policy attempted to stem inflationary pressures. Although some progress was made in reducing excess demand (as measured by a reduction in the ratio of actual GNP to potential GNP), the unemployment rate edged down to a new low for the decade. The very small gain in productivity in the private sector resulted in a substantial increase in unit labor costs. Prices did not rise as fast as did unit labor costs. In short, business firms were in a cost-price squeeze, which resulted in declining profit margins and corporate profits after taxes (see Table III). As shown in Table IV, the profit share of national income in 1969 was depressed to the lowest level of the decade.

Inflationary Psychology. During the latter half of the 1960's, particularly in 1969, inflationary psychology hampered the effectiveness of anti-inflationary policy actions. For example, the widespread attitude among businessmen of "order new plant and equipment now, because costs and

ECONOMIC REVIEW

prices will rise enough to justify today's investment decision" has obviously helped to sustain a high rate of inflation.

A decade ago, economists were reminded of the role of expectations with regard to inflation and public policy.

...We think it important to realize that the more the recent past is dominated by inflation, by high employment, and by the belief that both will continue, the more likely it is that the process of inflation will persevere or even increase real demand, or the more heavily the monetary and fiscal authorities may have to bear down on demand in the interests of price stabilization.¹⁴

Unfortunately, businessmen became more deeply imbued with an inflationary psychology as the 1960's drew to a close. The sharp rise in inflationary sentiment since 1965 is reflected in the Dun & Bradstreet quarterly survey of approximately 1,500 businessmen. Among other items, businessmen are asked whether they expect their selling prices during the next quarter to be higher, lower, or unchanged from the comparable year-earlier quarter. The net result (that is, the percent expecting an increase minus the percent expecting a decrease) is shown in Chart 2 together with actual changes in the price deflator for GNP originating in private nonfarm business.

During 1969, when monetary and fiscal policies were restrictive, businessmen apparently were not convinced that the slowdown in real economic growth (then in progress) would be of sufficient magnitude to dampen the rate of inflation. Businessmen expected prices to rise at a faster rate in

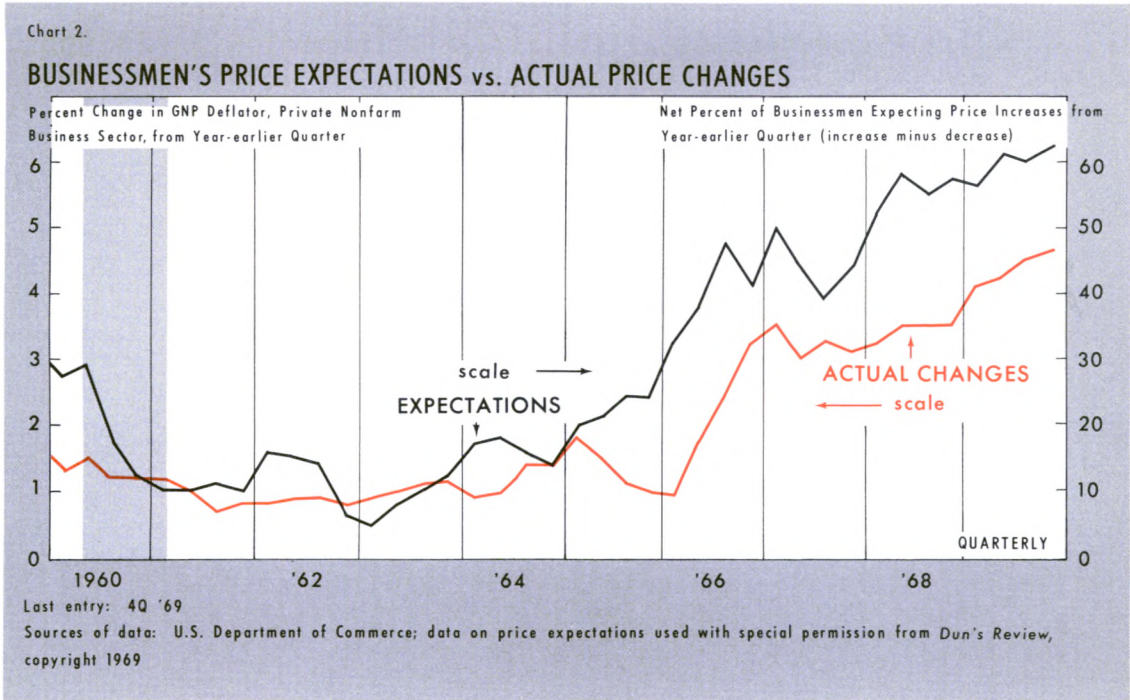
1969, and the expectations were realized, thereby placing a heavier burden on public policy.

IMPLICATIONS FOR THE 1970's

The consensus of business analysts is that the restrictive public policies that were pursued in 1969 will have a substantial impact on economic activity during 1970. With little, if any, growth in physical output expected over the near term, the economy will be operating below its potential output for the first sustained period since the first half of the 1960's. A slowing in the rate of increase in prices is also expected to occur in view of the suppression of excess aggregate demand. Based on historical experience, prices may continue to rise, although at a reduced rate, despite the absence of excess aggregate demand. The slower reaction of prices probably reflects various institutional rigidities and inflexibilities as well as the fact that many firms adjust slowly to reduced wage-price-cost pressures.

In recent months, spokesmen for the Administration have conveyed the opinion that the economic outlook contains a number of uncertainties and that these uncertainties may not be consistent with wage and price increases of the magnitude experienced during the late 1960's. At present, public policy is attempting to dissipate the inflationary psychology that has become so deeply entrenched into the thinking of businessmen and consumers and gradually to reduce the rate of price increases to a "tolerable" level *without* generating an "intolerable" rate of unemployment. What is tolerable or intolerable is subject to debate and is a matter of individual value judgments among policymakers. It does seem that the unemployment rate in the early 1960's was intolerable and that the price performance in the late 1960's was also intolerable.

¹⁴Samuelson and Solow, *op. cit.*



If there is a tapering in the rate of inflation in 1970, and if further progress is made in 1971, the magnitude of reduction that can be reasonably expected is open to question. In view of recent price developments, it seems somewhat unlikely that the stable price environment of the early 1960's (when major price indexes such as the deflator for private GNP and the CPI rose approximately 1 percent a year) can be achieved immediately.

The economic climate in the 1970's should be somewhat different from that of the early 1960's.

In the coming years, a number of factors will influence prices, including increased emphasis on the service industries where productivity growth tends to be lower than in other industries; the need to remain concerned about high employment; and the increasing demands for government spending in areas such as housing and urban redevelopment, air and water pollution control, transportation, and health, education, and welfare. In such an environment, it seems almost inevitable that inflationary pressures will remain an important factor in public economic decisions.

