

*A review by the* **Federal Reserve Bank of Chicago**

# Business Conditions

**April 1971**



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# Food prices higher in 1971

Prices of food at the supermarket are on the rise again. A decline in the fourth quarter of 1970—the first in three years—proved to be only a temporary interruption in the long upward trend of food prices. After holding steady in January, prices advanced in February and then jumped more than 1 percent in March. At the end of the first quarter of 1971, prices were 1.5 percent higher than at the start of the year and a year ago. Continued increases, though not at the unusually rapid March rate, are likely through 1971.

Increased supplies of food commodities—notably meats—were primarily responsible for the dip in grocery store prices during the closing months of last year. Lower farm prices outweighed further increases in processing and distribution costs. But farmers are currently cutting back output in response to lower prices and higher costs. As a result, the full effect of rapidly rising processing and distribution costs, in addition to rising farm prices, will be reflected in food prices in the months ahead. Furthermore, cost pressures on prices are likely to be augmented by increased demand for food as the economy moves out of the trough of recession toward increased employment and greater spending.

## The 1970 experience

In 1970, prices for food consumed at home<sup>1</sup> advanced more than 5 percent—the largest

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<sup>1</sup>This discussion excludes food consumed away from home, which accounts for one-fifth of food expenditures. Prices of restaurant meals largely reflect trends in non-food costs, namely services. Service costs rose 7 percent in 1970.

annual increase since 1951. Most of the increase, however, occurred during the first few months of the year. Food prices at grocery stores were over 7 percent higher than year-earlier levels during the first quarter of 1970. As the year progressed, price increases decelerated and the year-to-year increases diminished. In the fourth quarter, prices at grocery stores actually declined 1 percent from the previous quarter but were still over 2 percent higher than a year earlier.

The slowing in the rate of price increases at food stores in 1970 mainly reflected larger food supplies, especially of meat and poultry. For all of 1970, total red meat production increased only 3 percent, but it was unevenly distributed during the year. Pork production shifted rapidly beginning in mid-1970. After averaging 5 percent below year-ago levels in the first half, production increased in the third quarter and by the fourth quarter averaged nearly 25 percent higher than a year before. Prices farmers received for hogs averaged nearly one-fifth higher than a year earlier in the first half of 1970, but by December they had plunged 40 percent below year-earlier levels.

Increases in beef production were more moderate and more uniformly distributed throughout 1970, but prices were influenced by the large supplies of competing pork and poultry. Farm prices for slaughter cattle rose above year-ago levels in the first half of 1970 but declined sharply in the second half. Poultry production was up 11 percent from a year ago, and prices received by producers averaged about 11 percent lower. Prices of

other farm commodities were mixed in 1970. Dairy products and most vegetable prices were higher. Fruit prices, mainly for apples and oranges, were lower. Grains, principally used as animal feed, were sharply higher in price in 1970. Higher grain prices discourage livestock feeding and meat production. The effect of these grain price increases, however, is delayed in showing up at retail meat counters because of the time required for breeding, raising, and marketing livestock.

### Farm-to-retail spread widens

Despite steadily declining prices of major food commodities at the farm level during most of 1970, retail food store prices continued to edge higher through midyear. Even during the fourth quarter, the decline in retail prices was much less than that of farm prices. The divergent trends in farm and retail prices resulted from rapidly increasing costs of processing and distributing food products. The farm-to-retail price spread, according to the Department of Agriculture's "market basket of farm foods," increased 7 percent in 1970,

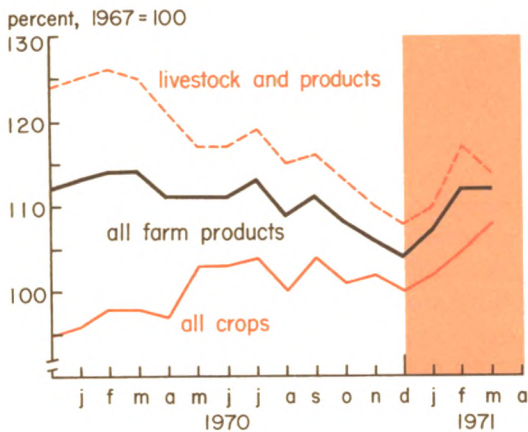
compared to increases of between 2 and 2.5 percent in 1968 and 1969. Most of the increase in the overall price spread was due to substantially wider meat margins for both processor-wholesalers and retailers. The depth and frequency of price "specialing," however, may not have been fully reflected in Bureau of Labor price statistics, causing retail prices to be somewhat overstated.

The lag in price adjustment between farm and retail levels in part reflects retail merchandising practices designed to maximize total sales and store profits rather than pricing on an item-by-item basis. Added profits from the meat department may offset rising costs in other departments such that total store profits remain unchanged. This practice also allows the retailer to avoid confronting customers with frequent price changes.

Another reason changes in farm prices are not immediately reflected at retail is that processor-wholesalers are likely to allow inventories to build to some degree before offering price concessions to retailers. Processed pork, for example, is much more storable than live hogs at the farm level. These storage operations smooth out sudden changes in farm supplies and lessen the price adjustments necessary at the wholesale and retail level. Pork in cold storage at the end of March was about 45 percent above year-earlier levels.

Finally and most importantly, prices at retail and wholesale levels reflect costs that are unrelated to farm commodity prices and supplies. About three-fifths of every consumer food dollar goes to pay for labor, transportation, utilities, rent, and related services. These costs, rising rapidly in recent years, have been responsible for pushing retail prices higher, even when farm commodity prices were falling. In 1970, hourly wage rates of food industry employees rose more

### Farm prices reverse trend in 1971



than 7 percent; costs of fuel, power, and lights jumped 16 percent. Transportation costs were boosted by the large wage gains negotiated by truck drivers. The decline in retail food store prices in the fourth quarter of 1970 would have been much greater if it were not for the persistent increase in these non-food costs, which was equal to nearly half of the drop in farm commodity costs.

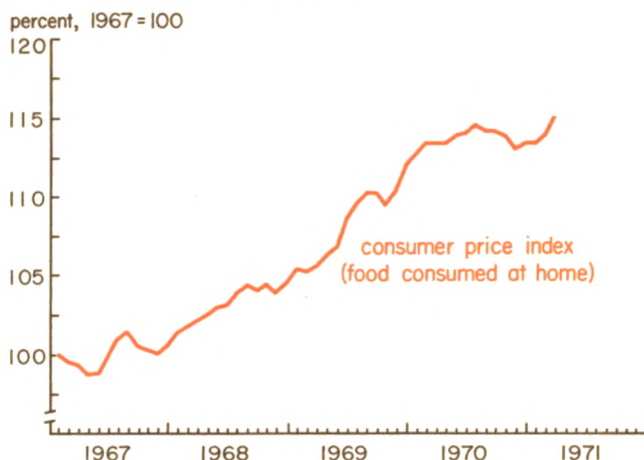
### Prospects for 1971

Prices of food at supermarkets in 1971 are already on the rise. After remaining on a plateau during January, prices began to rise in February and accelerated sharply in March. Further price rises are in the offing.

The expansion in agricultural output, namely livestock production, that played a major role in dampening food price increases in 1970 is being curtailed, and farm prices are rising. Although hog marketings are likely to total one-fifth more than year-earlier levels through mid-1971, marketings are trending seasonally downward, and hog prices have risen moderately from winter lows. Increases in pork output are also being trimmed by declining market weights. The late spring pig crop is expected to be 7 percent smaller than a year ago. This will cause late summer hog marketings to dip well under the unusually large numbers marketed last year.

Beef supplies also will trend seasonally lower during the first half of 1971. Beef production through February was 2 percent below year-ago levels. The latest Cattle on Feed report indicates farmers will market 5 percent more fed cattle than a year ago during the second quarter of 1971, but high feed

### Food prices rise again



costs will most likely result in lower average slaughter weights, offsetting to a large extent the expected increase in numbers marketed. Prices received by farmers for beef cattle are currently up more than one-fourth from winter lows and about 6 percent above year-ago levels. Prices will likely continue to rise moderately through midyear, but any sharp upswing in prices is not likely so long as competing meats are in abundant supply.

Poultry supplies are trending lower from winter levels and may average below year-earlier levels through the first half of 1971. Chicks placed in recent weeks have averaged about 6 percent less than a year ago, indicating the cutback in production will continue through midyear. Poultry producers may increase output in the second half in anticipation of smaller competing pork supplies and rising prices. This could result in total production for the year about equal that of 1970.

Trends in egg supplies in 1971 will run counter to that for poultry meat. A 3 percent larger laying flock as of January 1 should

boost egg output in the first half of the year. But high feed costs may lead to a reduction in flock size, resulting in declining egg production and higher prices after midyear. Production of dairy products will probably increase in 1971, but prices will be boosted by higher government support prices this year.

The outlook for food crops in 1971 varies by type of crop. Citrus fruit production is up substantially from a year ago, despite frost damage in January. Production of other fruits such as apples and peaches is sharply lower, however. Supplies of processed vegetables are slightly lower than a year ago, but winter potato production was up about 4 percent, and the early spring crop is expected to be up about 2 percent. On balance, vegetable prices in 1971 will probably average about the same as a year ago, while fruit prices may be substantially higher.

In addition to higher commodity prices, a sharp advance in processing and distribution costs is virtually certain in 1971. Direct labor costs amount to about half of all food processing and distribution expenses. Recent and prospective wage increases for unionized food industry employees are on the order of 10 to 12 percent according to trade sources. It is doubtful—since retailing is not highly mechanized—that the impact of these wage increases will be offset by productivity gains.

Wage negotiations are scheduled this year in the steel, aluminum, cans, glass, railroads, construction, and utilities industries. If wage increases are comparable to those of last year, settlements in these industries will likely result in significantly higher costs for food processing and distribution firms. Can prices have already risen 8 percent this year. Service costs—rent, maintenance, insurance, etc.—rose at a 7 percent rate during 1970 and will likely increase at a similar rate in 1971.

### Demand rekindled

In addition to the push of rising costs, food prices will be pulled upward by rising demand as the economy moves out of its recessionary doldrums toward fuller employment and increased spending.

The anticipated recovery in economic activity will augment the usual increase in demand for food due to population growth, an accelerating rate of family formations, and the trend toward proportionately larger numbers of “big eaters” in the population—teenagers and young adults.

Expenditures in the first quarter of 1971 expanded at an increasing rate, probably reflecting an unusually large increase in consumer incomes. A 6 percent increase in pay for federal employees and a surge in automobile manufacturing were the main factors behind the rise in incomes during the first quarter. Barring major strikes, such as a possible steel strike this summer, consumer incomes should continue to increase at a pace which will contribute to larger expenditures for food.

Continued expansion of government food programs will also add to demand. The Food Stamp Program tripled in size last year and is now equal to 2 percent of total outlays for food. Declining unemployment should moderate the rate of expansion in the Food Stamp Program, but the program will be extended to regions not included last year.

In summary, higher farm prices, higher processing and distribution costs, and increased consumer demand suggest family food budgets will continue to be strained by rapidly rising prices. Indeed, the average increase in food prices in 1971 may well approach the historically large increases experienced last year.

# Commentary on central bank activities

Should the Federal Reserve System conduct its operations so as to aid in sustaining suitable flows of credit to particular classes of borrowers? Proposals have been made from time to time that the Federal Reserve support certain sectors such as housing, state and local government, agriculture, small businesses, and businesses in depressed areas.

Under one such proposal, the Federal Reserve would enlarge the scope of its open market operations to include trading in securities issued by federally-sponsored agencies, e.g., those that channel credit to farming and housing.<sup>1</sup> Another proposal would have the Federal Reserve apply reserve requirements to bank assets rather than deposit liabilities, and set the required reserve percentages at different levels for different kinds of assets. This practice, it is contended, would serve as a way to encourage banks to extend credit to specified types of borrowers.<sup>2</sup>

Advocates of such changes in the Federal Reserve's mode of operation have argued that economic well-being for housing, agriculture, and other sectors they enumerate is so essential to the welfare of the nation as to justify special measures to assure their access to credit. The Federal Reserve, they say, should assume an active role in assisting these

<sup>1</sup>In 1968, Congress granted the Federal Reserve System the authority to buy and sell federal government agency securities.

<sup>2</sup>Reserve requirements specify the percentage of deposits that must be kept as reserves, i.e., bank funds not available to the banks for lending and investing. Because the level of reserve requirements

is inversely related to bank profitability, a differential reserve requirement upon assets would encourage banks to hold those assets with the lowest reserve requirements.

sectors in the ordinary course of its operations. The historic position of the Federal Reserve is different. The System has been inclined to the view that market forces are more efficient in allocating credit among various uses than is administrative or statutory discretion. In this view, it is the task of a central bank to concern itself with aggregate, rather than specific, credit flows.

In an attempt to help shed some light on the role that central banks play in aiding certain sectors, the House Committee on Banking and Currency recently released a report that presents the results of a survey of activities engaged in by the central banks of France, India, Israel, Italy, Japan, Mexico, the Netherlands, Sweden, the United Kingdom, West Germany, and Yugoslavia.<sup>3</sup> The report suggests that most of the 11 foreign central banks studied are considerably more active than the Federal Reserve in channeling credit into priority uses.

The report states that its "analysis does not seek to determine the optimum arrangements, but merely to indicate the range of activities and the type of things that might be undertaken by the Federal Reserve System." Hence, while the report undertakes to describe the economic and social welfare

<sup>3</sup>U. S., Congress, House, Activities by Various Central Banks to Promote Economic and Social Welfare Programs, Committee Print, 91st Cong. 2d Sess., 1970.

activities of foreign central banks in considerable detail, as well as the financial environments within which the banks operate, it does not include comprehensive measurements of the success of these activities, nor does it evaluate the effects and the appropriateness of the policies followed.

### Some general observations

In comparing foreign central banks with the Federal Reserve System, two aspects of activity are of particular interest. One is the way in which economic stabilization policies are formulated and carried out. The other has to do with the channeling of credit into uses judged to merit preference on social welfare grounds.

Stabilization policy involves actions designed to influence total spending so as to avoid both inflation and unemployment. Monetary and fiscal policy usually are relied upon as instruments of stabilization. Monetary policy, the province of central banks, works through the commercial banking system and influences money, credit, and interest rates. Fiscal policy, which typically is the responsibility of national legislatures and treasuries, entails the adjustment of tax rates and government expenditures with an eye to their effects on total spending in the economy.

In American practice, the major instruments of monetary policy are open market operations, discount policy, and reserve requirements. In foreign countries, the tools used by central banks include those employed in the United States plus moral suasion and direct credit controls. Open market operations of the central banks entail the control of commercial bank reserves through the purchase and sale of securities. (By buying securities in the open market, the central bank adds to commercial bank reserves; by selling, the bank reduces such reserves.)

Discount policy regulates commercial bank borrowing of reserves from the central bank. Increases in reserve requirements restrict bank lending and thus decrease the supply of money and credit.

Several factors combine to make some aspects of stabilization policy more challenging in foreign countries than in the United States. For one thing, the governments of several of the countries studied make no use of fiscal policy as an instrument of stabilization. The report points out that in Sweden, for example, a sustained climb in government expenditures, which reflects the national objective of expanding the public sector, has left monetary policy with the full burden of economic stabilization. This is in marked contrast to the United States, which, since the 1930s, has employed fiscal policy in tandem with monetary policy in an effort to achieve the goals of full employment and price stability. Moreover, in some countries balance-of-payments considerations of overriding urgency have required the implementation of measures that have interfered with stabilizing monetary action. While balance-of-payments considerations also influence U. S. monetary policy, the fact that neither exports nor imports account for more than 4 percent of gross national product makes this factor far less critical for the United States than most other countries studied.<sup>4</sup>

The central banks of most of the countries surveyed operate without use of open market operations—the most important monetary stabilization instrument of the Federal Reserve. Only the central banks of West Germany and the United Kingdom use open market operations to any significant extent. In other European countries, open market

<sup>4</sup>A growing deficit, however, could make balance-of-payments considerations for the United States more important in the future.

A comparison of central bank operations<sup>1</sup>

Country	I Market too weak for open market operations <sup>2</sup>	II Differential discount policy <sup>3</sup>	III Differential reserve requirements <sup>4</sup>	IV Foreign exchange considerations <sup>5</sup>	V Significant use of moral suasion	VI Credit controls
BANQUE DE FRANCE France	✓	✓	✓	✓		✓
RESERVE BANK OF INDIA India	✓	✓			✓	✓
BANK OF ISRAEL Israel	✓	✓	✓	✓	✓	✓
BANCA D' ITALIA Italy	✓	✓	✓	✓	✓	✓
NIHON GINKO Japan	✓	✓			✓	✓
BANCO DE MEXICO Mexico	✓	✓	✓	✓		
NEDERLANDSCHE BANK Netherlands	✓			✓	✓	✓
SVERIGES RIKSBANK Sweden	✓		✓	✓	✓	✓
BANK OF ENGLAND United Kingdom			✓	✓	✓	✓
FEDERAL RESERVE SYSTEM United States						
DEUTSCHE BUNDESBANK West Germany		✓	✓	✓		✓
NATODNA BANKA JUGOSLAVIZE Yugoslavia	✓	✓			✓	

<sup>1</sup>Derived from the report except for United States.<sup>2</sup>Market too weak for extensive operations compared with the United States.<sup>3</sup>Certain classes of loans given preference at discount windows.<sup>4</sup>Certain classes of loans allowed to satisfy reserve requirements.<sup>5</sup>Monetary policy complicated significantly by foreign exchange considerations.



VII	VIII	IX Support of		X	XI
Exports	Housing	Agriculture	Industries for economic growth	State & local government	
✓	✓	✓	✓	✓	✓
✓		✓	✓	✓	✓
✓					
	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓
✓					
✓	✓	✓	✓	✓	✓
✓					
		✓			✓
✓			✓		

operations cannot serve as an effective stabilization instrument because money and capital markets are too underdeveloped or too closely linked to the European money market. Open market operations play a minor role in Israel and Japan and are even less important in the other countries surveyed. Hence, the central banks have placed greater reliance upon discount and reserve requirement policies than the Federal Reserve. In Japan, for example, the heavy demand for loans plus the strong reluctance of bankers to refuse loans to established customers have led to a system of chronically overloaned banks. In fact, the Bank of Japan has financed a sizable portion of Japan's rapid growth through its extension of credit to banks. Because almost all of the banks are affected directly, discount policy has been an important stabilization device in Japan.

Whether of necessity or as a matter of choice, most of the 11 banks surveyed have augmented their arsenals of stabilization measures with weapons that are little used in the United States. One device often employed by foreign central banks is moral suasion, i.e., the use of persuasion to influence commercial bank activities. In several of the countries studied, the banking industry is highly concentrated or is owned substantially by the government. Obviously, this creates a climate far more responsive to moral suasion than exists in the United States, with its multitude of commercial banks under private ownership. For example, tradition has helped make the closely-knit London banking community highly receptive to admonitions and suggestions made by the Bank of England. The prestige of the governor of the Bank of Italy, extensive government ownership, and threats of sanctions have all combined to make moral suasion an effective monetary tool in that country.

Moral suasion and sometimes direct credit controls have been used by foreign banks both for stabilization purposes and as a way to encourage banks to lend to certain sectors. A key aspect of the Bank of Sweden's monetary policy is the "annual credit agreement," in which the Bank suggests to the commercial banks what types of loans they should make.

### **Social programs**

Some of the foreign central banks, in sharp contrast to the Federal Reserve System, channel credit to specific sectors by exempting loans to preferred classes of borrowers from credit ceilings, or by accepting such loans for rediscounting or in satisfaction of reserve requirements. The sectors most commonly receiving assistance are exports, housing, agriculture, state and local governments, and industries believed essential to national economic development.

The export sector often receives special consideration from the central bank when the nation's economic well-being is tied strongly to international trade. As the report itself points out: "The Deutsche Bundesbank and the Banque de France give special rediscounting privileges to private commercial export bills; the Nederlandsche Bank and the Sveriges Riksbank in Sweden direct credit into exports; the Bank of Israel grants favorable credits for export financing."

Agriculture and housing receive special consideration through favorable discount provisions and direct credit controls (France) and low interest rate loans (Mexico)—plus moral suasion. Five of the 11 central banks provide direct loans for state and local governments or public agencies.

Central banks promote economic growth either by making loans to private firms or by channeling commercial bank credit into development financing. The channeling of pri-

vate bank credit is achieved through moral suasion, direct credit controls, or discriminatory reserve requirements, i.e., allowing certain borrowers' paper to satisfy legal reserve requirements.

### **The influence of governments**

The position of the government in relation to its central bank was found to vary greatly among the countries surveyed. In some, the central bank has considerable independence (the Netherlands and West Germany), while in others it is under the control of the government (Mexico, Sweden, Yugoslavia, Italy, and the United Kingdom). Nevertheless, in some of the latter cases, the personalities of the leading central bankers and the prestige they have come to enjoy have given their banks considerable independent influence. The current Governor of the Bank of Italy, for example, has played an active part in the formulation of fiscal as well as monetary policy.

The scope of foreign central bank activities is well illustrated by the following paragraph from the report:

The Banque de France and the Bank of England set hire-purchase [instalment credit] regulations, the Banca d' Italia uses direct controls to prevent speculative inventory buildups and to prevent short-term financing of long-term fixed investment. The Nederlandsche Bank can delay issues of stocks and bonds, . . . , the Sveriges Riksbank provides loans for home furnishings, and the Bank of England imposes credit ceilings on insurance companies, pension funds, and building societies.

### **Conclusions**

If it were clear that the special measures used by foreign central banks to influence patterns of credit use had been successful,

there might be a case for adoption of similar policies by the Federal Reserve System in the United States. The House Committee report, however, offers little evidence on the impact and success of such policies, or, indeed, on the extent to which they have been employed. Therefore, it is impossible to judge the appropriateness of these activities for central banks. Moreover, the report fails to mention the effects of such activities upon the primary function of central banks, controlling the supply of money and fostering economic stabilization. Thus, as the report's expressed purpose is only to describe, rather than evaluate, the activities of foreign central banks, it cannot serve as any sort of guide for central bank policy.

Should the Federal Reserve actively promote the flow of credit to specific sectors? It would seem that the practicality of such measures in the countries where they have been employed, plus the appropriateness of applying similar measures in the United States, first must be determined.

This is not a minor task. Perhaps the same words of caution that economists employ against the use of a single general development strategy for all underdeveloped countries also apply to guidelines for the monetary strategies of more advanced countries. As mentioned previously, the profound differences in the environments for moral suasion and open market operations between the United States and most of the nations studied could lead into a maze of meaningless comparisons. Even measures that are efficacious in other countries may be highly inappropriate for the United States.

One of the most important differences in financial environments in which the central banks operate is the stage of development of the financial markets. In some foreign countries, especially those less developed, the ab-

sence of a smoothly functioning financial sector may require central bank involvement to ensure adequate credit flows to certain sectors. The developed state of U. S. financial markets, however, may better ensure an optimal allocation of resources. In a few instances, such as in the U. S. housing sector, where institutional rigidities do interfere with credit allocation, the removal of such rigidities may well be preferable to direct intervention by the Federal Reserve.

A further consideration is the ideological issue of the proper role of public agencies within a free market economy such as that of the United States. There are considerable differences of opinion regarding this issue, and there could be intense opposition to the assumption of a larger and more active role by the Federal Reserve System in stage-managing the economy. For example, the Federal Reserve's experiments with selective credit controls during the 1940s and early 1950s were widely criticized by some as being a dangerous move toward excessive government control of private life. Furthermore, American economists today are quite critical of certain measures long used to assist specific sectors, among them the agricultural support program and the use of trade quotas and tariffs. And these criticisms only hint at the difficulties that could be expected in attempting to reach a consensus on which sectors of the economy deserve special privileges as a matter of public policy.

Before the U. S. central bank even considers a move toward direct support for "critical" sectors, there is a need to examine more closely the performance of the foreign central banks. The environment in the United States is markedly different from those of many of the countries studied, and what may work in other countries may not necessarily be effective in the United States.

# The growing appetite for cash

Paper currency and coin in circulation rose more than \$3.5 billion in the last year, an annual growth rate of nearly 7 percent. At the end of February, the estimated amount of currency in circulation—the amount outstanding excluding that held by the U. S. Treasury and the Federal Reserve banks—was \$55.6 billion, equivalent to \$269 for every man, woman, and child in the country. Since most individuals would not be expected to hold anything like this amount in pockets, purses, and bureau drawers, this rapid rise in paper and metallic money is a puzzling development.

Who determines the quantity of currency in circulation? Actually, every individual is in a position to determine what proportion of the money he controls will be held as currency. He may adjust this proportion by a shift between currency and checking deposits. In view of the widely heralded expansion of checking accounts and the advent of the “cashless society,” it seems particularly anomalous that the ratio of paper currency and coin to money held in checking accounts has risen steadily through the decade of the Sixties. This has been primarily the effect of an increase in the growth of currency in circulation between the 1950s and the 1960s. Paper currency and coin increased 80 percent during the Sixties, after only an 18 percent rise during the Fifties.

Theories on the causes of the changes in currency holdings are difficult to test because information on individual holdings of currency is impossible to obtain. A study by the Federal Reserve System estimated that

of all currency in circulation, with the remainder held by business and government. Experience suggests that many households keep only nominal amounts of currency on hand. This implies that the distribution of currency within the household sector is uneven—that is, very large amounts of currency must rest with relatively few households.

Moreover, aggregate figures on currency actually in circulation have to be estimated since the total issued minus the total redeemed must be adjusted for currency destroyed or irretrievably lost. This is probably a minor adjustment for paper currency but an important one for coins. For example, of the \$14 billion in old series National Bank Notes issued between 1864 and 1929, only 0.2 percent has not been redeemed. On the other hand, of the \$11 million in zinc-coated steel one-cent coins minted during 1943, only 15 percent had been redeemed as worn through 1966. To a degree, this lower rate of redemption for coins reflects their attractiveness to collectors who withdraw them from service as a circulating medium due to their low cost and great durability. Despite the necessity to estimate currency in circulation figures, the aggregate figures on currency in circulation are probably not far in error since paper currency accounts for nearly 90 percent of cash in circulation.

## **Gresham's Law in action**

Currency is held for only two reasons: as a means of transfer or as a store of value. Thus, changes in the stock of currency must be the result of changes in factors which affect the desirability of currency as a means

of exchange or store of value. Within these broad general purposes, a number of separate factors have influenced people's decisions to hold certain kinds of cash.

Coin is a relatively unsuitable medium for the storing of large values. Nevertheless, in the 1960s special factors affected the storing of coins and caused the "coin shortage" that was particularly critical in the middle years of the decade. Most important, it became clear in the early Sixties that the free market price of silver would rise enough to make the silver content in the old 90 percent silver, 10 percent copper coin worth more than the face value of the coins. This promoted hoarding of the old silver coins. By selling large amounts of silver from government stockpiles in the years 1963-67, the Treasury kept the market price of silver down to \$1.29 per ounce. This was done to prevent the precipitate removal of silver coins from circulation before a sufficient amount of silverless coins was available to handle the transaction needs of the country. Minting of current clad-coins—outer layers 75 percent copper, 25 percent pure nickel, bonded to a pure copper core—to replace silver coins began in 1965. In 1967, when the price of silver was allowed to rise above \$1.38 per ounce, the silver content of dimes, quarters, and half-dollars became worth more as silver than as coin,<sup>1</sup> and silver coins rapidly disappeared from circulation. This phenomenon demonstrates the operation of Gresham's Law: "Cheap money drives out dear money."—one of the oldest recognized principles of economic thought.

It appears that approximately \$2.2 billion worth of silver coins have been removed as a circulating medium by private individuals since 1965. The need to replace these silver coins resulted in the minting of nine dollars

<sup>1</sup>Only the silver dollar had a metallic content greater than its face value at \$1.29 per ounce.

in dimes, quarters, and half-dollars (those coins replacing formerly silver coins) for every dollar of minor coin (1¢ and 5¢) in the period 1965-69. In the years 1950-60, three dollars in silver coin were minted for every dollar in minor coin.

### The collectors

The coin shortage of the Sixties was intensified by the activities of coin collectors. The Kennedy half-dollar is a case in point. Following the death of President Kennedy, a new half-dollar was issued to commemorate him. Despite the minting of over 750 million clad Kennedy half-dollar pieces from 1966 through June 1969, this coin has never circulated extensively. The proliferation of the one-cent piece probably is attributable to collectors, also. Being 95 percent copper and 5 percent zinc, the "penny" is not likely to be held for its metallic value, and the effects of inflation would appear to have sharply curtailed its use as a medium of exchange. Realistically, the one-cent piece should be earmarked for extinction. Yet in the decade of the 1960s, over three times as many one-cent pieces were minted as in the previous decade. In 1969 alone, over \$36,000,000 in one-cent pieces were minted.

In an effort to minimize the attractiveness of certain coins to collectors, the mint has initiated a number of changes in the coinage. During 1965-67, the mint stopped putting mint marks on coins, and coins were dated for previous years to reduce the scarcity of coins in these years. Beginning in 1971, Kennedy half-dollars, which had been 40 percent silver (it was the only clad-coin containing silver minted after 1965) will contain no silver. Perhaps the last U. S. coin to contain silver will be the recently approved Eisenhower dollar. One hundred and fifty million of these coins containing 40 percent silver will be

minted and sold to applicants at \$3.00 each. All other Eisenhower dollars will be minted using the current silverless clad arrangement.

A long-run factor contributing to the "coin shortage" of the Sixties was the great growth in the use of vending machines. Sales through vending machines have grown sharply—from \$600 million in 1947 to \$3,500 million in 1964, or 10.8 percent per year. Vending machines necessitate a larger stock of coin because of the number of coins immobilized

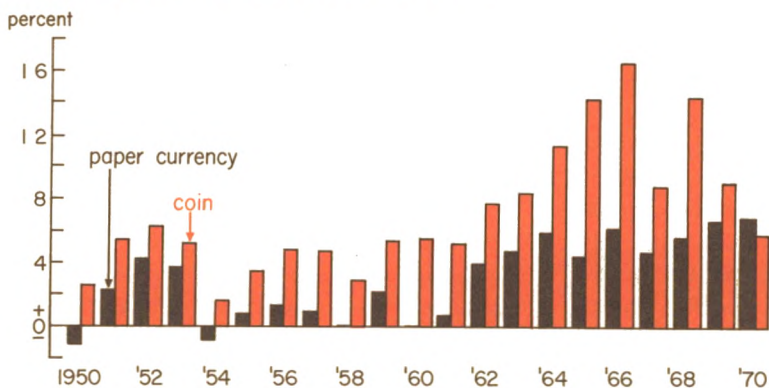
in them, thus reducing their transactions velocity.

Recent evidence indicates that the end of the coin shortage is near. All denominations of coin will then circulate freely and it may be expected that coin in circulation will grow at about the 5 percent a year rate which characterized the 1950s. It appears, however, that paper currency, which accounts for approximately 90 percent of cash in circulation, will grow at a rate of about 6 percent a year—

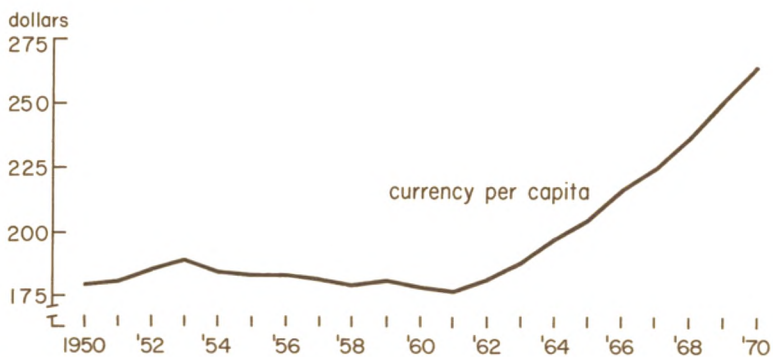
the rate of growth over the last five years. The year 1970 was the first year since 1945 that the rate of growth in paper currency was greater than the rate of growth in coin.

The causes of the accelerated growth in paper currency are more difficult to discern than those affecting coin. Unlike the stock of coins, it is possible that the stock of paper currency is substantially and permanently affected by the public desire to store value. In part, the recent accelerated growth is simply the result of a return to a more normal growth after the dishoarding of the sharp increase in currency recorded during World War II, when currency in circulation increased almost threefold in a

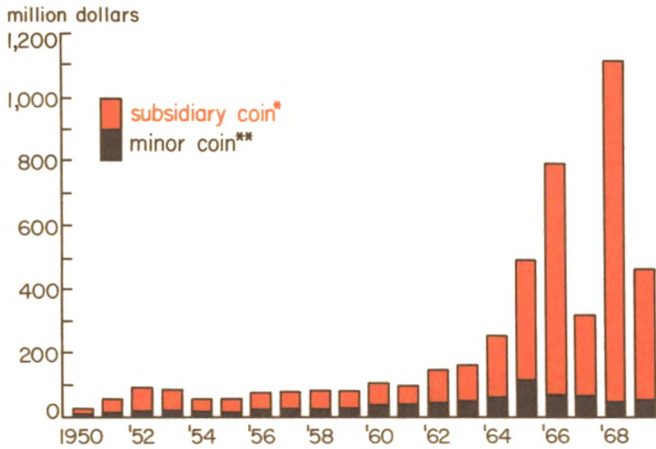
### The growth of coin and paper currency in the last decade . . .



### . . . has led to \$269 in circulation for every man, woman, and child in the United States



## Massive production of silverless subsidiary coins in late Sixties attempted to replace silver coins



\*Subsidiary coin equals ten-cent, twenty-five-cent, fifty-cent, and one-dollar pieces.

\*\*Minor coin equals one-cent and five-cent pieces.

five-year period. Like coin, paper currency has been affected by silver speculation and by the activities of collectors, though the effects on the aggregate amount of currency have been minor. When it was anticipated that the price of silver would rise above \$1.29 per ounce at which the Treasury had promised to redeem Silver Certificates, this type of currency (issued in \$1, \$5, and \$10 denominations) rapidly disappeared from circulation. The effect of collectors may be seen in the almost total disappearance of the \$2 note issued as a United States Note. This note has scarcely circulated for the last 40 years although it was issued until 1966. Since the discontinuance of issuing the \$2 note, only 5 percent of the amount in circulation has been redeemed.

### Convenient cash

A number of factors should affect the de-

mand for paper currency as a means of transfer. It is widely stated that the increasing use of credit cards and checking facilities are leading to a "cashless society." The use of credit cards and checks to make transactions would have the effect of reducing currency holdings. Rising incomes would raise currency holdings since expenditures and transactions would rise with income. The frequency with which households receive currency also should affect the holdings of currency for transaction purposes. The more frequently a household receives currency, the less currency it will hold on average, since the amount of transactions it must finance until the next receipt is smaller.

The ratio of currency to income has declined steadily in the last 20 years, which suggests that currency is being replaced as a means of financing transactions. However, currency in circulation still amounts to about three and one-half weeks of income per capita. Since most households receive income receipts every week or two, this seems to indicate that a significant portion of the currency in circulation is not held as a means of transaction but rather as a store of value.

Other evidence suggests the same conclusion. The explicit cost of holding cash to make transactions is the risk of loss or theft. Thus, the cost of making a cash transaction rises as the size of the transaction rises. With transfers by check, the cost of the transaction (service charges, minimum balances, cost of checks, etc.) is unaffected by the size of the transaction. Thus, one would expect currency to be used to effect smaller transactions, and checks to effect larger transactions. Normally

then, smaller denominations of currency would be used for transactions and the larger denominations for the storing of value.

Evidence indicates that transaction uses are not sufficient to explain the increase in currency in circulation since 1960. The stock of smaller denomination notes (\$1 through \$10) increased 37.4 percent from 1960 to 1970, while larger denominations (\$20 through \$1,000) increased 75.3 percent over the same period. The largest percentage increase occurred in \$100 notes which nearly doubled over the ten-year span. Today, \$100 notes account for the second largest value of currency in circulation, exceeded only by \$20 notes. In part, this may be due to the cessation of the printing of \$500 and \$1,000 notes in 1947. Since July 1969, old notes in these denominations have not even been reissued by the Treasury. Nevertheless, the value of all notes in denominations of \$100 or more in circulation increased 86 percent in the period from 1960-70.

The use of money as a store of value involves the implicit cost of the interest or returns paid to other assets. The decade of the Sixties was one in which interest rates and, therefore, the implicit costs of holding currency rose sharply. In addition, the holder of currency risks the loss or destruction of his assets, unlike the holder of demand deposits. Nevertheless, currency in circulation has grown more rapidly than demand deposits over the past decade. In part, this

appears to be due to the difficulty of detecting currency transactions and hoards. This is a very great advantage in such illegal activities as tax evasion. Substantial amounts of currency may also be held by foreigners who trust it more than their native currencies.

Approximately one quarter of the money stock (currency in circulation plus demand deposits), a magnitude accorded great prominence in economic analysis, consists of currency. Changes in the money stock are the result of the separate changes in currency and demand deposits appropriately weighted. However, although currency and demand deposits are both included in the money stock, there are substantial differences in the way these components behave. Quite independent factors appear to affect the demand for these two types of assets. Currency appears to be more affected by the desire of the public for assets to serve as a store of value. There also appears to be rather low substitutability between demand deposits and currency. In the last two decades, there have been a number of years in which one of the two components grew while the other declined. Changes in the rate of growth of currency in circulation on a year-to-year basis appear to occur rather slowly while demand deposits fluctuate in a much more volatile manner. Nevertheless, as this article has shown, when considered over periods as long as a decade, changes in currency have accounted for sharply differing percentages of changes in the money stock.

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