

FEDERAL RESERVE BANK OF ST. LOUIS

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REVIEW



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Utilization of Federal Reserve Bank Services by Member Banks: Implications for the Costs and Benefits of Membership

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THE proportion of commercial banks belonging to the Federal Reserve System has been declining for more than three decades. The percentage of banks in the Federal Reserve System decreased from 49.1 percent of all commercial banks in 1945 to 39.3 percent at the end of 1976 (see Chart I). The percentage of total bank deposits held at Federal Reserve member banks declined from 86.3 percent to 73.8 percent over the same period.

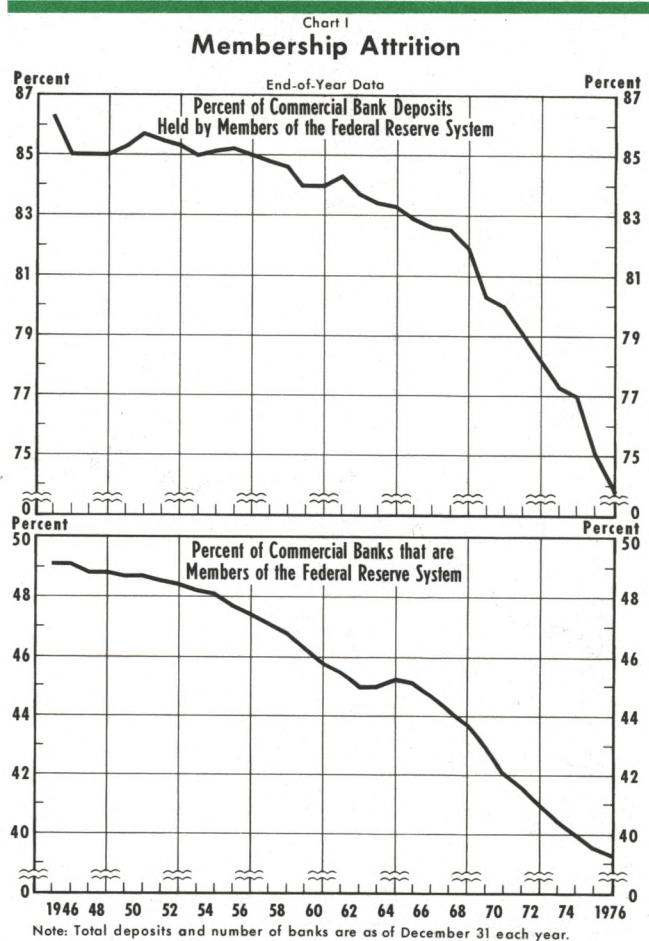
The reason banks mention most frequently for withdrawing from Federal Reserve membership is the cost of reserve requirements imposed on members relative to reserve requirements of the various states for nonmember banks.¹ However, the utilization of Federal Reserve Bank services by member banks must also be considered in an analysis of the costs and benefits of membership. The implications for the costs and benefits of Federal Reserve membership are analyzed on the basis of a survey of services used by member banks that are served by the head office of this Reserve Bank.

RESERVE REQUIREMENTS AS A CAUSE OF MEMBERSHIP ATTRITION

In general, state reserve requirements for nonmembers are not lower than those for member banks.² This observation is especially applicable to smaller banks, since in about half of the states reserve requirements are flat percentages of various classes of

¹Peter Rose, "Exodus: Why Banks are Leaving the Fed," *The Bankers Magazine* (Winter 1976), pp. 43-49.

²Required subscriptions to Federal Reserve Bank stock by member banks can be considered a type of interest bearing reserve requirement. Member banks must subscribe to stock of their Federal Reserve Banks in amounts proportional to their capital and surplus. The annual yield on that stock is six percent. That rate of return was a significant inducement to membership in the 1930s and 1940s when market interest rates were very low, but given the market interest rates of recent years, the yield on Federal Reserve stock is now probably a neutral factor in the costs and benefits of membership. Therefore, Federal Reserve Bank stock is not included in the following discussion of the reserve burden of member banks or the costs of membership.



deposit liabilities, whereas reserve requirements for member banks are graduated so that requirements are lower for smaller banks. The significant difference between the reserve requirements of member and nonmember banks concerns the *types of assets* they can use to meet their legal reserve requirements.

In most states nonmember banks can meet their reserve requirements with vault cash, cash items in the process of collection (CIPC), and demand balances due from other commercial banks. Member banks can meet their reserve requirements only with

vault cash and *collected* reserve balances at the Federal Reserve Banks.

The reserve burdens of most nonmember banks are reduced substantially because they are permitted to use CIPC to meet state requirements. Their CIPC represent primarily the value of checks they have deposited with correspondent banks for which the correspondents have not yet received payment.³ On the other hand, when member banks deposit checks with Reserve Banks, they receive credit to their reserve accounts according to a schedule which depends upon the location of the banks on which the checks are drawn. Member banks receive immediate credit for some checks, but for others credit is delayed one or two days. The deferred credit schedule approximates the time required for the Federal Reserve System to receive payment for outstanding checks.

To demonstrate the significance of CIPC for the relative reserve burdens of member and nonmember banks, the ratios of CIPC to reserve balances were calculated for a group of 49 member banks that are served by the St. Louis office of the Eighth Federal Reserve District and which regularly clear both local and out-of-region checks through this Reserve Bank. The four largest correspondent banks in the area were excluded from these calculations since their CIPC are exceptionally large in relation to their reserve balances. Average daily reserve balances of those member banks would have been 82.6 percent greater if they could have counted CIPC as part of their reserves.⁴ Another indication of the significance of CIPC is Knight's estimate that, on average, only 56 percent of demand balances that banks hold at correspondent banks are collected balances.⁵

Another significant difference between reserve requirements of states and those of the Federal Reserve is that nonmember banks can meet state reserve requirements with deposits at correspondents. As indicated below, correspondents offer respondent banks higher implicit rates of return on demand balances in the form of services than the implicit returns member

banks receive on their reserve balances at Reserve Banks. In addition, in about half of the states, nonmember banks can meet various proportions of their reserve requirements by holding interest earning government securities, and the Federal Reserve enforces its reserve requirements more rigorously than do most states.⁶

REASONS FOR ANALYZING THE UTILIZATION OF RESERVE BANK SERVICES BY MEMBER BANKS

Empirical studies support the view that member banks have greater reserve burdens than nonmembers by showing that member banks have higher cash/asset ratios than nonmember banks of the same size, especially among smaller banks.⁷ However, these studies do *not* show in general that the reserves of member banks at Reserve Banks are larger than the demand balances that nonmember banks hold at correspondents. The cash/asset ratios of member banks are higher than those of nonmembers because many member banks hold their required reserves at the Federal Reserve *and* hold substantial demand balances at correspondent banks.

Therefore, analysis of the cost of Federal Reserve membership involves more than just comparison of reserve requirements of the Federal Reserve with those of the states. It also involves examination of reasons why member banks hold large balances with correspondents. One of the major reasons banks hold demand balances at correspondent banks is to compensate correspondents for their use of services. Thus it is relevant to examine the services that mem-

⁶In 30 states there are no specified dollar penalties for reserve deficiencies for nonmember banks.

⁷Cash assets of banks are generally measured as their vault cash, demand balances due from correspondents, cash items in the process of collection, and reserve balances at Reserve Banks. See Gary G. Gilbert and Manfred O. Peterson, "Reserve Requirements, Federal Reserve Membership and Bank Performance," FDIC Working Paper No. 74-8, and "The Impact of Changes in Federal Reserve Membership on Commercial Bank Performance," *Journal of Finance* (June 1975), pp. 713-19; Robert E. Knight, "Reserve Requirements, Part 1: Comparative Reserve Requirements of Member and Nonmember Banks," *Monthly Review*, Federal Reserve Bank of Kansas City (April 1974), pp. 3-20; Robert J. Lawrence and Duane Lougee, "Determinants of Correspondent Banking Relationships," *Journal of Money, Credit and Banking* (August 1970), pp. 358-69; Lucille Mayne, *The Effect of Federal Reserve System Membership on the Profitability of Illinois Banks, 1961-63* (Center for Research of the College of Business Administration, Pennsylvania State University, 1967); Walter A. Varvel, "The Cost of Membership in the Federal Reserve System," Federal Reserve Bank of Richmond, Working Paper 77-1, March 1977.

³Nonmember banks are officially allowed to count their CIPC as reserves in less than half of the states. However, in the other states nonmembers can count CIPC as reserves by recording all deposits of checks with their correspondents as demand balances due from correspondents, whether the funds are available for their use immediately or with some delay due to the time required for collection.

⁴Average daily reserve balances and CIPC were calculated for the period September 9, 1976, through January 12, 1977.

⁵Robert E. Knight, "Comparative Burdens of Federal Reserve Member and Nonmember Banks," *Monthly Review*, Federal Reserve Bank of Kansas City (March 1977), pp. 24-25.

Table I

PERCENT OF INSURED COMMERCIAL BANKS
IN EACH SIZE GROUP THAT ARE MEMBERS
OF THE FEDERAL RESERVE SYSTEM
AS OF DECEMBER 31, 1976

Asset Size (in millions)	Percent
\$ 5 or less	18.7%
5 - 9.9	25.5
10 - 24.9	38.0
25 - 49.9	48.9
50 - 99.9	58.5
100 - 299.9	66.3
300 - 499.9	78.6
500 or more	86.7

Source: Federal Deposit Insurance Corporation

ber banks obtain from Reserve Banks and services that they receive from correspondents.

Another reason for examining the use of Reserve Bank services by member banks concerns the size distribution of member banks. In most states reserve requirements for nonmember banks are either flat percentages of various types of deposit liabilities or less graduated than requirements of the Federal Reserve. Also, the ratio of CIPC to total deposits tends to be positively related to bank size. If relative re-

serve requirements were the only basis on which banks decided whether to be members of the Federal Reserve, these two reasons would cause the largest banks to have the greatest incentives to drop membership. Yet this is not the case.

Table I indicates that the percentage of banks that are Federal Reserve members increases with the size of banks. Table II shows that the size distribution of banks withdrawing from membership during 1971 through early 1977 corresponds closely to the size distribution of all members at the end of last year, but that no banks with total deposits over \$1 billion withdrew from membership during that period. So there must be additional factors which influence the decisions of banks concerning Federal Reserve membership. One such factor is the utilization of Reserve Bank services by member banks.

NATURE AND UTILIZATION OF FEDERAL RESERVE BANK SERVICES

Services that Reserve Banks provide to member banks are discussed in approximately the order of cost to the Federal Reserve System of providing them, as indicated in Table III. Information on the utilization of services by member banks of differing size is derived from a survey which includes 233 member

Table II

SIZE DISTRIBUTIONS OF INSURED BANKS IN THE U.S. THAT WITHDREW FROM FEDERAL RESERVE MEMBERSHIP,
JANUARY 1971 - MARCH 1977, AND ALL MEMBER BANKS, DECEMBER 31, 1976

Range of Total Deposits ¹ (millions of dollars)	Banks that Withdrew from Membership			All Member Banks	
	Number	Percentage	Cumulative Percentage	Percentage	Cumulative Percentage
up to 5	15	5.0%	5.0%	6.6%	6.6%
5 to 10	42	14.1	19.1	14.1	20.7
10 to 20	77	25.8	44.9	24.8	45.5
20 to 30	46	15.4	60.3	15.9	61.4
30 to 40	30	10.1	70.4	8.9	70.3
40 to 50	17	5.7	76.1	5.6	76.9
50 to 60	14	4.7	80.8	3.6	79.5
60 to 75	7	2.4	83.2	4.5	84.0
75 to 100	12	4.0	87.2	3.6	87.6
100 to 150	16	5.4	92.6	4.0	91.6
150 to 250	7	2.4	95.0	2.8	94.4
250 to 500	12	4.0	99.0	2.7	97.1
500 to 1,000	3	1.0	100.0	1.4	98.5
1,000 and over	0	0.0	100.0	1.5	100.0
Total	298	100.0%		100.0%	

¹Measured as of December 31, 1976, except in 8 cases in which recent data were not available. In those cases total deposits were measured around the time banks withdrew from membership.

Table III

COSTS OF PROVIDING SELECTED SERVICES TO MEMBER BANKS IN 1976

Service	Total Federal Reserve System		Federal Reserve Bank of St. Louis ¹	
	Cost of Providing Services	Percent of Total Cost of These Services	Cost of Providing Services	Percent of Total Cost of These Services
Check Collection	\$124,566,969	65.6%	\$3,714,454	73.1%
Coin and Currency Pickup and Delivery	50,220,644	26.4	946,111	18.6
Wire Transfers	5,672,666	3.0	124,695	2.5
Safekeeping of Securities	7,224,907 ²	3.8	199,439 ¹	3.9
Discounts and Credits	2,303,490	1.2	99,908	2.0
Total	\$189,988,676	100.0%	\$5,084,607	100.0%

¹Cost data pertain only to head office operations.

²These figures include the cost of providing some safekeeping services for nonmember banks.

Source: Federal Reserve System Board of Governors, *Functional Expense Report*, 1976 Annual Report, Section I, pp. 41-69.

banks served by the head office of this Bank. Banks are ranked by total assets and divided into groups of 20 each, except for group 12, which includes the 13 largest banks in the survey. Results, summarized for each group, are presented in Table IV.

Check Collection

The service to member banks that is the most expensive for Reserve Banks to provide to members is collection of checks. The Federal Reserve System provides the only national system of check collection, through which 13.2 billion checks were cleared in 1976. This represents about 45 percent of all checks written in the nation last year.

Member banks may deposit for credit to their reserve accounts checks drawn on any other domestic bank that remits at par.⁸ There is no direct charge to member banks for this service. Since the early 1970s, nonmember banks located in zones served by Regional Check Processing Centers have been permitted to deposit at Reserve Banks checks drawn upon other banks in their regions. Deposits of such checks are credited to the reserve accounts of member banks that serve as correspondents. There is no charge to nonmember banks for this service. Nonmember banks collect out-of-region checks through their correspondents. All checks deposited with Reserve Banks must be encoded with bank routing numbers and dollar amounts. Banks depositing more than a certain minimum number of checks must sort checks by location of the banks on which the checks are drawn.

⁸A non-par bank charges a fee when checks drawn upon accounts of its depositors are presented for collection by any means other than at the bank's own teller window. Reserve Banks will not accept checks drawn upon such banks for deposit to a member bank reserve account. As of December 31, 1975, there were only 73 non-par banks in the nation.

A survey of checks deposited with this Bank was conducted in January of this year. Column (4) of Table IV reports the percentages of banks within each size group that deposited more than five checks during that month.⁹ A large majority of banks with total assets under \$100 million clear checks through correspondents.

For each bank that deposited more than five checks with the Reserve Bank, the number of checks deposited in January was multiplied by 12 to get an annual rate, and averages within each size group are reported in column (5).¹⁰ A few large banks deposited most of the checks. For instance, the 12 largest banks deposited 79 percent of all checks, and the five largest deposited 74 percent. These figures actually understate the share of checks directly deposited by the largest banks since several of these large banks send checks drawn on banks in other Federal Reserve districts directly to the other Federal Reserve Banks. The survey does not include information on the number of such checks.

Another function involved in check clearing is that of banks *paying* their Reserve Bank for checks drawn upon them (remitting for the Fed's cash letters). The percentages of banks in each group that remit by having their reserve accounts debited are indicated in

⁹There were 15 member banks that deposited from one to five checks in January. To include those banks in the percentages in column (4) would exaggerate the number of banks using the Reserve Bank's check clearing facilities.

¹⁰The volume of checks deposited with Reserve Banks in the first quarter of each year tends to be about three percent below the volume for the previous fourth quarter. Therefore, these figures probably understate the annual rate at which banks deposit checks. Since the Board of Governors of the Federal Reserve System reports volume of checks data only on a quarterly basis, there is no accurate means of adjusting one month's data for seasonal influences.

column (6). Those member banks not using this method arrange for the reserve accounts of their correspondents to be debited, the same method of settlement that is used by nonmember banks.

This settlement function is analyzed as a separate service since the method that member banks use for settlement involves costs and benefits which are different from the costs and benefits involved in the method used for clearing checks. If member banks choose to settle through their reserve accounts, they incur transactions costs involved in meeting their weekly required reserves. If they settle through correspondents, they must compensate correspondents for record keeping and for the transactions costs which they create for their correspondents.

In most size groups in Table IV, the number of banks that have their reserve accounts debited for checks drawn upon them is greater than the number that deposit checks directly with the Reserve Bank. This is probably because depositing checks directly with the Reserve Bank involves more processing by member banks (encoding and sorting) than correspondents require. Remitting for the Fed's cash letters through the reserve account involves only somewhat more frequent adjustments to a member bank's reserve account than remitting through a correspondent's account. However, most of the smaller member banks use a correspondent's account to settle for checks drawn upon themselves. For instance, of the 100 smallest members in the survey, only 16 settle through their reserve accounts, and of the next 100 largest, 38 settle through their reserve accounts.

Coin and Currency Service

One of the important operational functions of Reserve Banks is removing defective currency from circulation and issuing new currency. Reserve Banks provide both member and nonmember banks with coin and currency. Armored car service for pick up and delivery of coin and currency is made available daily at offices of member and nonmember banks in metropolitan areas surrounding offices of Reserve Banks and weekly in other areas. Banks not located on armored car routes receive coin and currency from Reserve Banks through the mail. This service is provided to member banks without charge, whereas nonmember banks are charged fees to cover costs. Reserve Banks charge both members and nonmembers a fee for *wrapped* coin to cover the cost of that operation.

Information on the coin and currency service used by member banks is presented in columns (7) - (10) of Table IV. Column (7) indicates that most member banks receive armored car service. Almost all of the others receive Federal Reserve coin and currency service through the mail (see column 8). The remaining member banks receive money service from correspondents.

When member banks receive money shipments or deposit coin and currency at the Reserve Bank, they can have the Reserve Bank debit or credit their reserve accounts or those of their correspondent banks. Such practices vary among member banks, as indicated in column (9). The method of debiting and crediting for a bank's money service, either through its reserve account or a correspondent account, can be considered a separate aspect of this service, as in the discussion above about settlement for checks drawn upon a member bank.

The degree to which member banks of various sizes use the Federal Reserve's coin and currency service is quantified in column (10) in terms of fees that member banks using this service would be charged as nonmembers. The annual value of coin and currency service to each member bank was calculated at fees charged nonmember banks based upon utilization of that service in September, October, and November of last year. For banks in each size group that receive money service from the Reserve Bank, the average annual value of their money service is presented in column (10).¹¹

Wire Transfers

A Reserve Bank service that is offered exclusively to member banks at no charge is wire transfers—transferring funds electronically from the reserve account of one member bank to the reserve account of any other member bank in the country.¹² This system is used heavily for conducting transactions in the Federal funds market and for making payments for large business customers. Many of the large member banks use the wire transfer service through on-line equipment, initiating and receiving notice of transac-

¹¹There were not sufficient data to calculate the fees member banks receiving coin and currency service through the mail would have been charged for such mail service as nonmembers. The value of the "mailed-money" service for members was calculated based upon what they would have paid as a nonmember for the same value of coin and currency shipments provided through armored car service.

¹²There is a charge for transfers of less than \$1,000.

Table IV

UTILIZATION OF FEDERAL RESERVE BANK SERVICES BY MEMBER BANKS OF VARIOUS SIZE, 1976-77 SURVEY¹

Group Number	Total Assets of Banks in Each Group as of 6/30/76 (thousands of dollars)			Percent of Banks that Clear Checks Through the Reserve Bank ²	Average Annual Number of Checks Cleared by Banks that Clear Checks Through the Reserve Bank	Percent of Banks Remitting for the Fed's Cash Letters Through Debits to Their Reserve Accounts	Percent of Banks Receiving Armored Car Service	Percent of Banks Receiving Money Service Through the Mail	Of Banks Receiving Money Service Through Armored Car or Mail, Percent Having Reserve Account Debited and Credited
	(1)	(2)	(3)						
	Average	Maximum	Minimum						
1	\$ 3,891.6	\$ 6,312	—	5%	21,816	15%	75%	20%	53%
2	7,179.8	8,268	\$ 6,384	0	0	0	45	50	58
3	9,592.3	10,351	8,270	15	215,740	20	55	40	74
4	11,706.4	12,998	10,533	25	837,271	25	65	30	58
5	15,051.6	16,395	13,009	10	232,416	20	75	20	47
6	17,723.6	19,995	16,422	30	383,042	35	75	25	60
7	21,790.2	23,766	20,394	10	365,472	20	85	15	60
8	25,991.2	27,536	24,158	40	360,959	50	90	10	75
9	30,952.0	34,037	27,580	40	1,172,649	50	95	5	65
10	40,961.1	46,755	34,527	35	950,337	35	100	—	70
11	69,106.8	107,641	46,836	70	1,778,203	75	100	—	70
12	425,173.8	1,743,592	107,932	92	16,355,889	92	100	—	92

Group Number	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Average Annual Implicit Subsidy to Member Banks from Money Service	Percent of Banks Initiating Wire Transfers Frequently ³	Of Banks Initiating Wire Transfers Frequently, Average Annual Number	Percent of Bank Holding U.S. Government Securities in Book Entry at the Reserve Bank	Of Banks Holding Securities in Book Entry, Average Amount ⁴ (thousands of dollars)	Percent of Banks Holding Definitive Securities at the Reserve Bank for Their Investment Account	Of Banks Holding Definitive Securities at the Reserve Bank, Average Amount ⁴ (thousands of dollars)	Percent of Banks that were Regular Borrowers at Discount Window 1975-1976 ⁵	Annual Cost of Services Used by Member Banks as Percent of Their Average Daily Reserve Balances ⁶
1	\$ 664.42	15%	68	30%	\$ 427.0	25%	\$ 49.4	5%	0.594%
2	838.11	10	102	70	985.3	35	403.0	0	0.294
3	830.95	5	102	50	1,082.5	35	623.3	5	0.449
4	813.56	30	134	40	1,631.6	30	1,669.5	15	0.344 ⁷
5	1,046.53	20	92	55	1,216.7	45	859.8	10	0.275
6	2,230.80	50	95	70	1,051.4	50	1,427.1	10	0.752
7	1,799.80	35	94	55	1,475.1	35	1,915.7	0	0.313
8	2,036.80	65	191	80	2,038.8	70	1,713.4	20	0.481
9	2,087.80	65	312	75	2,466.1	65	2,896.3	10	0.880
10	3,376.00	70	176	75	1,254.0	80	2,762.6	0	0.589
11	5,392.80	75	704	70	5,945.0	65	5,025.2	15	1.015
12	12,990.77	85	19,649	100	123,808.8	69	13,196.0	23	1.693

¹The 233 banks in the survey are Eighth District banks in Illinois and Missouri that were members during the period September 1976 through January 1977.

²These banks deposited six or more checks with the Reserve Bank during January 1977.

³These banks initiated six or more wire transfers during the months of November and December 1976.

⁴These are par values of securities held in safekeeping as of November 30, 1976.

⁵These banks borrowed in two different months or for 15 days or more in either 1975 or 1976.

⁶For banks in each size group the cost of services utilized was summed and divided by the sum of their average daily reserve balances in the period September 9, 1976, through January 12, 1977. The cost of clearing a check is estimated at \$0.015. This is above the unit cost reported in the Federal Reserve's *Functional Expense Report*; this cost figure is used as an estimate of unit costs with the relevant capital costs added. The basis for assigning costs to the money service is the schedule of fees for that service charged nonmembers. For banks initiating wire transfers with on-line equipment, the cost of each wire transfer initiated is estimated at \$0.30, based upon data from the *Functional Expense Report*. For banks not on-line for wire transfers, the cost of each wire transfer initiated is estimated as \$2, which is approximately the cost assigned to this service in the account analysis studies of correspondent banks made by the Federal Reserve Bank of Kansas City.

⁷One bank was deleted from group 4 because its utilization of Fed services was so much greater than that of other banks of similar asset size that the percentage that cost of services is of reserve balances with this bank included was unrepresentative for other banks of that asset size.

tions through their own terminals. Other member banks initiate wire transfers by telephone, giving employees at Reserve Banks details of transactions. Non-member banks may use this funds transfer system only indirectly through member banks. During 1976, member banks initiated 21 million wire transfers with a total dollar value of \$35,617.8 billion.

Based upon a survey in November and December of last year, many of the banks either initiated no wire transfers or made minimal use of the service.¹³ Frequent users of the wire transfer service are defined as those initiating more than five wire transfers during the two month period; column (11) presents the percentage of banks in each size group that initiated wire transfers frequently.

The number of wire transfers originated by frequent users was multiplied by six to get annual rates; averages of those annual rates for frequent users of the service are presented in column (12). These calculations indicate that banks in the largest size group initiated most of the wire transfers. As additional evidence, the four banks that initiated the most wire transfers accounted for 86.8 percent of wire transfers that were sent by all banks in the survey, including those of the infrequent users.

Safekeeping of Securities

Reserve Banks hold securities in safekeeping for member banks at no cost to members. Securities are held in two forms:

(1) Certain Federal Government obligations are held at Reserve Banks in book-entry form. No physical debt certificates are issued by the Treasury, but ownership records are kept on the books of the Reserve Banks. Customers of member banks may also hold Federal debt obligations in this form, with the member banks acting as their agents for this service. Ownership of these securities may be changed through wire transfers.

(2) The other form in which securities are held in safekeeping at Reserve Banks is that of definitive securities — actual paper evidence of debt obligations (not limited to Federal Government debt). Reserve Banks collect bond coupons for member banks at no charge, and collect matured bonds at no charge other than shipping charges for collection outside Federal Reserve Bank cities. Collected funds are credited to the reserve accounts of member banks.

¹³Of the 233 banks in the survey, 78 initiated no wire transfers during that period. All but three of the banks not using that service had total assets less than \$35 million. The banks initiating from one to five wire transfers (57 in total) are also relatively small; all but nine had total assets less than \$35 million.

Reserve Banks hold, for nonmembers, Federal Government securities that are required as collateral for U.S. Government deposits at those banks. Reserve Banks also accept, from nonmembers, custody of securities that are pledged as collateral to deposits of bankrupt estates. Other than in these two cases, nonmembers are not allowed to keep securities for their own investment account or for the accounts of their customers in safekeeping with Reserve Banks.

Columns (13) - (16) of Table IV present information on securities that member banks hold in safekeeping with the Reserve Bank. Some member banks do not use this service, preferring to hold securities with their correspondents or in their own vaults. Use of the safekeeping service of the Reserve Bank is somewhat related to bank size, with a greater percentage of the larger banks using this service. However, more of the smaller banks use this service than they do the Reserve Bank's check clearing or wire transfer services.

Borrowing through the Discount Window

Reserve Banks make loans to member banks for various purposes and durations. In the most common situation, a member bank borrows for only a few days at a time, presumably to adjust its reserve position to unanticipated deposit withdrawals or loan demands. This type of lending is called *adjustment credit*. Certain member banks with distinct seasonal patterns in loan demand and deposit flows qualify for *seasonal borrowing privileges*, under which they may borrow fixed amounts from Reserve Banks for several consecutive months. A third category of Federal Reserve lending is *emergency credit*, involving loans for extended periods of time to member banks experiencing financial difficulties that make other sources of funds unavailable to them at prevailing market interest rates. Emergency credit is made available at a higher discount rate than the rates for adjustment credit or seasonal lending. In some circumstances emergency credit can be made available to nonmember banks, but at a higher interest rate than emergency credit for member banks.

The discount rate was above the Federal funds rate during most of 1975 and 1976. Therefore, banks that borrowed at the discount window during those years were generally borrowing to make short-term adjustments to their reserve positions rather than borrowing to profit from a relatively low discount rate, as many banks did in 1974. Banks that are "regular" borrowers at the discount window are identified in this paper as

those that borrowed in either two different months or for a total of 15 days or more in either of the past two years. These "regular" borrowers are assumed to be relying upon the discount window as an important source of short-term credit.

Only 21 banks are identified as "regular" borrowers (see column (17), Table IV).¹⁴ Note that 15 of them had total assets of less than \$35 million. Thus, although most member banks do not borrow when the discount rate is above money market rates, the discount window is an important source of short-term credit for several of the smaller member banks.

Aggregating the Benefits of Membership

The benefits of Federal Reserve membership are measured by summing the costs to the Federal Reserve of providing services to member banks and dividing by their respective average reserve balances at the Reserve Bank. This percentage is called an *implicit rate of return on reserve balances*. Average implicit returns are presented in column (18) of Table IV. The numerator of this ratio is an estimate of the cost to the Reserve Bank of providing check clearing, money service, and wire transfers. This approach overstates the benefits of membership from these services to the extent that member banks use more of these services at zero explicit prices than they would as nonmembers, paying for services by explicit fees or correspondent balances.

Means of allocating the costs of services to individual member banks are discussed in Table IV. No suitable basis was devised for allocating the costs of safekeeping of securities and credit discount services to individual member banks, but, as indicated in Table III, the three services included in calculations in column (18) — check clearing, coin and currency service, and wire transfers — account for about 95 percent of the costs of services provided. Therefore, allocating just the costs of these three services to member banks provides suitable estimates of the benefits of membership measured in terms of costs of services used.

In all size groups the implicit rates of return on reserve balances are quite low.¹⁵ The highest per-

¹⁴Only 24 member banks out of 233 in the survey borrowed at any time during 1975-76. Therefore, most of the banks that borrowed are identified as regular borrowers.

¹⁵These rates of return would be even lower if the costs of services provided to members were strictly limited to those offered exclusively to member banks. A large share of the costs of services provided to members in these calculations

centages are for the largest group of banks in the survey, averaging 1.69 percent. The calculated implicit returns for the largest banks are understated since they do not include the costs to the Federal Reserve System of clearing checks that several of those banks sent directly to other Reserve Banks. For the smaller member banks (the 200 smallest in the survey), the implicit returns average about one-half of one percent.

IMPLICATIONS FOR MEMBERSHIP

Data on implicit returns to the smaller member banks relative to their reserve balances indicate why smaller banks have incentives to withdraw from membership. The survey has too few observations on the utilization of Reserve Bank services by large banks to offer an explanation for why most large banks have remained in the Federal Reserve System.

Smaller Banks

Division of banks into categories of large and small is somewhat arbitrary. For purposes of this discussion small banks are identified as those with total assets less than \$50 million (or roughly those in groups 1-10 in Table IV).

Table IV indicates that most of these banks use few Reserve Bank services. The implicit rate of return on reserves averaged about one-half of one percent for those banks. These results indicate that for most of the smaller member banks, Federal Reserve services are more expensive than the services of correspondent banks, which are close substitutes for the services offered by Reserve Banks.

Implicit returns on demand balances at correspondent banks, similar to the implicit returns on reserve balances discussed above, can be derived from studies of account analysis at correspondent banks. The correspondent banks that perform account analysis keep records of services used by respondent banks and assign dollar values to the utilization of services based upon the costs to the correspondent banks of providing those services. Correspondent banks multiply the average collected demand balances of respondent banks by implicit interest rates, called earnings allowances, to determine periodically whether respondent banks have been holding large enough demand balances to compensate for the services they use.

is the cost of clearing checks drawn upon banks located within the region served by their own Regional Check Processing Center. Nonmember banks may also present such checks to Reserve Banks for collection.

In a survey of 130 correspondent banks conducted by Knight in July 1976, the earnings allowances on collected demand balances, *unadjusted* for the required reserves of correspondent banks against those deposits, ranged from 3.34 to 6.19 percent with an average of 4.5 percent.¹⁶ These percentages indicate the implicit returns respondent banks may receive on their collected demand balances at correspondents if they fully utilize the services made available to them. Thus, correspondent banks make available significantly more services per dollar of collected demand balances than do Reserve Banks, assuming that Reserve Banks are not substantially more efficient than correspondent banks.¹⁷

This conclusion could be challenged on the basis that the smaller member banks could increase their implicit returns on reserve balances substantially if they just made fuller use of Reserve Bank services. This issue is investigated by calculating the implicit returns on reserve balances for a group of banks

¹⁶For a description of the methodology used in that study of account analysis, see Robert E. Knight, "Account Analysis in Correspondent Banking," *Monthly Review*, Federal Reserve Bank of Kansas City (March 1976), pp. 11-20. The earnings allowances reported in the survey of July 1976 were for collected demand balances of respondent banks net of required reserves that correspondent banks must hold against those deposits. In the discussion above, those earnings allowances were converted to a basis of collected balances unadjusted for required reserves by multiplying by one minus the marginal reserve requirement on demand deposits for correspondent banks, which is assumed to be 16.5 percent, the marginal reserve requirement for member banks with demand deposits greater than \$400 million. This adjustment is made to the earnings allowances by correspondent banks to make them more comparable to the implicit returns on reserve balances of member banks calculated above.

¹⁷Comparisons of implicit returns that member banks receive on their reserve balances to the earning allowances at correspondent banks understate to some extent the differences in implicit yields on reserve balances and collected demand balances at correspondent banks. This bias results from the fact that correspondents are not charged fees for the Reserve Bank services they use as part of their service to respondent banks, and therefore, do not have to include the costs to the Reserve Banks in offering those services in their implicit charges to respondent banks in order to price their services profitably. An objection might be raised to this conclusion on the basis that correspondent banks must set their implicit charges on services they offer to respondent banks high enough to cover their costs of Federal Reserve membership in terms of foregone earnings on the large reserve balances they must hold. If this objection is valid, it would mean that comparison of implicit returns on reserve balances to earnings allowances at correspondent banks would overstate the differences in yield on reserve balances in terms of services relative to the implicit yields on demand balances at correspondents. However, this objection is not valid since the earnings allowances reported above equal the earnings allowances from the recent study of accounts analysis at correspondent banks multiplied by one minus the marginal reserve requirement on demand deposits, thus removing this second source of potential bias.

with total assets less than \$50 million which make relatively full use of Reserve Bank services. Each of the banks included in this analysis regularly clears local and out-of-district checks directly through the Reserve Bank. There are 34 such banks served by the head office of this Bank. Their total assets as of June 1976 ranged from \$8.8 to \$49.9 million, with average assets of \$27.6 million.¹⁸ All of these banks receive coin and currency service from the Reserve Bank, and all but three of them initiated wire transfers.

The average implicit return to these banks on their reserve balances is 1.32 percent. Thus, although member banks which utilize Reserve Bank services more fully than average can increase their implicit returns on reserve balances substantially, their implicit returns still will be low relative to the implicit interest rates on collected demand balances at correspondents.

Significance of the Costs of Membership — Given the relatively low implicit returns to member banks on their reserve balances, a remaining question is the size of the costs of Federal Reserve membership in relation to bank profits and capital. If the costs of membership are positive but insignificant, current members would not have strong incentives to withdraw from membership. The costs of membership are estimated for a group of member banks which make minimal use of Reserve Bank services. The characteristics of those banks and the procedure for calculating their costs of Federal Reserve membership are presented in the Appendix. Membership costs of banks making minimal use of Reserve Bank services are analyzed because measuring the costs to those banks of obtaining services as nonmembers requires few assumptions.

For the 54 banks included in the analysis, the costs of Federal Reserve membership averaged 1.8 percent of their equity capital in 1976. The cost of membership as a percent of 1976 profits before income taxes and securities gains and losses averaged 11.2 percent among 49 banks with positive profits last year. These calculations indicate that for the smaller member banks making little use of Reserve Bank services, there is a substantial cost associated with Federal Reserve membership.

Why Do So Many of the Small Member Banks Make Minimal Use of Reserve Bank Services? — This

¹⁸Two other banks had these characteristics but were excluded from this analysis because their utilization of services was unusually great. Apparently those banks serve as check processing centers for other banks in their holding companies.

analysis has not explained *why* most of the smaller member banks make little use of Reserve Bank services. Explanations could be offered for each service separately. For instance, one explanation for why most of the small member banks clear checks through correspondents is the Fed's encoding and sorting requirements. However, a more general explanation, which is supported by the evidence in the sections above, is that most of the smaller member banks find the transactions costs of managing their reserve accounts, while using Reserve Bank services, greater than the benefits derived from using those services.

Use of Reserve Bank check clearing services involves frequent debits and credits to a member bank's reserve account. Having a reserve account debited and credited for money shipments also creates some problems for a member bank in managing its reserve position. When a member bank orders a currency shipment, its reserve account is debited, but the funds transferred to the bank as vault cash are not counted as part of reserve assets for two weeks. For the current reserve settlement week, the funds withdrawn from the bank's reserve account must in general be replaced with funds from another source in order to meet reserve requirements. Use of other Reserve Bank services — wire transfers, safekeeping of securities, and borrowing through the discount window — involves similar adjustments to the reserve positions of member banks.

Member banks know the average reserve balances they are required to hold during each reserve settlement week at the beginning of the week, and most member banks receive statements daily on the balances in their reserve accounts. Even though the Reserve Banks provide members with this information, member banks incur transactions costs in managing their reserve positions if they are using Reserve Bank services which involve frequent debits and credits to their reserve accounts. Banks using such services must monitor their reserve positions closely, project debits and credits to their reserve accounts, sell assets or borrow funds to avoid reserve deficiencies when there are unanticipated debits, and buy assets or lend funds to avoid large excess reserves when they have unanticipated credits.

Large banks cope with such reserve management problems by employing specialists in that function. According to the explanation for the behavior of the smaller member banks developed in this section, a large proportion of them prefer not to incur the transactions costs that result from using Reserve Bank

services directly. Instead they prefer to hold relatively idle balances at the Reserve Bank to meet reserve requirements, obtaining services through correspondents and using their demand balances at correspondents as their working balances. As explained above in the discussion of account analysis at correspondent banks, correspondents require respondent banks to hold average demand balances in some proportion to the costs of services they use. However, correspondent banks require this balancing out less frequently than once a week, thus allowing their respondent banks more flexibility in the use of their demand balances than Reserve Banks allow members in the use of their reserve balances.

Data from the survey discussed above include several observations which tend to support the hypothesis that many of the smaller member banks avoid using Reserve Bank services because of the reserve management problems that would result. Note in columns (6) and (9) of Table IV that in most size groups more banks have their reserve accounts debited and credited for money shipments than have their reserve accounts debited for checks drawn upon them. A member bank orders money shipments in advance and therefore can plan its reserve management over a reserve settlement week, taking such entries into consideration. In contrast, debits to a member bank's reserve account in remitting for the Fed's cash letters come in amounts and with timing that cannot be foreseen accurately. Therefore, one explanation for why more member banks order money shipments through their reserve accounts than settle for checks drawn upon them through their reserve accounts is that debits and credits due to money shipments create smaller transactions costs in managing their reserve positions.

Another observation that supports this view is that the smaller banks which do use services involving frequent debits or credits to their reserve accounts tend to use other such services. Use of one such service forces a bank to deal with the problem of managing its reserve account subject to frequent debits or credits. Thus, using other such Reserve Bank services imposes a smaller marginal burden.

There are 58 banks among the 200 smallest in the recent survey that either deposit checks directly with the Reserve Bank or pay for checks drawn upon them through their reserve accounts. Use of these services involves the most frequent and unpredictable debits and credits to reserve accounts. Of these banks, 52, or 89.7 percent, have their reserve accounts debited and credited for money shipments; of the other 142 mem-

ber banks among the 200 smallest in the survey, only 69, or 48.6 percent, have their reserve accounts debited and credited for money shipments.

A similar difference in behavior exists among these banks with respect to use of the wire transfer service. Of the same 58 banks, 39, or 67.2 percent, initiated more than five wire transfers during a two-month period, whereas among the remaining 142 banks, only 33 banks, or 23.2 percent, initiated wire transfers that frequently. Many of the member banks that did not initiate wire transfers through the Reserve Bank probably did so through correspondents.

The discussion above indicates a preference among the smaller member banks for holding relatively idle balances at Reserve Banks to meet their reserve requirements and holding more active demand balances at correspondents which serve as their working balances. Results in Table V, using observations for all Eighth District member banks, reflect such a pattern of behavior.

One measure of activity in reserve balances and demand balances at correspondents is the standard deviation of daily balances divided by the mean of daily balances. For banks in each size group excluding the 25 largest banks, their demand balances at correspondents are, on average, more variable than their reserve balances, indicating that the smaller member banks tend to hold relatively idle balances with the Reserve Bank and use their demand balances at correspondents as their working balances.

Another measure of variability in daily balances presented in Table V is the average number of days that balances in an account did not change from the previous day. To indicate the limits on these numbers, the data used cover 126 days, and the minimum number of days a bank's reserve balance could remain unchanged is 36, due to weekends and holidays. Many of the smaller member banks leave their reserve balances unchanged for several days in a row. The number of days reserve balances remained unchanged averaged 76.5 among the 60 smallest banks and tended to decline as bank size increased. The number of days demand balances at correspondents remained unchanged were approximately the minimum for banks in all size groups.

Member banks that use the services of correspondents, instead of the services provided by their Reserve Banks, must hold substantial demand balances at correspondents to compensate for the services they use. Thus, many member banks bear double reserve

burdens, meeting the reserve requirements of the Federal Reserve *and* holding demand balances at correspondents that are large enough to exceed the reserve balances that would be required of them as nonmember banks.

In most states nonmember banks can meet their reserve requirements with demand balances at correspondents and CIPC. The last column of Table V indicates that in all size groups Eighth District member banks hold average daily demand balances at correspondents plus CIPC that are larger than their average daily reserve balances at the Reserve Bank. The ratio of demand balances at correspondents plus CIPC to reserve balances is especially high among the smallest member banks and the largest member banks in Table V, the large correspondent banks having especially large CIPC.¹⁹

These observations do not necessarily imply that most member banks would hold the same level of demand balances at correspondents if they became nonmembers. Several studies show that nonmember banks hold larger demand balances at correspondents than member banks of the same deposit size.²⁰ The observations in the last column of Table V do indicate that most member banks hold assets that would count as reserves if they were nonmember banks which are larger than their current reserve balances at the Reserve Bank.

Why Do So Many of the Small Banks Retain Federal Reserve Membership? — The analysis above indicates that there are substantial costs associated with Federal Reserve membership, and yet, as indicated in Table I, many of the banks in the smaller size groups are members of the Federal Reserve. Access to the Federal Reserve services discussed above does not provide sufficient benefits to offset the opportunity costs of required reserves. Therefore, the remaining

¹⁹The numerator of this ratio is demand balances at correspondents plus CIPC for the following reasons. One reason concerns the differences among member banks in the way they record deposits at correspondents. Some banks record the value of deposits to accounts at correspondents as CIPC until the funds are collected; others record deposits at correspondents as demand balances when they make deposits, whether the funds will be available for their use immediately or in a few days. Therefore, adding CIPC to demand balances at correspondents is necessary for getting comparable observations among banks. Member banks that clear checks through their Reserve Banks are required to record uncollected funds as CIPC. If these banks were nonmembers, those CIPC would count as reserve assets. Therefore, these funds are included in the numerator of the ratio in Table V, which shows the extent to which member banks hold double reserve assets.

²⁰See references in footnote 7.

Table V

MANAGEMENT OF CASH ASSETS BY EIGHTH DISTRICT MEMBER BANKS¹

Groups of 20 Banks Ranked from Largest to Smallest (First Group has 5 Banks)	Reserve Balances at the Federal Reserve				Demand Balances Due from Correspondent Banks			
	Average Daily Reserve Balances (thousands of dollars)			Standard Deviation of Reserve Balances Divided by Mean Balance: Average of These Ratios for Each Group of Banks	Average Number of Days Reserve Balances Were the Same as on the Previous Day	Standard Deviation of Due from Balances Divided by Mean Balance: Average of These Ratios for Each Group of Banks	Average Number of Days Due From Balances Were the Same as on the Previous Day	Average Ratio of Due from Balances Plus CIPC to Reserve Balances
	Largest in Group of Banks	Smallest in Group of Banks	Average for Group of Banks					
1	\$57290.2	\$37248.4	\$45771.7	0.4791	36.40	0.6374	40.40	3.22
2	33156.5	5216.0	11192.3	0.3454	39.15	0.2735	39.20	2.55
3	4846.5	2904.0	3743.6	0.2069	40.55	0.2617	39.35	1.43
4	2873.8	2205.8	2519.6	0.1909	40.60	0.2455	39.20	1.50
5	2176.7	1659.2	1896.8	0.1440	43.50	0.3429	35.80	1.30
6	1630.1	1411.4	1510.4	0.1565	45.55	0.2826	37.70	1.55
7	1399.9	1254.2	1322.7	0.2071	42.00	0.3148	37.05	1.45
8	1245.8	1096.5	1151.7	0.1503	49.30	0.3034	35.20	1.06
9	1087.0	971.1	1023.9	0.2033	45.05	0.3438	38.75	1.31
10	969.9	843.5	912.9	0.2274	46.80	0.3323	34.10	1.50
11	840.9	762.6	808.3	0.1454	53.00	0.3648	37.85	1.35
12	762.0	706.9	737.7	0.1185	57.30	0.3202	36.75	1.69
13	705.0	633.8	662.1	0.1566	57.25	0.3002	34.50	1.66
14	632.5	585.5	604.8	0.1579	55.35	0.3160	36.45	1.97
15	584.9	479.8	538.7	0.2069	52.95	0.2786	33.40	1.57
16	478.1	408.2	452.2	0.1874	64.20	0.3025	45.35	1.66
17	407.7	344.2	376.7	0.1988	64.90	0.3862	36.30	1.78
18	339.9	289.9	311.8	0.2433	59.25	0.3301	36.05	2.11
19	289.9	256.2	271.5	0.2132	60.15	0.3160	31.50	2.45
20	255.3	212.2	231.7	0.1633	82.65	0.3704	32.20	2.24
21	198.8	136.5	170.0	0.2183	70.15	0.2907	33.75	3.49
22	134.8	7.4	91.7	0.3018	76.55	0.4035	35.75	3.27

¹The 425 banks included in these calculations are all Eighth District banks that were members over the period September 9, 1976 through January 12, 1977. All observations apply to that period.

privilege of Federal Reserve membership which appears to account for retention of membership by the smaller banks is access to a *lender of last resort* through their Reserve Bank's discount window. That privilege is a type of insurance policy on availability to credit during periods of financial difficulty, whether that difficulty occurs within the individual bank or in the whole economy. The cost of membership to a bank can be considered its premium, paid for this form of insurance. Since the Federal Reserve has a monopoly on offering the service of lender of last resort, it can charge high premiums for that service, as indicated by the costs of membership calculated above.

Larger Banks

There remains the question of why most of the larger banks remain in the Federal Reserve. One possible explanation is that the large member banks use enough Reserve Bank services to more than compensate them for the opportunity costs of the reserve balances they hold. Table IV provides information on this explanation. Dividing the cost to the Reserve Bank of providing services to banks in the largest group by their average reserve balances yields an implicit rate of return of only 1.69 percent. For the three largest banks in the survey, that implicit rate of return is 1.83 percent. As noted above, these figures are understated somewhat because the checks sent by some of these banks directly to other Reserve Banks are not accounted for. But even allowing for that factor, the large member banks receive a low rate of return on their reserve balances in terms of the costs of the services they use. However, membership may still be profitable for the large banks if access to Federal Reserve services allows them to earn large profits as correspondent banks.

These results do not support the view that the larger banks retain their membership in the Federal Reserve because of high implicit returns on their reserve balances. There are too few large banks included in the survey of the utilization of services by member banks to draw strong conclusions about the generality of these results or the reasons why the larger banks retain their membership in the Fed. However, it is unlikely that many of the large member

banks receive very high implicit rates of return on their reserves in the form of services, since for the Federal Reserve System as a whole the cost of providing services to member banks is approximately one percent of total reserve balances held by members at Reserve Banks. Therefore, the Federal Reserve is effectively imposing a tax on the banking industry, even with Federal Reserve membership being voluntary. The tax takes the form of interest foregone by member banks on their reserve balances less the costs to Reserve Banks of providing services to member banks. At an interest rate of five percent, that tax in 1976 was about \$1 billion.²¹

CONCLUSIONS

An analysis of the costs and benefits of Federal Reserve membership is incomplete without information on the degree to which member banks use the services provided by their Reserve Banks. Member banks with total assets of less than about \$50 million make relatively little use of Reserve Bank services, using the services of correspondents instead. There is evidence that the costs of this arrangement to many of the smaller member banks are lower than the costs of managing their reserve accounts if they made fuller use of Reserve Bank services. Member banks making minimal use of Reserve Bank services bear substantial Federal Reserve membership costs, averaging 11.2 percent of profits and 1.8 percent of equity capital for one group of banks.

Most of the major correspondent banks have remained members of the Federal Reserve. The large banks are heavy users of Reserve Bank services, but their implicit returns on reserve balances in the form of services are substantially higher than the implicit returns to the smaller member banks, but are still rather low.

²¹Member bank reserves held at Reserve Banks averaged \$26.2 billion in 1976. Suppose the opportunity cost to member banks from holding those reserves is 5 percent, the average yield on U.S. Government Treasury bills last year. The total opportunity cost of holding reserves would be \$1.3 billion. With the total costs to Reserve Banks of offering services to member banks between \$200 million and \$300 million, the total implicit tax on banking was about \$1 billion.

APPENDIX

Calculation of the Costs of Federal Reserve Membership

The purpose of the following calculations is to estimate the income that selected banks forego by being members of the Federal Reserve System. Member banks included in this analysis have the following characteristics:

- (a) they clear checks and remit for the Fed's cash letters through correspondents,
- (b) they hold no securities in safekeeping, and
- (c) none of them are regular borrowers through the discount window, as identified above.

Banks with these characteristics are chosen since becoming a nonmember would have less effect on their operations than on other banks in the survey and because specific dollar amounts can be assigned less arbitrarily to the Reserve Bank services they use than for other banks that make use of additional Reserve Bank services. In total, 54 banks meet these conditions; their total assets range from \$3.4 million to \$44.5 million. Only seven of these 54 banks have any demand deposit liabilities due to other commercial banks, averaging \$33 thousand during the two weeks ending January 12, 1977. These banks do not appear to be functioning as correspondents to any significant degree; therefore, no adjustment is necessary for loss of correspondent banking profits due to these banks becoming nonmembers.

The first step involves estimating how much a bank could increase its earning assets if it became a nonmember (assuming its total assets remain unchanged). Since Illinois has no reserve requirements, member banks in Illinois are assumed to increase their earning assets by the amount of their average reserve balances at the Reserve Bank. Of the 54 banks in this analysis 35 are located in Illinois.

The calculations are more complex for Missouri banks. Reserve requirements for nonmember banks in Missouri are approximately equal to those of Federal Reserve members. Nonmember banks in Missouri may hold their reserve assets only as vault cash, demand balances at correspondents, or cash items in the process of collection (CIPC). Banks are assumed to have the same average level of vault cash and CIPC whether they are member or nonmember banks. The reserves necessary to satisfy a bank's state reserve requirements are calculated as its average reserve balance at the Reserve Bank plus its average demand balance at correspondents and CIPC multiplied by the bank's marginal reserve requirements

on demand deposits. Under Fed reserve requirements, demand balances at correspondents and CIPC are subtracted in calculating demand deposits subject to reserve requirements, whereas that deduction is not made for nonmember banks in Missouri. If a bank's demand balances at correspondents are larger than what would be required to meet state reserve requirements as a nonmember bank, the bank is assumed to increase its earning assets by the amount of its current reserve balances at the Fed if it becomes a nonmember. If a bank's demand balances at correspondents are smaller than what would be required to meet state reserve requirements, the amount by which that bank could increase its earning assets is calculated by adding its average reserve balance at the Reserve Bank to its average demand balance at correspondents and subtracting its required reserve balance at correspondents as a nonmember bank. Average daily reserve balances, demand balances at correspondents, and CIPC are measured over the period September 9, 1976, through January 12, 1977.

The income foregone as a member bank is calculated as follows:

- (1) the dollar amounts by which a bank could increase its earning assets as a nonmember is multiplied by five percent.
- (2) the following amounts are deducted from that calculated in (1) above:
 - (a) the annual cost to the bank of obtaining its coin and currency service as a nonmember bank;
 - (b) the number of wire transfers the bank makes at an annual rate multiplied by \$2, the approximate cost of initiating a wire transfer as a nonmember bank;
 - (c) for banks having their reserve accounts debited and credited for money shipments, the number of such ledger entries in a year charged at ten cents per entry. This amount is approximately the implicit charge by correspondent banks per ledger entry in their account analysis.

Among the 54 banks, the resulting measure of income foregone for each bank averages 1.8 percent of 1976 equity capital. For the 49 banks with positive profits in 1976, income foregone as a member of the Federal Reserve averaged 11.2 percent of their 1976 profits.



Estimates of the High-Employment Budget and Changes in Potential Output

KEITH M. CARLSON

ONE of the more novel approaches to the problem of assessing the impact of the Federal budget on economic activity was the development of the concept of the high-employment budget. The purpose of this concept was to standardize the budget position on some high-employment norm and thereby remove the effect of variations in economic activity on the measured budget surplus or deficit. Proponents of the high-employment budget argue that estimation of the Federal budget at an assumed full-employment level of activity provides a better measure of the impact of the budget on the economy than the actual surplus or deficit (see Chart I).

Central to the calculation of the high-employment budget is the estimate of potential GNP — that rate of production consistent with “full” utilization of economic resources in “normal” times. In general, this definition is very imprecise, and several estimates have been developed by different analysts over the years.

Most recently — since 1973 — a controversy has developed as to the estimated impact of energy developments on the economy’s productive potential. If, as has been argued, the run-up in energy prices has affected potential output, estimates of the high-employment budget must be adjusted accordingly. A measure of fiscal action that is not revised in accord-

ance with the revision of potential GNP will provide misleading information as to the stance of fiscal policy.

With regard to the current status of estimates of potential output, a consensus has not evolved. On the one hand, the 1977 Annual Report of the Council of Economic Advisers presented one set of revised estimates, based primarily on a reevaluation of recent productivity trends and a redefinition of the “full-employment unemployment rate.”¹ On the other hand, a series for potential output was recently discussed in this *Review* which incorporated the effects of energy developments since 1973.²

Two new estimates of the high-employment budget are presented here and compared with previous estimates. Most of the differences between the new and the old estimates occur after 1973. The differences are of such magnitude that the implications for fiscal policy are somewhat different with the increase in the relative price of energy and its associated effects on potential output.

¹*The Annual Report of the Council of Economic Advisers* (Washington, D.C.: U.S. Government Printing Office, 1977), pp. 45-57. For discussion of this series, along with a presentation of two other estimates of potential output, see George L. Perry, “Potential Output and Productivity,” *Brookings Papers in Economic Activity*, 1 (1977), pp. 11-60.

²Robert H. Rasche and John A. Tatom, “Energy Resources and Potential GNP,” this *Review* (June 1977), pp. 10-24.

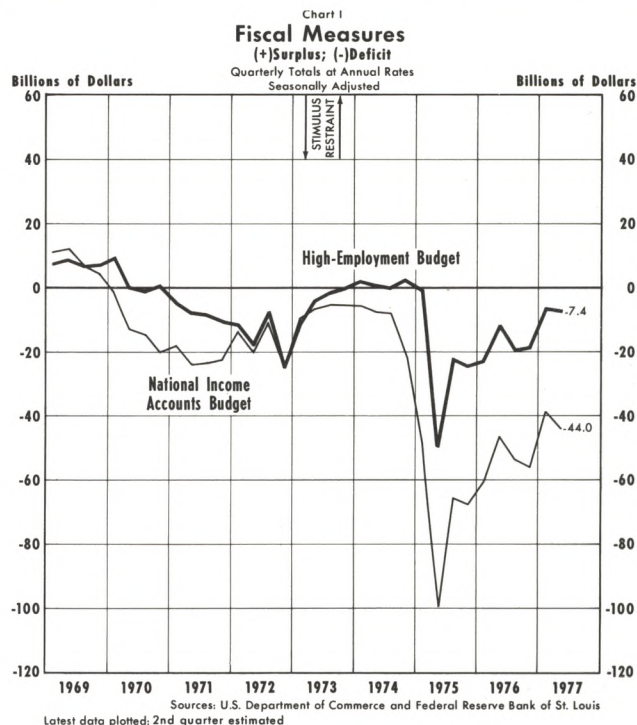
DEVELOPMENT AND USE OF HIGH-EMPLOYMENT BUDGET

Although the concept of high-employment budgeting has been in existence since the 1940s, it did not gain prominence in government policymaking until the early 1960s.³ Since then, reliance on the concept has waxed and waned with the tides of economic and political developments. From 1966 to 1969, for example, the concept received little attention in fiscal policy discussions because with the economy operating at a high level of employment, measured budget surpluses and deficits approximated their high-employment values. Since 1969 the concept has been kept before the public but has not been assigned a key role in the formulation of budget policy.⁴

One reason that the high-employment budget has not been cast in a focal role in the fiscal policy process is that it is a hypothetical budget. Since it is an analytical tool designed by economists, its usefulness hinges on an understanding of certain elements of economic theory. Policymakers and the general public are understandably suspicious of a hypothetical figure based on theory that is not generally understood.

Another reason the high-employment budget has not become generally popular among policymakers is that there is no official time series available from the Federal government. Without the perspective provided by a continuous time series, it is difficult to interpret any particular estimate. Until such a series is prepared and published by an official Government agency, it is doubtful that the concept will receive general acceptance either by policymakers or the public.⁵

Several years ago, in an attempt to fill this void in the Government's data set, the Federal Reserve Bank



of St. Louis began publishing a series on the high-employment budget.⁶ This was done for purposes of providing a series that could be used to provide perspective whenever the concept was used. The assumptions required to prepare these estimates are somewhat arbitrary, but the measurement procedures have remained consistent over time. The alternative estimates which have been made by critics of this series have not been followed up in the form of regular updating and publication.⁷

RATIONALE FOR HIGH-EMPLOYMENT BUDGET

Initially, the rationale for the high-employment budget was developed within the framework of a simple Keynesian model of national income determination.⁸ This model is one that is still in general use in the macroeconomic section of introductory economics textbooks. The essence of the theory is that the level of economic activity is determined by the saving and spending propensities of economic units. When

³For a discussion of the development of the high-employment budget concept, see Herbert Stein, *The Fiscal Revolution in America* (Chicago: University of Chicago Press, 1969), pp. 185-196, 220-240. For an update, see Alan S. Blinder and Robert M. Solow, "Analytical Foundations of Fiscal Policy," in *The Economics of Public Finance* (Washington, D.C.: The Brookings Institution), pp. 3-115.

⁴The closest the high-employment budget came to being accepted on an official basis was in the fiscal 1972 budget, published in January 1971. Here, for the first time, tables were published in the budget document relating to the "full-employment budget margin," and a rationale for fiscal policy was discussed within this framework.

⁵Still another reason that the concept has not been generally accepted is that economists themselves cannot agree (typically) on its usefulness and significance. See Blinder and Solow.

⁶Keith M. Carlson, "Estimates of the High-Employment Budget: 1947-1967," this *Review* (June 1967), pp. 6-14.

⁷See the references in Blinder and Solow.

⁸For discussion within the context of this simple model, plus additional refinements, see Blinder and Solow.

viewed in conjunction with the saving- spending plans of private economic units, the high-employment budget provided a means of estimating what was required by way of fiscal stimulus or restraint to achieve full employment.

The usefulness of the high-employment budget does not rest with the Keynesian model of national income determination. Theoretical developments have occurred in recent years which have modified the interpretation of the high-employment budget but have not negated its use as an analytical tool. In particular, recognition of the interaction between monetary and fiscal actions has led to some considerations that were neglected in earlier discussions.

Identifying Active vs. Passive Elements in Budget

Originally, the purpose of the high-employment budget was to provide a measure of the impact of fiscal action that was superior to the actual surplus or deficit. Economists have been aware of the problems of interpreting the Federal budget position for many years. The reason for difficulty in interpretation is that actual surpluses or deficits contain both active and passive components.⁹ The active aspect of the budget refers to the effect of discretionary actions, that is, the effect of changing tax rates and expenditure programs. The passive component is the automatic response of expenditures and/or receipts to variations in economic activity. With tax rates and unemployment insurance programs as set by Congress, different levels of economic activity will yield different amounts of receipts and expenditures.

The high-employment budget does, in principle, provide a measure of the active part of the budget. However, problems in the method of estimation remain, as the active vs. passive classification is not that clearcut or automatically identifiable. For example, on a high-employment basis tax receipts tend to increase from one period to the next because the economy is growing. In addition, inflation causes receipts to rise even without a change in statutory rates.¹⁰ Conse-

⁹For further discussion using this terminology, see Keith Carlson, "The Federal Budget: Perspectives and Prospects," this *Review* (October 1976), pp. 2-7.

¹⁰This point is discussed at some length in Arthur M. Okun and Nancy H. Teeters, "The Full Employment Surplus Revisited," *Brookings Papers on Economic Activity*, 1 (1970), pp. 90-96. See also Nancy Ammon Jianakoplos, "The Growing Link Between the Federal Government and State and Local Government Financing," this *Review* (May 1977), pp. 13-20.

quently, the high-employment budget might suggest active tightening in fiscal policy, when in fact the increase in the surplus might simply be a reflection of inflation, that is, *prior* stimulus.

Guiding Policy Decisions

Provision of a crude indicator of the direction of fiscal actions is an important purpose of the high-employment budget. In addition, there is a purpose implied by its connection with the underlying theoretical framework — to actively use this budget concept in the process of achieving economic goals.¹¹

One use of the high-employment budget for purposes of policy requires information on the values of planned saving and investment. Critics have suggested that this type of information is very difficult to develop.¹² Many economic models have been developed to explain the saving-investment process.¹³ However, with many different models available, and with each assigning a different role to fiscal actions, a particular high-employment budget number probably means something different to each model builder.

Another interpretation of the high-employment budget stresses the interaction between fiscal and monetary policies.¹⁴ According to this monetarist interpretation, fiscal actions have short-run effects on GNP, but over the longer run, unless accompanied by a change in the rate of monetary expansion, these fiscal effects will be negligible.¹⁵ In fact, the main value of the high-employment budget is that it pro-

¹¹Initially this purpose was associated with short-run "fine tuning," but more recently the emphasis seems to have shifted to the long run and the use of high-employment budgeting as a means of imposing fiscal discipline. This was the view in the President's fiscal 1972 budget message.

¹²See, for example, Warren L. Smith's comment in *Staff Papers and Other Materials Reviewed by the President's Commission on Budget Concepts* (Washington: U.S. Government Printing Office, October 1967), pp. 450-55.

¹³For a discussion of existing models of the U.S. Economy, see Lawrence R. Klein and Edwin Burmeister (eds.), *Econometric Model Performance* (Philadelphia: University of Pennsylvania Press, 1976).

¹⁴For a theoretical discussion of the interaction between monetary and fiscal policy, see Karl Brunner, "Inflation, Money and the Role of Fiscal Arrangements: An Analytic Framework for the Inflation Problem," in Mario Monti (editor), *The New Inflation and Monetary Policy* (New York: Macmillan, 1976), pp. 25-89.

¹⁵Probably the best known work demonstrating this "crowding-out effect" is Leonall C. Andersen and Jerry J. Jordan, "Monetary Fiscal Actions: A Test of their Relative Importance in Economic Stabilization," this *Review* (November 1968), pp. 11-24. For a recent update of this work showing that fiscal policy now has an effect on GNP, see Benjamin M. Friedman, "Even the St. Louis Model Now Believes in Fiscal Policy," *Journal of Money, Credit and Banking*, IX (May 1977), pp. 365-367.

vides information about the impact of fiscal actions on interest rates. It is this credit market effect that is crucial in determining the effect of fiscal actions on economic activity in the long-run. This credit market effect depends, in turn, on the strength of private credit demands.¹⁶

The response of the monetary authority to interest rate pressures is instrumental in the determination of long-run growth and inflation. If the monetary authority does not respond to interest rate pressure, an increase in the high-employment deficit in the presence of strong private credit demands indicates that the Federal government is bidding resources away from the private sector. And shifts in the mix of output between public and private sectors can affect the growth rate of potential output. If, on the other hand, upward interest rate pressures are resisted by the monetary authority, the money supply will increase, and eventually inflation will result.

CONSIDERATIONS UNDERLYING REVISED ESTIMATES

Once the procedures for estimating the high-employment budget were developed, the matter of updating was somewhat mechanical, requiring as the major input an estimate of potential GNP each quarter.¹⁷ The source for these estimates was the Council of Economic Advisers, which during the period from 1967 through 1976 usually indicated their estimate of the growth of potential GNP in their annual report.

Review of Procedure

The Federal sector of the national income accounts provides the basis for preparing estimates of what receipts and expenditures would be at high employment. The estimation procedure involves the following steps for high-employment receipts:

- (1) Defining a high-employment rate of production and calculating a high-employment level of GNP in nominal terms;
- (2) Estimating the major income shares of GNP at high employment, i.e. personal income, wages and salaries, and corporate profits;
- (3) Applying high-employment tax rates to the derived income components, which serve as proxies for actual tax bases.

¹⁶See Richard W. Lang, "The 1975-76 Federal Deficits and the Credit Market," this *Review* (January 1977), pp. 9-16.

¹⁷Nancy H. Teeters, "Estimates of the Full-Employment Surplus, 1955-1964," *Review of Economics and Statistics*, vol. 47 (August 1965), pp. 309-21.

For high-employment expenditures, the only adjustment that is made is for unemployment compensation. Unemployment benefits are calculated for the specified level of high-employment, and actual unemployment benefits are adjusted for deviations from the high-employment norm.

Revised Estimates and Changes in Potential Output

One of the reasons the high-employment budget came under attack in recent years was that it was calculated on the assumption that full employment was 96 percent of the labor force, that is, an unemployment rate of 4 percent. Changes in the composition of the labor force in recent years suggest that a 4 percent unemployment rate is no longer realistic as an estimate of the level of full employment.¹⁸ If these labor force developments are ignored, the policy interpretation of the high-employment measure could have undesirable economic consequences. If, say, a balance is sought in the budget on a high-employment basis of 4 percent unemployment, when in fact the "natural rate" of unemployment is 5 percent, budget policy will probably err on the stimulative side.¹⁹

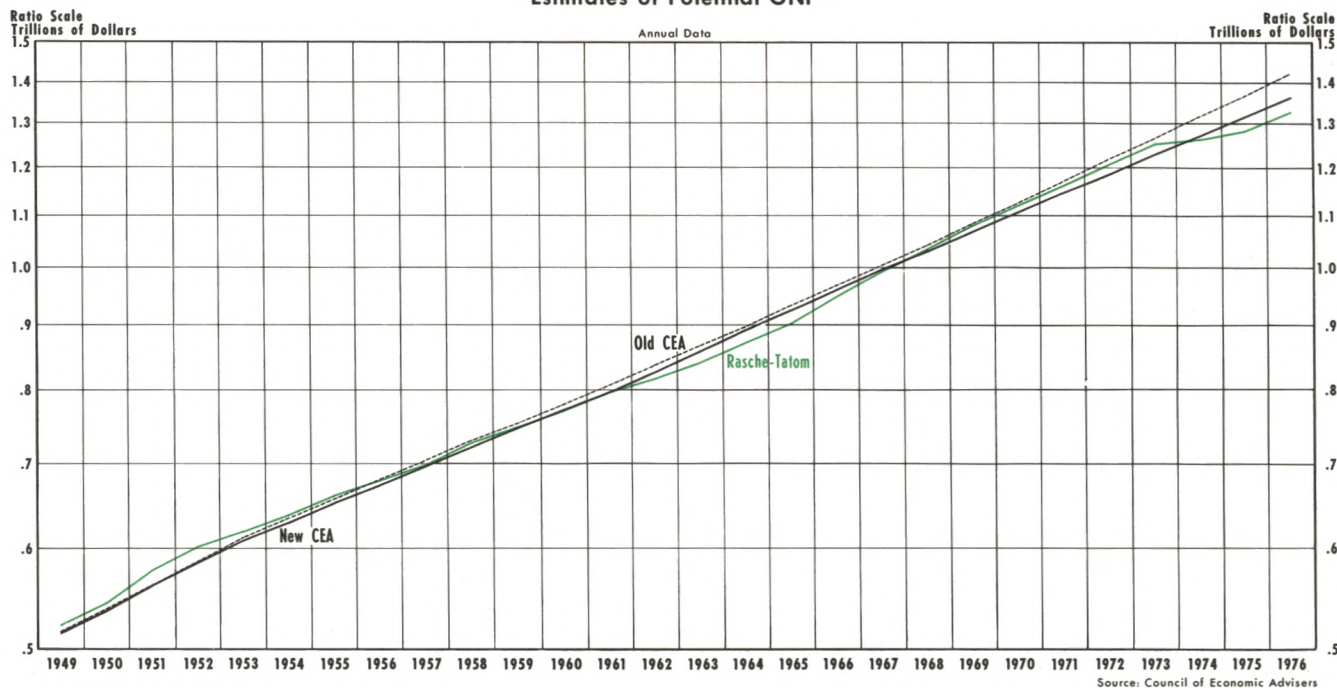
To make the estimates of the high-employment budget more credible, two new series on potential GNP were used in the process of preparing the revised estimates. One new potential GNP series was prepared by the Council of Economic Advisers and is discussed in their 1977 Annual Report. The other was prepared by Robert Rasche and John Tatom and published in the June issue of this *Review*. For both series the estimates are supposedly consistent with a variable "full-employment unemployment rate." Instead of being a constant 4 percent, the level of unemployment which is deemed consistent with full employment now varies between 4 percent in 1955 and 4.9 percent in 1976.

The Rasche-Tatom series also allows for the effects of energy developments on productive potential. The argument is that energy is an input in the productive process, and a sharp unexpected increase in its relative price changed the optimal production mix. The effect

¹⁸Peter K. Clark, "A New Estimate of Potential GNP," Council of Economic Advisers, unpublished memorandum, January 27, 1977. Also, see Perry.

¹⁹The Council of Economic Advisers defines the natural rate (what they call full-employment rate) of unemployment as "the lowest rate of unemployment attainable, under the existing institutional structure, that will not result in accelerated inflation." *1977 Annual Report of Council of Economic Advisers*, p. 48.

Chart II
Estimates of Potential GNP*



*Measured in constant 1972 dollars.
Latest data plotted: 1976

Source: Council of Economic Advisers

was to reduce economic capacity below what it otherwise would have been from 1974 to present.

The two new potential GNP series are compared with the old CEA estimates in Chart II. The differences are quite small for 1947 through 1968, but then the series begin to diverge. By 1976, the difference between the old and the new CEA is \$68 billion (1972 dollars) and \$99 billion between the old CEA and the Rasche-Tatom series.

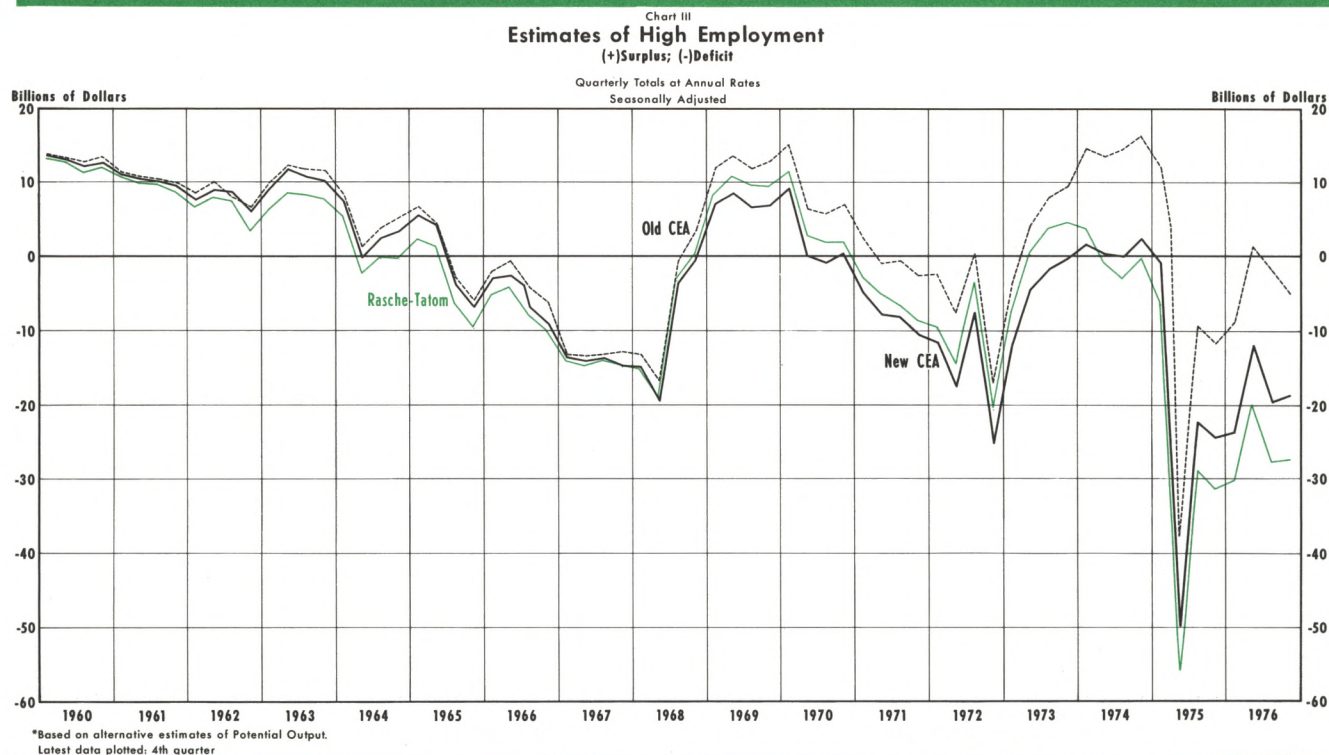
Other Sources of Revision

Although the new potential GNP series are the chief sources of the revision in the high-employment budget, there were other minor changes as well. The income share method is still used to derive proxies for the tax bases. The high-employment shares were reexamined along with the high-employment tax rates (ratio of collections to assumed bases). One of the more important changes was a change in the definition of the tax base proxy for personal taxes. Previously, personal income was used as a proxy, but with transfer payments growing in importance as a source of personal income in recent years, the proxy was changed to personal income minus Federal transfers to persons. This change facilitates the procedure of estimating high-employment personal taxes.

All other tax base proxies remained unchanged, except that they were recalculated for the new potential GNP series and the high-employment shares were reexamined. Wages and salaries are used as the base for social security taxes, corporate profits after taxes as the base for corporate taxes, and personal income as the base for indirect business taxes.

The effect of the revisions on high-employment receipts is shown in Chart III. The changes from the old series are quite small for 1947 to 1968, but after 1968 the differences become greater. By 1976, receipts are \$16 billion less for the new CEA series than for the old, and the Rasche-Tatom estimate is \$24 billion less than the old CEA estimate. The contours remain the same, however.

The revision also affected changes in high-employment expenditures since the assumed full-employment unemployment rate was raised. Only the unemployment benefit component of spending is treated as variant with the level of economic activity. Both of the new series show the same expenditures at high employment since they are both estimated on the basis of the same full-employment unemployment rate. The two sets of revised data are presented in Table I.



INTERPRETATION OF REVISED ESTIMATES

Examination of Chart III shows that both of the revised estimates of the high-employment budget are substantially less than those based on the old CEA series. All three series can be said to depict the same general pattern of movement throughout the 1952 to 1972 period. However, following 1972 the series show diverging movements.

The new series show that fiscal policy was becoming more stimulative from early 1970 through 1972. From late 1972 to early 1974, all series showed tightening, but the extent of tightening was greatest for the old CEA series. In 1974, there is some confusion as to the stance of fiscal policy depending on which series one is examining. The old CEA series showed moderate restriction, the new CEA series showed little change, but the Rasche-Tatom showed moderate stimulus. From late 1974 the pattern is similar, although the extent to which the high-employment budget has moved back toward surplus is least for the Rasche-Tatom series.

In terms of the impact of fiscal actions, 1976 is one of the more interesting years. The old CEA series indicates that fiscal actions were relatively restrictive in 1976, as indicated by a movement to balance late in the year. The two revised estimates, on the other

hand, show that the budget imparted substantial stimulus to economic activity in 1976 because these measures of the high-employment budget were substantially in deficit.

Some might argue that the status of fiscal action is such that economic growth is being stifled by continuing large deficits in the high-employment budget, as shown by the revised estimates. As long as monetary growth is quite moderate, the effect of large high-employment deficits is to usurp funds from the private sector, and to the extent that such funds would go to investment in plant and equipment, economic growth is slowed.

SUMMARY AND CONCLUSIONS

The high-employment budget, if viewed in the spirit in which it is constructed, can be a useful addition to the policymakers tool kit. Something as complex as the impact of fiscal actions cannot be summarized with a single number. Its chief purpose is to transfer some of the attention from the actual surplus or deficit. However, the high-employment budget serves its function best when used in conjunction with the measured surplus or deficit.

The effect of the recent revision of the series was to increase the deficit in recent years, reflecting a down-

Table I

ESTIMATES OF THE HIGH EMPLOYMENT BUDGET*

Billions of Dollars

Seasonally Adjusted at Annual Rates

		Based on Old CEA Potential GNP			Based on New CEA Potential GNP			Based on Rasche-Tatom Potential GNP		
		Receipts	Expenditures	Surplus/ Deficit	Receipts	Expenditures	Surplus/ Deficit	Receipts	Expenditures	Surplus/ Deficit
1972	I	\$231.6	\$234.0	\$- 2.4	\$223.3	\$234.8	\$-11.5	\$225.0	\$234.8	\$- 9.8
	II	234.9	242.4	- 7.5	225.3	243.1	-17.8	228.4	243.1	-14.7
	III	237.4	237.1	0.3	230.2	237.7	- 7.5	234.0	237.7	- 3.7
	IV	242.0	259.0	-17.0	234.5	259.6	-25.1	239.0	259.6	-20.6
1973	I	257.1	260.9	- 3.8	249.6	261.6	-12.0	253.9	261.6	- 7.7
	II	265.5	261.5	4.0	257.7	262.1	- 4.4	262.3	262.1	0.2
	III	271.9	263.9	8.0	263.0	264.6	- 1.6	268.2	264.6	3.6
	IV	280.2	270.7	9.5	271.2	271.5	- 0.3	275.8	271.5	4.3
1974	I	294.2	279.6	14.6	282.6	280.8	1.8	284.3	280.8	3.5
	II	305.6	292.1	13.5	293.6	293.3	0.3	292.2	293.3	- 1.1
	III	319.1	304.6	14.5	305.0	305.0	0.0	301.9	305.0	- 3.1
	IV	331.0	314.8	16.2	316.5	314.1	2.4	313.4	314.1	- 0.7
1975	I	341.4	329.4	12.0	328.9	329.8	- 0.9	323.4	329.8	- 6.4
	II	306.8	344.5	-37.7	296.5	346.2	-49.7	290.2	346.2	-56.0
	III	344.6	353.9	- 9.3	333.1	355.4	-22.3	326.3	355.4	-29.1
	IV	355.0	366.6	-11.6	342.3	366.7	-24.4	335.0	366.7	-31.7
1976	I	363.2	371.9	- 8.7	349.5	372.5	-23.0	341.9	372.5	-30.6
	II	373.0	371.6	1.4	358.2	370.2	-12.0	350.0	370.2	-20.2
	III	382.2	383.9	- 1.7	365.4	385.0	-19.6	357.0	385.0	-28.0
	IV	393.4	398.3	- 4.9	376.1	394.7	-18.6	367.0	394.7	-27.7
1977	I				392.2	398.7	- 6.5	381.9	398.7	-16.8
	II				402.1	409.5	- 7.4	391.4	409.5	-18.1

*Data for years prior to 1972 are available on request from this Bank.

ward revision in the estimate of potential GNP. The use of the high-employment budget series as an indicator of fiscal action was little changed, but as a

policy tool for purposes of achieving full employment with relative price stability, its implications are somewhat different than before.



Income and Expenses of Eighth District Member Banks: 1976

JEAN M. LOVATI

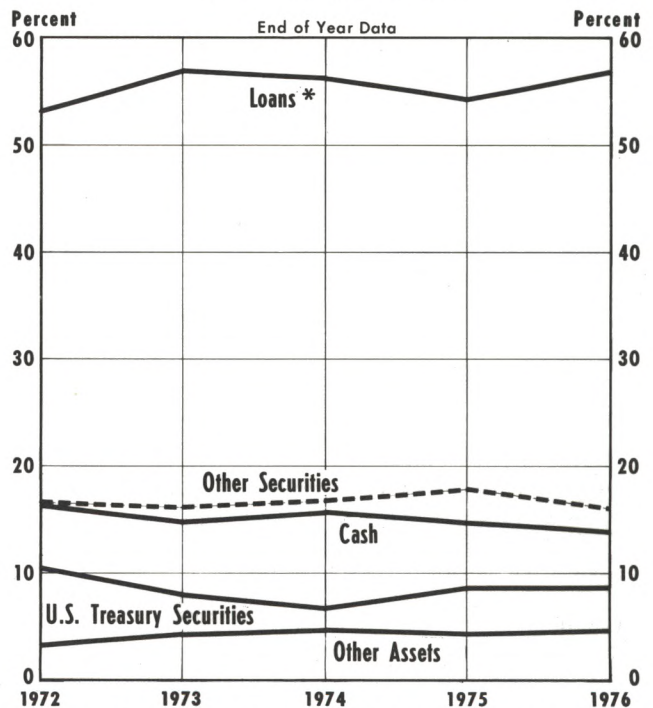
MEMBER banks of the Eighth District experienced a moderate increase in net income in 1976. Net income of District member banks increased 9 percent from 1975 to 1976, about the same rate as it did the previous year. However, unlike 1975 in which operating income and expenses posted slight gains, both operating income and expenses registered increases exceeding ten percent in 1976. Loans outstanding, the major factor contributing to the higher income, posted a solid increase, after rising slightly in 1975. Increases in the amount of interest paid on deposits, the principal factor in the rising expense, reflected a large inflow of time and savings deposits.

On average, Eighth District member banks fared better in 1976 than all member banks as a whole. Although net operating income for banks in the nation posted a stronger increase than comparable income at District member banks, the combined effect of income taxes paid and net securities gains favored the relative position of District banks. Income taxes of all member banks in the nation in 1976 were 33 percent higher than in 1975. This compares with a one percent decline in income taxes paid by Eighth District banks over the same period. Net securities gains, including extraordinary items, significantly boosted earnings for both groups. This additional source of earnings advanced 220 percent for all member banks and 147 percent for District banks. The combination of these two factors resulted in a greater net income gain for the District than for the nation. Net income of all member banks in the nation rose 6.7 percent in 1976, compared to 9 percent for District banks.

Operating Income and Bank Assets

Operating income of Eighth District member banks increased \$179 million or 11 percent in 1976 to \$1,760 million (see Table I). A year earlier operating income increased less than one percent. Income from loans, which rose more than \$111 million, and that from U.S. Treasury securities, which rose about \$40 million, primarily accounted for the change in operating income. These increases, however, were

Chart I
Distribution of Assets
Eighth District Member Banks



*Including Federal Funds sold and securities purchased under resale agreement.

partially offset by a decline in receipts from Federal funds sold and securities purchased under resale agreements.

Interest and fees on loans, which posted a 2.3 percent decline in 1975, increased 12 percent in 1976. Increases in holdings contributed to the jump in this source of income. The volume of loans outstanding increased 13 percent in 1976 to \$13 billion, after registering a 1.3 percent increase a year earlier.¹

¹All comparisons of assets, liabilities, and capital are made as of December 31 of each year. These data, as well as income and expense items for 1976 are not strictly comparable to such data for 1975 due to definitional changes in the Reports of Condition and Income.

Table 1

INCOME AND EXPENSES OF MEMBER BANKS IN THE
EIGHTH FEDERAL RESERVE DISTRICT

	Thousands of Dollars		Percent Change
	1976 ¹	1975 ²	1975-76
Total Operating Income	\$1,760,173	\$1,581,249	11.3%
Interest and fees on loans	1,064,018	952,675	11.7
Income from Federal funds sold and securities purchased under resale agreements	80,490	96,318	-16.4
Interest on securities	401,108	344,156	16.5
U.S. Treasury securities	162,335	119,096	36.3
Other U.S. Government securities	85,039	79,443	7.0
Obligations of States and political subdivisions	147,641	138,706	6.4
Other securities	6,093	6,911	-11.8
Trust department income	35,789	30,936	15.7
Service charges on deposit accounts	36,721	31,917	15.1
Other operating income	142,047	125,247	13.4
Total Operating Expenses	1,511,050	1,344,496	12.4
Interest on deposits	679,639	610,381	11.3
Other interest expenses	6,933	6,443	7.6
Expense of Federal funds purchased and securities sold under repurchase agreements	103,841	111,605	-7.0
Salaries and employee benefits	331,746	283,602	17.0
Provision for possible loan losses	67,883	55,342	22.7
Other operating expenses	321,008	277,123	15.8
Income Before Income Taxes and Securities Gains (or Losses)	249,123	236,753	5.2
Less applicable income taxes	42,442	42,798	-.8
Income Before Securities Gains (or Losses)	206,681	193,955	6.6
Net securities gains (or losses) after taxes	7,804	888	—
Extra charges or credits after taxes	299	2,389	—
Net Income	214,784	197,232	8.9
Cash Dividends Paid	72,925	70,786	3.0
Number of Banks	428	427	

¹Data are not strictly comparable to 1975 due to definitional changes in the Report of Income for 1976.

²Data have been adjusted to exclude one bank which experienced unusual conditions.

Strong gains in holdings of real estate and automobile loans made up the bulk of the change in outstanding loans, increasing about 18 and 21 percent, respectively. The largest category of loans, commercial and industrial, rose 10.5 percent to \$4 billion. The rate of return earned on loans averaged 8.7 percent in 1976.

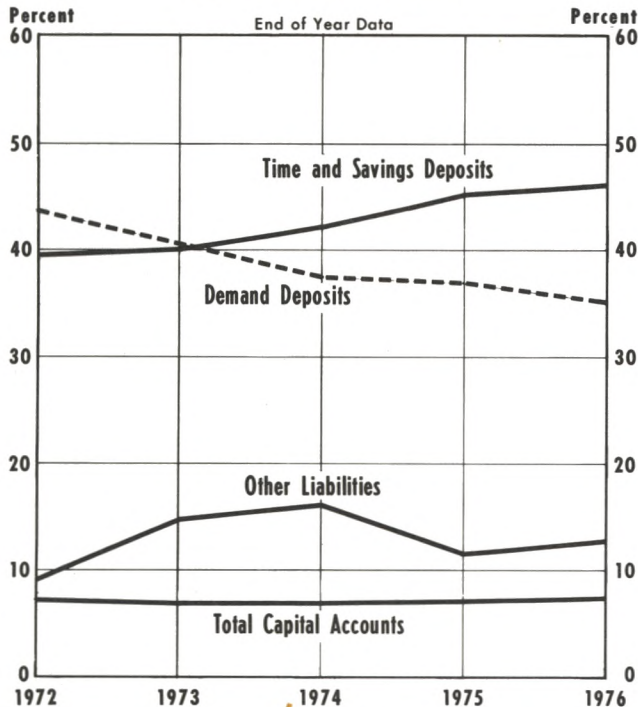
Income from securities posted an increase of 17 percent in 1976. Whereas the 18 percent increase in this source a year earlier was fairly evenly distributed across security classes, interest on U.S. Treasury securities comprised the bulk of the gain in securities income in 1976. Interest earned on Treasury securities increased 36 percent in 1976. Holdings of U.S. Treasury securities increased 12 percent with average yields

on these securities rising from 6.7 percent to 6.9 percent.

Income derived from obligations of other U.S. Government agencies and Government corporations posted an increase of 7 percent. These securities, the majority of which were held in one- to five-year maturities, earned an average yield of 7.5 percent. Interest earned on obligations of states and political subdivisions rose 6 percent. These securities, which earned a 5 percent rate of return, were held primarily in one- to ten-year maturities.

The above gains in income were partially offset by a decline in income from Federal funds sold and securities purchased under resale agreements. This

Chart II
**Distribution of Liabilities, Reserves,
 and Capital Accounts**
 Eighth District Member Banks



source of income, which fell 16 percent in 1976, primarily reflected a decline in the Federal funds rate. The rate averaged 5.1 percent last year, compared to 5.8 percent in 1975. However, this decline amounted to only \$16 million as total income from Federal funds sold and securities purchased under resale agreements represented only 4.6 percent of total operating income.

Operating Expenses and Bank Liabilities

Operating expenses of Eighth District member banks rose 12 percent in 1976 to \$1,511 million, compared to little change the year before. Greater outlays for interest paid on time and savings deposits, provision for loan losses, and employee salaries made up almost 80 percent of the rise in expenses.

Interest paid on time and savings deposits represented the largest expense of District member banks, amounting to \$680 million in 1976. Outlays for such deposit interest rose 11 percent in 1976, compared to an increase of 4.3 percent a year earlier. Total time and savings deposits on which the interest is paid increased 11 percent in 1976 to \$12.4 billion. These

deposits represented half of all liabilities. Total demand deposits, on the other hand, increased 4 percent in 1976 and represented 38 percent of total liabilities.

Provision for loan losses increased 23 percent in 1976 to \$68 million, following a jump of 48 percent in 1975. Increases in the loan loss reserve account also occurred as a result of recoveries from loans previously written off, and additions from mergers. These sources added \$20 million to such reserves, bringing the total to \$88 million. Losses charged to the fund in 1976 amounted to \$80 million, so that on balance, reserves on loans increased \$8 million or 6.6 percent.

Salaries and employee benefits increased 17 percent in 1976 to \$332 million. The average amount paid increased from \$8,480 to \$10,461 per employee and the number of employees declined 5.2 percent, as banks continued to automate banking transactions and increase output per worker.

The rise in operating expenses was offset somewhat by a 7 percent decline in interest paid on Federal funds purchased and securities sold under repurchase agreements. Outlays for Federal funds purchased, which represented 6 percent of operating expenses, declined \$8 million in 1976, reflecting the lower average rate of interest charged for these funds.

Net Income

Eighth District member bank income before income taxes and securities gains or losses totalled \$249 million in 1976, an increase of 5.2 percent over 1975. Income taxes totalled \$42 million, slightly less than the amount paid a year earlier. Securities gains and other credits, net of taxes, substantially helped earnings, adding over \$8 million to income. After such adjustment, net income of member banks increased 9 percent in 1976 to \$215 million.

The average return on equity capital in 1976 increased to 12.8 percent from 11.2 percent in 1975. The rate of return on equity capital ranged from 9.6 percent for banks with assets of \$300 million and over to 13.6 percent for banks with assets between \$25 and \$50 million in assets.²

Member banks paid dividends on common and preferred stock of \$73 million, a 3 percent increase over

²Averages for groups of banks are unweighted averages of operating ratios of individual banks. Income and balance sheet items used in constructing these ratios are averages of the figures from the Reports of Condition for March 31, June 30, September 30, and December 31, 1976 and the Report of Income for 1976, the components of which include both domestic and foreign subsidiaries of member banks.

Table II

SELECTED OPERATING RATIOS FOR THE YEAR 1976¹
MEMBER BANKS — EIGHTH FEDERAL RESERVE DISTRICT

	Group 1 Up to \$10 million	Group 2 \$10 - \$25 million	Group 3 \$25 - \$50 million	Group 4 \$50 - \$100 million	Group 5 \$100 - \$300 million	Group 6 \$300 million And Over	All Member Banks
Profitability							
Percentage of Equity Capital							
Net Income	12.00	12.71	13.57	12.57	12.64	9.62	12.75
Percentage of Net Income							
Cash dividends paid	17.42	20.81	24.78	25.34	32.53	41.95	23.16
Sources and Disposition of Income							
Percentage of Total Assets							
Total operating income	6.89	6.99	7.12	7.17	6.93	7.07	7.03
Salaries, wages and fringe benefits	1.42	1.26	1.20	1.26	1.30	1.50	1.28
Interest on deposits	2.84	3.23	3.37	3.35	2.76	2.17	3.16
Total operating expense	5.78	5.89	5.94	6.04	5.75	6.41	5.91
Net income98	.97	1.02	1.00	.96	.60	.98
Percentage of Total Operating Income							
Interest on U.S. Treasury securities	17.26	15.06	12.64	11.09	11.54	5.45	13.83
Interest on securities of U.S. Govern- ment agencies and corporations	12.98	8.69	7.63	6.11	4.85	2.30	8.40
Interest on obligations of states and political subdivisions	5.61	8.97	10.31	10.63	9.49	6.05	8.95
Interest and fees on loans	54.39	57.49	60.46	61.91	59.29	61.96	58.54
Income on Federal funds sold and securities purchased to resell	4.19	3.20	2.95	2.53	5.37	5.75	3.42
Rate of Return on Securities and Loans							
Return on Securities ^{2,3}							
Interest on U.S. Treasury securities	6.55	6.93	7.00	7.13	7.02	6.83	6.91
Interest on securities of U.S. Government agencies and corporations	7.70	7.49	7.50	7.13	7.72	7.70	7.51
Interest on obligations of states and political subdivisions	4.99	5.03	5.00	5.03	4.87	4.94	5.00
Return on Loans (excluding unearned income and Federal funds sold)							
Interest and fees on loans	8.62	8.71	8.80	8.82	8.61	8.70	8.73
Net losses (—) or recoveries (+) on loans	— .16	— .27	— .22	— .21	— .30	— .74	— .24
Other Ratios							
Total capital accounts to total assets ⁴	9.56	8.18	8.28	8.01	8.24	6.66	8.38
Time and savings to total deposits (domestic offices)	58.04	63.80	65.27	65.32	57.96	50.96	62.77
Interest on time and savings deposits to total time and savings deposits (domestic offices) ²	5.35	5.54	5.70	5.70	5.55	5.53	5.57
Number of Banks	68	151	123	44	26	11	423

¹Each ratio is an unweighted average of the ratios of individual banks computed from the Reports of Condition for March 31, June 30, September 30, and December 31, 1976 and the Report of Income for 1976, the components of which include both domestic and foreign subsidiaries of member banks.

²Group averages exclude banks not reporting these items.

³Excludes trading account securities.

⁴Includes subordinated notes and debentures, but excludes valuation reserves and deferred tax reserves.

those paid in 1975. Fifty percent of the banks paid dividends ranging from 12 to 30 percent of net income, with the largest banks, in terms of assets,

paying the largest proportion of net income in cash dividends and the smallest banks the lowest proportion.

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