

CURRENT FEDERAL RESERVE PAYMENTS MECHANISM EXPENSES

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by

John Thomas Whetstone, III
Alfred P. Sloan School of Management
Massachusetts Institute of Technology

and

Jens Hugh Hutchens, Jr.
LaVerne College, California

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Abstract

The participation of the Federal Reserve in this country's payments mechanism is here defined to include the System's operations dealing with currency, coin, wire transfers, currency verification, postal money orders, food stamps, the issuance of Federal Reserve Notes, and the collection of commercial and Government checks. Using this definition, the total net payments mechanism operating expense for the System in 1969 is found to be \$205.7 million or 74.8 per cent of its total net expense. This represents a 29.2 per cent increase over 1966 which can be attributed principally to volume and price increases. A full 30.3 per cent of 1969 total net expense is attributable to currency, coin, and commercial check collection operations alone.

TABLE OF CONTENTS

	page(s)
Title Page.....	i
Abstract.....	ii
Table of Contents.....	iii-iv
List of Figures.....	v
List of Tables.....	vi
Introduction.....	1-2
Section One: A Functional Expense Definition of the Federal Reserve's Payments Mechanism Participation.....	3-13
Section Two: Federal Reserve Payments Mechanism Operations.....	14-31
Cash.....	15-20
Receipt of Deposits of Currency and Coin.....	15
Verification of Currency.....	16
Cancellation of Currency.....	16
Destruction of Federal Reserve Notes.....	17
Destruction of Treasury Currency.....	18
Issuance of Federal Reserve Notes.....	19
Coin.....	20
Check Collection.....	21-26
Acceptance of Incoming Checks.....	22
Check Processing.....	22
City Checks.....	25
Country Checks.....	25
Return Items.....	26
Items Payable in Other Districts.....	26
Government Checks.....	26
Transfers of Funds.....	27-28
Transfers of Funds Operations at a Federal Reserve Office.....	28
Emergency Operations - Other Emergency Preparations...	28
Money Orders.....	29
Food Stamps.....	30

TABLE OF CONTENTS (Continued)

	page(s)
Section Three: Determination of Federal Reserve	
Payments Mechanism Expense.....	32-58
Allocation Using Employee Ratios.....	37
Allocation of Protection and Vault Maintenance.....	47
Allocation of Assessment for Expenses of Board	
of Governors.....	51
Allocation of the Remaining Category C Units.....	55
Allocation of Nonreimbursed Category D Expenses.....	55
Overhead Allocation for the Culpeper Facility.....	56
A Final Note on Computational Accuracy.....	57
Section Four: Summary and Conclusions.....	59-66
References.....	67-69

LIST OF FIGURES

	page(s)
Figure 1: The Federal Reserve System's Participation in the Payments Mechanism as Defined on a Functional Expense Basis.....	4-5
Figure 2: Equations Used to Develop Columns (2) and (3) of Table V.....	48
Appendix A: Money - Overall, Simplified, Functional Flow Chart.....	67-68
Appendix B: Federal Reserve Bank Check Processing System - Simplified Block Diagram.....	69-70

LIST OF TABLES

	page(s)
Table I: High Speed Check Sorting Equipment Used by Federal Reserve Banks and Branches.....	23
Table II: Net Federal Reserve Expense Charged to Each Major Category in 1969.....	34
Table III: Net Federal Reserve Expenses for Payments Mechanism Functions in 1969.....	35
Table IV: Employee Ratios for Allocation of Expenses of Functions Assigned to Category C.....	38-39
Table V: Ratios for Allocation of the Expense of Protection and Vault Maintenance.....	40-41
Table VI: Ratios for Allocation of Assessment for Expenses of Board of Governors.....	42
Table VII: 1969 Cost Statistics for Payments Mechanism Functions.....	61-62
Table VIII: Net Federal Reserve Expense for Payments Mechanism Functions, 1966-69.....	64
Table IX: Volume of Operations in Principal Departments of Federal Reserve Banks, 1966-69.....	65

CURRENT FEDERAL RESERVE PAYMENTS MECHANISM

Introduction

The purpose of this paper is to define and expense the participation of the Federal Reserve System in America's payments mechanism. This participation is to be defined on a functional expense basis, using the functions as specified in the Accounting Manual^{1/} and expensed in the Functional Expense Report.^{2/}

In order to fulfill its above purpose, this paper is divided into four major parts. The first defines the payments mechanism and it states and supports a functional expense definition of the Federal Reserve System's payments mechanism participation. The second section describes the Federal Reserve's payments mechanism activities in some detail. Emphasis is given to the employees and equipment the Banks and Branches employ in payments mechanism operations. In the third major section of this paper, the definition is utilized to develop a comprehensive program for determining payments mechanism expense figures which are as current as the

^{1/} Accounting Manual for Use of Federal Reserve Banks in Preparing Certain Reports to the Board of Governors, Board of Governors of the Federal Reserve System: Division of Bank Operations, effective January 1, 1962 (issued July 1962).

^{2/} Functional Expense Report: A Consolidated Statement of Expenses and Functional Data, Board of Governors of the Federal Reserve System (compiled quarterly).

latest Functional Expense Report. This program is used to compile expenses for 1969 (the last complete annual period at the time of this study) in order to indicate the cost, in some detail, of the Federal Reserve's current payments mechanism operations. The concluding section ties the first three sections together. It reveals how this definition and description of the Federal Reserve's payments mechanism participation and figures representing the actual current cost of this participation will provide a useful information base for groups (such as the System Steering Committee on Improving the Payments Mechanism) studying and proposing future changes in the Federal Reserve's payments mechanism participation. Improvement in its payments mechanism operations is essential if the Federal Reserve--faced with the fact of an ever-increasing volume of payments-- is to maintain, much less improve, its current level of payments services. A view of the entire system of payments continuously flowing through Federal Reserve Banks and Branches will provide the information needed to make a series of coordinated proposals for change. Proper coordination would result in optimizing the net benefits of any changes in operations involving check collection, currency and coin, wire transfers, and/or other payments mechanism activities.

SECTION ONE

A FUNCTIONAL EXPENSE DEFINITION OF THE
FEDERAL RESERVE'S PAYMENTS MECHANISM PARTICIPATION

The payments mechanism can be thought of as a pipeline network interconnecting the various components of our economy-- providing for flows of payments for goods, services, and financial assets. This view provides for a seemingly simple decision rule for determining which functional categories belong in a functional expense definition of the Federal Reserve System's payments mechanism participation--namely, this definition must include any Federal Reserve expense function if and only if the function incurs most of its expenses performing operations actually providing for or facilitating payments flows.

A functional expense definition segregating payments mechanism and non-payments mechanism activities is indeed arrived at by use of the above decision rule. This resulting definition can be outlined by splitting the headings of the Functional Expense Report into four major categories (listed in detail in Figure 1). Category A consists of functions included in the payments mechanism. The functions considered external to the payments mechanism comprise Category B. Category C includes those non-payments mechanism functions whose costs are distributed as burden to Categories A and B. Category D is composed entirely of reimbursable Fiscal Agency units.

FIGURE 1

The Federal Reserve System's Participation
in the Payments Mechanism
as Defined on a Functional Expense Basis

CATEGORY A:

Functions
Included in the
Payments Mechanism

Currency and Coin
Check Collection
Accounting
 Transfers of Funds only
Emergency Operations
 Other Preparations only
Federal Reserve Note Issues
Fiscal Agency
 Treasury Department
 Government Checks
 Currency Verification:
 Federal Reserve Currency
Post Office Department
 Money Orders only
Other Government Departments
and Agencies
 Food Stamp Program
 Processing

CATEGORY B:

Functions
Excluded from the
Payments Mechanism

Discount and Credit
Safekeeping of Securities
Purchases and Sales of Securities
Noncash Collection
Bank Examination
Research, Public Information,
and Bank Relations
 Monetary and Economic
 Studies only
Securities Exchange
Foreign
Fiscal Agency
 Treasury Department
 Treasurer's General Account
 Government Coupons
 Miscellaneous Activities
 (Non-reimbursable)
 Miscellaneous Foreign
 Activities
 Purchases and Sales of
 Securities
 Government Grants and
 Contributions
Other Government Departments
and Agencies
 Miscellaneous Activities
 F.D.I.C. - (Non-
 reimbursable) Main-
 tenance of Dividend
 Accounts only
Services Rendered to Others

FIGURE 1 (Continued)

CATEGORY C:

Functions Whose
Costs are Distributed
As Burden to Categories
A and B

General Overhead
Provision of Space
Personnel
Furniture and Equipment
General Services
Stock of Supplies
Accounting
 All except Transfers of
 Funds
Data Processing
Planning
Emergency Operations
 Security Files only
Legal
Auditing
Research, Public Information,
and Bank Relations
 All except Monetary
 and Economic Studies

CATEGORY D:

Reimbursable
Fiscal Agency Units
Excluded from Net
Federal Reserve System
Expenses

Fiscal Agency (Reimbursable)
Treasury Department
 Public Debt
 Federal Taxes
 Currency Verification:^{1/}
 Treasury Currency
 Miscellaneous Activities
 Currency Reports
 Foreign Exchange
 Gold Reserve Act
Post Office Department
 Postmasters' Deposits only
Other Government Departments and
Agencies
 V-Loan Program
 Commodity Credit Corporation
 Food Stamp Program
 Disposing
 Miscellaneous Activities
 All except F.D.I.C. -
 Maintenance of Dividend
 Accounts

^{1/} Reimbursable only through December 31, 1969, but included in
Category D expense totals through 1969.

Category A includes the following expense functions:

Currency and Coin, Check Collection, and Federal Reserve Note Issues. Transfers of Funds (a unit of the Accounting function), Other Emergency Preparations (a unit of Emergency Operations), and Government Checks, Currency Verification: F. R. Currency, Currency Verification: Treasury Currency, Money Orders, and the processing activities of the Food Stamp Program (all units in the Fiscal Agency function) all principally serve the payments mechanism and, therefore, are also included in Category A.

Currency and coin operations involve the receiving of deposits from member banks and others. In separate operations, both currency and coin are sorted, counted, and inspected for fitness. Any unfit or counterfeit items are removed from circulation. In five Districts the Federal Reserve Banks and Branches also wrap coin, for a fee, as a service to commercial banks. On order, pay-out tellers ship either new or previously circulated currency and coin to member banks and others.

The Check Collection process involves receiving cash letter deposits of commercial checks from member banks. Incoming deposits are proved, and checks are sorted and listed to drawee banks. This function is also charged for all operations needed to process cash items returned unpaid (return items). Outgoing cash letters are prepared for delivery to drawee banks.

The Federal Reserve Note Issues function consists of the receiving, storing, issue, and retirement of Federal Reserve notes by the office of each Federal Reserve Agent.

The operations noted above for the Currency and Coin, Check Collection, and Federal Reserve Note Issues functions are obviously principally concerned with providing for and easing the flows of payments in this country. The expenses incurred performing these operations must, therefore, be included in any payments mechanism expense determination.

The Transfers of Funds unit is charged for the costs which the Federal Reserve System incurs making wire and mail transfers between and among member banks and Federal Reserve offices. Instructions and replies between the Board and the Banks and the Banks and their Branches are also transmitted by and expensed to this function. The content of this latter communication does not necessarily pertain to the payments mechanism, but, since the major portion of this unit's expense is obviously involved in the payments process, the entire Transfers of Funds unit of the Accounting function is included in Category A.

The operations included under Other Emergency Preparations, a subcategory of Emergency Operations, are principally concerned with assuring the operation of the payments mechanism in case of a national emergency; therefore, this unit is also in Category A. Security Files, the other subcategory of Emergency Operations, and all Accounting

units except for Transfers of Funds are not directly involved in the payments process and, for this reason, they are included in Category C.

Nonreimbursable Fiscal Agency units which aid the Federal Government in its payments mechanism participation also belong to Category A. This group consists of the following units: Government Checks, Currency Verification: F. R. Currency, and Currency Verification: Treasury Currency for the Treasury, Money Orders for the Post Office, and Food Stamps (processing only) for the Department of Agriculture. Government Check operations include the receiving of deposits of Government checks from member banks and others. The checks are proved, listed, boxed, and shipped to the Treasury. Charged to the Currency Verification: F. R. Currency and to the Currency Verification: Treasury Currency units are the receiving and canceling of unfit Federal Reserve Notes and Treasury Currency, respectively. Random samples of the canceled currency are hand-counted and verified. All the canceled currency is finally destroyed in incinerators. Money order operations consist of all activities in connection with the handling of postal money orders as segregated items in punch-card form from the point of deposit until they are disposed of. Processing activities for the Food Stamp Program of the Department of Agriculture involve receiving, proving, and canceling food stamps. Food stamps are also bundled for delivery to disposal custodians. All the above operations are directly involved in the

payments mechanism and these units should, therefore, be included in Category A.

The functions and units assigned to Category B are those serving purposes not directly concerned with the payments mechanism. The functions Discount and Credit, Purchases and Sales of Securities, Bank Examination, Securities Exchange and the expense unit Monetary and Economic Studies of the function Research, Public Information, and Bank Relations incur most of their expenses performing operations devoted to regulation of the flow of credit or control of the money supply in the United States. Foreign also fails to meet the criterion for inclusion in the payments mechanism as foreign operations are mainly concerned with the international position of the dollar and the way in which the deficit or surplus in the U. S. balance of payments is financed. The functions Safekeeping of Securities and Services Rendered to Others should obviously also be included in Category B as their operations are oriented toward providing non-payments mechanism services to commercial banks, the Treasury, and the public.

The justification for placing Noncash Collection in Category B rather than in Category A (payments mechanism) is not so obvious. A Federal Reserve Bank's Noncash Collection operations actually complement its Check Collection activities as the Bank collects, for member banks, payments due on various noncash items which typically include bills of exchange, drafts, maturing bearer bonds and coupons, trade acceptances, and outsized or non-encoded

checks. However, most work assigned to the Noncash Collection function actually involves record keeping and other services rendered for banks and other financial institutions; time devoted to actual processing of payments is negligible. Therefore, the function Noncash Collection also fails to meet the criterion for inclusion in the payments mechanism although it is expensed for many operations analogous to those of the payments mechanism function Check Collection.

The definition of Category B is completed by the inclusion of the following nonreimbursable Fiscal Agency units: Treasurer's General Account, Government Coupons, and Miscellaneous Activities (Miscellaneous Foreign Activities, Purchases and Sales of Securities, and Government Grants and Contributions) for the Treasury and Miscellaneous Activities (maintenance of Dividend Accounts only) for the Federal Deposit Insurance Corporation. These include all the non-reimbursable units which serve non-payments mechanism-related services for the Federal Government. Note that Government Coupons is included in Category B rather than in Category A for reasons analogous to those given above for Noncash Collection.

Category C consists of the functions expensed for the indirect overhead activities required to enable the Federal Reserve to perform its direct payments mechanism and non-payments mechanism obligations. Category C includes the following functions: General Overhead, Provision of Space, Personnel, Furniture and Equipment,

General Services, Stock of Supplies, Data Processing, Planning, Legal, and Auditing. The expense units General Books, Bank Accounts, and Expenditures of the Accounting function; Security Files of Emergency Operations; and Statistical Series, Reference Library, Public Information, Meetings, and Visits and Other Bank Relations of Research, Public Information, and Bank Relations complete the definition of this Category.

In order to develop realistic payments mechanism expenses, one must allocate as burden the components of Category C by employing generally accepted accounting techniques. The overhead functions and the distribution techniques used for this study are discussed in some detail in the third section of this paper.

Category D consists only of the Fiscal Agency units which are reimbursable by United States Government agencies and must, therefore, be excluded from net Federal Reserve System expenses. However, some of these reimbursable activities -- such as the preparation of currency reports for the Treasury, the processing of postmasters' deposits for the Post Office, and the disposal of food stamps for the Department of Agriculture -- are payments mechanism activities. The expenses charged to these operations must, therefore, be included in any determination of cost incurred by the Executive Branch for participation in this country's payments mechanism. Currency verification: Treasury Currency is included in Category D for calculation of pre-1970 expenses, but -- as of January 1, 1970 -- this unit is no longer

reimbursable by the Treasury. Its post-1969 expenses must be added into payments mechanism totals as its operations are the same as those for Currency Verification: Federal Reserve Currency.

The definition just described provides for ease of comprehension since the Accounting Manual explicitly states the typical operations assigned to each functional category. Also, once ratios for applying overhead expenses have been determined, one can easily calculate Federal Reserve payments mechanism "operating" expenses simply by drawing on the data readily available in the Functional Expense Report for the period under study.

This definition also has an inherent disadvantage. All of the functional categories as defined in the Accounting Manual cannot be dichotomously included or excluded from a reasonable, consistent definition of the payments mechanism. In some cases, a function which includes operations in two or more of this study's four categories can be readily split since the Functional Expense Report provides detailed sub-functional breakdowns. For example, Transfers of Funds, a unit of the Accounting function, is included in Category A (the payments mechanism) while the other three Accounting units are included in Category C since they are not, for the most part, directly involved in the payments process. However, in some cases, the statistics given in the Functional Expense Report are not detailed enough for a completely consistent categorical breakdown. The Other Emergency Preparations unit of the function Emergency Operations serves

as an illustration of this latter circumstance. The entire unit is included in Category A although nonpayments operations such as those concerned with "training personnel for emergency operations, including foreign activities, communications, Open Market Committee activities, and other System-wide responsibilities"^{2/} are thereby included and expensed to Category A.

One must realize that the Functional Expense Report is a means of showing costs of the various activities at each Bank and Branch in a way that will permit interoffice and interperiod comparisons. This report's categorization by functions and their subdivisions (units) are generally appropriate for the above comparisons, but are, of course, not nearly so optimum for the purpose of this study--to define and expense the Federal Reserve's participation in America's payments mechanism. However, in this study, the errors inherent in such a categorical definition involving somewhat arbitrary choices are statistically insignificant when viewed in a total expense perspective. Moreover, the fact that this method provides for ease of comprehension and simplicity of calculation is very significant. This report's grouping of Bank and Branch activities into payments mechanism and non-payments mechanism categories thus seems to be a justifiable method for defining and expensing the Federal Reserve's participation in the payments mechanism.

^{2/} Accounting Manual, p. 188.

SECTION TWO

FEDERAL RESERVE PAYMENTS MECHANISM OPERATIONS

The actual operations included in the payments mechanism are described in some detail in this section. The reader should keep in mind that these production operations are not performed identically in every District nor are they always assigned to the same department. The flows of various payments instruments through all the Banks and Branches in the System do, however, follow the same general paths described below.

Throughout the System, each payments mechanism operation is ordinarily under the general direction of a senior vice president with over-all responsibility vested in a vice president and an assistant vice president. Direct responsibility for these routine activities is vested in a manager and assistant managers who direct the supervisors. The manager has the role of seeing that all new ideas of the officers are presented to, and implemented by, the employees. The supervisor, in addition to seeing that the work is accomplished, has the responsibility for seeing that the requests of employees are presented to the proper officers. Both managers and supervisors, by serving as liaison channels between officers and employees, play key roles in the maintenance of operations at a high rate of efficiency. The descriptions below will generally describe the personnel involved only up to the manager level.

CASH

This first subsection is headed "Cash" for it includes the operations expensed under the following expense categories: Currency and Coin, Federal Reserve Note Issues, Currency Verification: Federal Reserve Currency, and Currency Verification: Treasury Currency. These operations are performed by several different departments in each Federal Reserve Office, but they are all merely components of a single network channeling the flows of currency and coin into and out of the Federal Reserve System.

Receipt of Deposits of Currency and Coin

All incoming deposits of currency and coin from member banks and from nonmember banks are received and accepted by receiving tellers. The currency and coin is placed under joint control immediately upon receipt and remains so until destroyed or reissued.^{1/} The receiving tellers and their immediate superior (usually holding the title of supervisor) have the responsibility for seeing that the number of bundles shipped were actually received. The receiving tellers then acknowledge receipt and prepare the currency and coin for transfer to sorters and counters.

^{1/} A complete description of joint control procedures for the cancellation and destruction of currency may be found in the Federal Reserve Currency Manual: Procedure for Cancelling, Destroying, and Accounting for Unfit Federal Reserve Notes.

Verification of Currency

Currency sorters and counters remove mutilated,^{2/} counterfeit, and foreign currencies. They verify and sort the bills on a Federal Bill Counter into two major categories: (1) fit, and (2) unfit. In addition, unfit U. S. Notes and Silver Certificates above \$1 are sorted separately. Occasionally the smaller denominations are counted on a Tickometer. After counting and verification have taken place, the notes are strapped into packages of 100 which are then bundled (10 packages to a bundle). Unfit currency is transferred to the Cancellation Department and the fit currency is transferred to the currency vault for payment. The mutilated currency is forwarded to the Treasurer for determination of value under the provisions of Department of the Treasury Circular No. 55. Counterfeit notes are shipped to the nearest office of the U. S. Secret Service.

Cancellation of Currency

Upon receipt of unfit currency at the Cancellation Department, the currency is package counted to verify that all bundles are complete, and then it is cancelled in the cancelling machine (usually Cummins). While the notes are being cancelled, an independent observer, who does not have custody of the notes, is always present to assure the integrity of the cancellation. Cancelled notes are perforated with a

^{2/} A note is considered mutilated when (1) 2/5 or more of the original note is missing, (2) its condition is such that its value is questionable or special care is required in its handling or (3) in the case of the \$5 denomination and higher, an entire serial number is missing - regardless of how much of the original note remains.

distinctive cancellation design, which is unique to the particular Federal Reserve Bank or Branch. The cancelled notes are verified to confirm proper cancellation and the bundles are checked for completeness. The bundles are next grouped into lots for transfer to the verification and destruction unit. Upon receipt, this unit at random piece counts 5 per cent of the ones, 10 per cent of the fives, 20 per cent of the tens, and 40 per cent of the twenty dollar bills. Notes of any denomination greater than twenty dollars are piece counted 100 per cent. Federal Reserve Banks are requested by the Treasury Department to cut in half cancelled Federal Reserve Notes of the \$500 and higher denominations and to forward the lower halves to the Treasurer for verification and destruction. The upper halves are held by the verification and destruction unit in the vault until authorization for destruction has been given by the Treasury.

Destruction of Federal Reserve Notes

Currency destruction tellers, always accompanied by a witness, burn the cancelled currency in high-pressure incinerators or they destroy it in some other manner. Destruction is completed when the notes, including fragments, are reduced to unrecognizable residue. Removal of the residue is performed by approved maintenance personnel. Thereafter, the incinerator is inspected and cleaned in preparation for the next lots of currency.

Destruction of Treasury Currency

Unfit Treasury Currency, which consists of Silver Certificates and U. S. Notes, is handled slightly differently. U. S. Notes were originally issued in 1862 to help pay for the War Between the States. Congress never took the U. S. Notes out of circulation, but granted authority to the Treasury to maintain a certain amount in circulation at all times. The amounts have varied over the years, but since May 31, 1878, by law, approximately \$323 million are to be kept outstanding. U. S. Notes amount to less than one per cent of paper money in circulation.

U. S. Notes are now issued only in \$100 denominations. Formerly, ones, twos, and fives were issued, and therefore, a count of the amount of U. S. Notes each Federal Reserve Bank and Branch destroys must always be maintained. U. S. Notes of denominations of five dollars and higher are separated during currency sorting and verification, and are cancelled and destroyed separately from -- although in the same manner as -- Federal Reserve Notes. The \$1 Silver Certificates were also separated until recently, but now the flow is so small that the Banks keep track of them only on a percentage basis, and process them through with F. R. Notes.^{3/}

^{3/} For a more detailed account of the operations involved in the processing of currency see: Federal Reserve Currency Manual: Procedures for Cancelling, Destroying, and Accounting for Unfit Federal Reserve Notes, Revised March 1969.

Issuance of Federal Reserve Notes

The Board of Governors of the Federal Reserve System has established "goals" for desirable amounts of currency holdings for each Bank and Branch. Every week an inventory stating the amount of currency on hand is received from each Bank and Branch by the Board of Governors. The amount of new currency to be shipped to the Federal Reserve Agent is determined from this report.

The Board's Division of Federal Reserve Bank Operations arranges for shipments of notes from the Bureau of Engraving and Printing to Federal Reserve Agents in amounts sufficient to maintain inventories at previously agreed upon levels ("goals"). Each Agent is required to have on hand a one year supply of ones and a two year supply of all other notes. The supply can be held partly in storage facilities at Denver, Chicago, or Culpeper.

Upon receipt of new Federal Reserve Notes, the Federal Reserve Agent, a representative of the Bank and an audit representative, verify the shipment. The notes are then placed into the Federal Reserve Agent's compartments in the vault under joint custody.

Any Federal Reserve Bank can obtain needed Federal Reserve Notes from its Federal Reserve Agent--a representative of the Board of Governors at the Federal Reserve Bank.

Notes are issued when an Agent receives notification requesting additional notes from the Bank and proper collateral^{4/} has been pledged.^{5/}

Coin

All circulated coin received by the receiving tellers is transferred to counters, who verify the shipment by using coin counting machines. They also separate all foreign coin in order to exchange it at commercial banks. Mutilated coin is returned to the Treasury. Fit coin is transferred to the coin vault for storage or immediate issue.

When new coin has been received from the mint, it is transferred to the Cash Department for payment upon request from banks.

Five Banks and their Branches wrap coin as a service, for a fee to member banks. In these Districts, upon completion of verification, coin wrappers wrap, package, seal, and tag coin before it is delivered to the vault.

^{4/} This collateral must consist of legally specified assets, alone or in any combination of: (1) gold certificates; (2) direct obligations of the United States Government; (3) "eligible paper" as defined by statute, or (4) Special Drawing Right certificates (SDR) issued by the Secretary of the Treasury.

^{5/} Further information on the duties of the Federal Reserve Agent may be obtained from: The Board of Governors of the Federal Reserve System, The Federal Reserve System: Purposes and Functions, Fifth Edition, Fifth Printing, October 1969, pp. 17, 178 and 179; Federal Reserve Act (approved December 23, 1923) as amended through 1969; and Federal Reserve Loose-Leaf Service, Vol. I and II, as amended May 31, 1970.

CHECK COLLECTION

The Federal Reserve System is authorized by the Federal Reserve Act to act as a clearinghouse for checks and drafts payable upon presentation in the United States. The guidelines, or general terms and conditions for handling checks by the Federal Reserve Banks and Branches, are set forth by the Board of Governors in Regulation J.

Acceptance of Incoming Checks

The Check Collection Department of a Bank or Branch will generally accept incoming deposits from any of the following:

- (1) member banks;
- (2) other Federal Reserve Banks and Branches;
- (3) direct routing member and non-member clearing banks of other Federal Reserve territories;
- (4) authorized government agencies located in the Federal Reserve District;
- (5) the Treasurer of the United States; and
- (6) other departments of the Federal Reserve Bank or Branch.

Incoming deposits are generally presorted by commercial banks into separate cash letters of immediate and deferred credit availability.

Check Processing

Incoming cash letters which are encoded for high-speed computer processing are sent directly to the Blocking Section. Here they are grouped into blocks each of which usually consists of 3,000 items (although this number may vary due to special circumstances). Incoming cash letters which are not pre-encoded are sent to the Encoding Section where they are processed through amount inscribers. After this extra operation, these cash letters are also sent to be grouped into blocks. Each complete block is forwarded directly to the computers. Table I gives a complete list of the high speed check sorting equipment used by Federal Reserve Banks and Branches as of May 31, 1970.

TABLE I

HIGH SPEED CHECK SORTING EQUIPMENT
USED BY FEDERAL RESERVE BANKS AND BRANCHES*

<u>Federal Reserve Bank or Branch</u>	<u>System</u>	<u>Number in Use</u>
Boston	Burr. B-370	6
New York	IBM 1979	8
"	Burr. B-263	1
Buffalo**	IBM 1979	1
Philadelphia**	IBM 360/40	2
Cleveland	IBM 1979	3
Cincinnati	Burr. B-275	2
Pittsburgh	Burr. B-300	2
Richmond	Burr. B-300	4
Baltimore**	IBM 360/30	3
Charlotte	IBM 1979	3
Atlanta	IBM 1979	3
Birmingham	Burr. 275	2
Jacksonville	Burr. 300	3
New Orleans	IBM 1979	2
Nashville	Burr. 124	1
Chicago	Burr. 3500	4
"	Burr. 350	1
Detroit	IBM 1979	2
St. Louis	IBM 1979	4
Little Rock	IBM 1979	1
Louisville	Burr. B-300	1
Memphis	IBM 1979	1
Minneapolis	Burr. B-300	5
Helena	Burr. 275	1
Kansas City	IBM 1979	3
Denver**	IBM 360/30	1
Oklahoma City**	IBM 360/30	1
Omaha**	IBM 360/30	1
Dallas	Burr. B-0506	1
"	Burr. B-275	2
El Paso	Burr. 300	1
Houston	Burr. 275	2
Sa San Antonio	Burr. B-275	1
"	Burr. B-300	1
San Francisco	Burr. 300	2
Los Angeles	Burr. B-3500	1
Portland	IBM 360/30	1
Salt Lake City	Burr. B-300	1
Seattle	IBM 300/30	1

*Data obtained from Federal Reserve Office responses to "Committee on Federal Reserve Bank Computers Questionnaire on Data Processing Systems." (Data as of May 31, 1970)

**General data processing and check processing are done on the same computer equipment.

The high speed check sorting equipment performs the two main functions of: (1) proving incoming cash letters, and (2) sorting checks down to drawee banks and preparing outgoing cash letters. The actual sorting consists of running the checks through computer controlled sorter-readers which output the checks into pockets. The contents of each pocket are then again run through the sorter-readers in subsequent passes until the sorting process has been completed, and the checks are sorted down to individual drawee banks. During each sort pass, printers list the A.B.A. routing number and amount for each check. During the final pass, an outgoing cash letter for each drawee bank is printed. The output of each step must be reconciled with the inputs to that stage of the operation, and any errors must be found and corrected.

The checks which the computers are unable to process (because they are mutilated or their magnetic ink characters are unreadable, et cetera) are rejected into a separate pocket. These rejects can be placed into a carrier document upon which is encoded the appropriate routing symbol-transit number, and the amount of the check. This envelope is then processed through the high speed equipment in the same manner as is an ordinary check. Another way to deal with rejects is to process them on low speed proof equipment, consisting of IBM 803 multipocket sorting and proving machines.

City checks and Country checks are all received and processed through computers in the manner described above. However, the methods used for handling the checks before and after computer processing may differ.

City Checks

Cash items which the Reserve Banks can collect for immediate, same-day credit are termed City checks. These generally include cash items drawn on or payable through commercial banks located in the same city as, or nearby area to, the Federal Reserve Bank or Branch and are usually collected through a local clearing house or by special clearing arrangements. City checks must be received prior to an early morning cut-off time in order to receive immediate payment, because they must be processed in time to be presented through the clearing house exchange which usually takes place in mid-morning.

Country Checks

If a Federal Reserve Bank cannot collect a cash item for immediate payment, and it therefore passes credit on a deferred basis, then the item is termed a Country check. These items are generally (but not always) drawn on banks outside the city where the Federal Reserve Bank or Branch is located. After processing and verification as described above, the checks are dispatched to the proper banks.

Return Items

Return items are classified as all unpaid cash items returned. Each item is examined by clerks to verify that a reason for return has been specified and that the correct A.B.A. number of the depositing bank is visible on the back of each item. The checks are then proved on proof machines and returned to the depositing banks.

Items Payable in Other Districts

. All cash items, collectible at par, which are payable outside the territory of deposit in conjunction with the handling of country checks, are sorted by Federal Reserve Office. The checks are routed and delivered to the other territories according to normal procedures.

GOVERNMENT CHECKS

Government checks--checks drawn on the Treasurer of the United States--are received from commercial banks along with a cash letter and sent to the Government Check Processing Section. After proving the checks to the cash letter, they are then sent to the Blocking Section for preparation for high speed processing. As the checks are run through a card reader, a tape is generated for shipment to the Treasury. No sorting is necessary as all the checks are returned to one payor--the Treasury. Since the high volume of checks

received during the early part of the month cannot be processed all at once, these checks are grouped in a queue into manageable numbers for processing during slack time in order to smooth production.

After having been computer processed, a settlement^{6/} of Government checks is returned to the Government Check Section where the blocks are identified as to the content and prepared for shipment to the Treasury Department. Upon completion of processing, a charge is made to the Treasurer's General Account. After the Federal Reserve has processed the checks, they are packaged and shipped to the Treasury Department in Washington, D. C. The Treasury runs the checks through a card-to-tape converter, and then transfers the checks to the Federal Records Center in Mechanicsburg, Pennsylvania, for storage. The checks remain in storage at Mechanicsburg for seven years, unless, because of some question, they are recalled by the Treasury. After seven years, the checks are sold to paper companies for recycling.

MONEY ORDERS

Approximately 90 per cent of all postal money orders are cashed at commercial banks. The other 10 per cent eventually find their way to commercial banks, via postmasters' deposits. All money orders are then deposited at Federal Reserve Offices for processing.

^{6/} A settlement, specifically designed for computer processing, is limited to 28,000 checks. It contains 14 boxes, each of which contains two blocks of 1,000 items apiece.

Regulation J of the Board of Governors and an agreement between the Federal Reserve Banks and the Postmaster General currently govern the collection and processing of postal money orders.

The actual procedures for processing postal money orders are similar to those previously described for Government checks. In order to facilitate computer processing, money orders are grouped into blocks of approximately 1,000 items each. After processing and settlement on high speed equipment, money orders are charged to the Treasurer's General Account. They are then shipped to the Postmaster, Washington, D. C. in "registors" which consist of 28 blocks or about 28,000 items. After the money orders have been verified by the Postmaster General's Office, they are stored at the Federal Records Center in Suitland, Maryland for two years before being sold for recycling.

TRANSFERS OF FUNDS

The functions of the Federal Reserve's wire transfer system are to process requests by member banks in one territory to transfer funds to member banks and non-member clearing banks in other territories to transfer funds between member banks located within a territory and to credit member banks for funds transferred from other territories by telegraph, telephone, et cetera.

The Richmond Bank formerly acted as the switching center for wire transfers between Districts (System 81-D-1). The computerized switching center at Culpeper has now assumed this function.

Transfers of Funds Operations at a Federal Reserve Office

A letter of authorization or a telephone call is received by the receiving requests chief, the supervisor, or a transfer clerk. Upon receipt, it is transferred to the teletype expediter who verifies authenticity and then forwards the request to the teletype clerk who is responsible for receiving and transmitting. The teletype clerk, usually using Western Union TWX equipment, transfers the funds to the proper Federal Reserve Bank or Branch. Control clerks keep a constant watch on operations to see that all transfers of funds requests have been completed. Proof clerks prepare statements and maintain records of all transactions.

EMERGENCY OPERATIONS - OTHER EMERGENCY PREPARATIONS

The primary functions of the Federal Reserve Banks during a national emergency are: (1) to provide the Treasury with adequate funds to meet current obligations and to finance emergency needs; (2) to supply the banking system with adequate liquidity, credit, and reserves; to make currency available according to need; and to assist

in the collection of checks - all so that the banking system may be in a position to meet the demands upon it for services essential to a national emergency, survival operations, and the rehabilitation of the economy; (3) to speak for the System in the areas which it serves, to contribute leadership to the financial community, and to provide information, counsel, and support to the banks of their Districts; (4) to advise as to, and to administer, credit and credit control programs appropriate under the circumstances; and (5) to serve as Fiscal Agent of the Government.

Of course, the above activities are not performed until an actual emergency occurs. The preparation and maintenance of instruction manuals covering performance of Agent banks and arrangement for the storage of cash (pre-emergency) with Agent banks are among the current contributors to current payments mechanism expense. The Agent banks are chosen with many factors considered. Storage facilities should be adequate so that new alarms, expansion of vault, et cetera, will not be too costly to the Federal Reserve System.

FOOD STAMPS

Food stamp coupons are issued by the U. S. Department of Agriculture in twenty-five cent, fifty cent, and two dollar denominations. Food stamp coupons, separately strapped and packaged, are received along with the regular shipment of checks from commercial banks. Each strap contains the amount of food stamps, the name and

location of the depositing bank and the date. The stamps are verified on Tickometers. The total number of stamps redeemed in one day is recorded on Treasury Department Form 834. Processed coupons are then packaged into bundles of ten straps each, and transferred for storage under dual control in the vault. A report of any counterfeit coupons is sent to the U.S.D.A., to the Treasury Department, and to the local office of the United States Secret Service.

Whenever necessary, the coupons are delivered under dual control to the Verification and Destruction Unit for incineration. Destruction, being a reimbursable activity, is, of course, not included in the functional expense definition of the Federal Reserve's payments mechanism participation.

SECTION THREE

DETERMINATION OF FEDERAL RESERVE PAYMENTS MECHANISM EXPENSE

The purpose of this section is to develop a comprehensive program for determining payments mechanism expense figures which are as current as the latest Functional Expense Report. The following discussion will actually relate to expenses compiled for the calendar year 1969 (the last complete annual period at the time of this study). However, the description of the process actually used for 1969 data is sufficiently detailed to allow its adaptation and use as a program for generating up-to-date payments mechanism expense figures in future years as well.

The functional definition of the Federal Reserve's payments mechanism participation (outlined in Figure 1 on pages 4 and 5) must, of course, serve as the kernel of any program for expense determination. Therefore, the first step in arriving at total net payments mechanism expense is the calculation of the total net expense charged to each function and unit included in the four major functional categories. Net Federal Reserve Expense for a function is defined to be the difference between the two items: Total Expense (Undistributed) and Memorandum - Reimbursements and Recoveries as expensed in the Functional Expense Report. This statistic thus represents the true (net) functional operating expense to the Federal Reserve since it excludes any reimbursements received for services originally expensed to that function. Net Federal Reserve Expense charged to each

functional category is the sum of the Net Federal Reserve Expense statistics as determined for each function and unit included in that category. Table II lists these total figures for the Federal Reserve System in 1969.

One should note, however, that the Functional Expense Report does not break down the Miscellaneous Activities expense units of the Fiscal Agency function as does the definition of Figure 1. The non-reimbursable miscellaneous activities the Federal Reserve performs for the Treasury and for the Federal Deposit Insurance Corporation are included in Category B. On the other hand, all reimbursable miscellaneous activities the System conducts for the Treasury and for other Federal Government departments and agencies are included in Category D. Therefore, a special approach must be taken in order to expense as accurately as possible the reimbursable and nonreimbursable components of the Miscellaneous Activities units. Category B is charged for the amount listed under Deduct: Nonreimbursable Expense for both the Treasury and Other Government Departments and Agencies' Miscellaneous Activities. Category D is charged for the amount listed in the Adjusted Total Expense column minus Memorandum-Reimbursements and Recoveries. The rationale for this approach is obviously based upon the assumption that reimbursements and recoveries are made only for reimbursable activities.

Table III lists Net Federal Reserve Expenses for each function and unit included in the payments mechanism. The reader

TABLE II

NET FEDERAL RESERVE EXPENSE^{1/}
CHARGED TO EACH MAJOR EXPENSE CATEGORY IN 1969

All Figures are System Totals

Category A:

Functions Included in the Payments Mechanism \$111,168,777

Category B:

Functions Excluded from the Payments Mechanism 26,669,777

Category C:

Functions Distributed as Burden to A and B 136,903,121

Category D:

Reimbursable Fiscal Agency Units 213,924

Total All Functions

\$274,973,608

^{1/} Net Federal Reserve Expense =
Total Expense (Undistributed) minus Memorandum-Reimbursements
and Recoveries for each function and unit listed in the
Functional Expense Report.

TABLE III

NET FEDERAL RESERVE EXPENSES ^{1/}
FOR PAYMENTS MECHANISM FUNCTIONS IN 1969

All Figures are System Totals

Currency and Coin	\$30,751,536
Check Collection	52,602,342
Accounting	
Transfers of Funds only	1,995,899
Emergency Operations	
Other Preparations only	238,611
Federal Reserve Note Issues	22,374,943
Fiscal Agency	
Treasury Department	
Government Checks	1,515,582
Currency Verification:	
F.R. Currency	746,317
Post Office Department	
Money Orders only	540,147
Other Govt. Depts. and Agencies	
Food Stamp Program Processing	403,400
Total: Before Burden Allocation	
(Direct Cost)	<u>111,168,777</u>
Category C Expenses Distributed as	
Burden to Category A:	
Protection and Vault Maintenance	10,118,234
Assessment for Board of Governors	1,039,658
Other Category C Expenses	
Distributed as Burden to	
Category A	83,185,346
Total Category C Expenses	
Distributed as Burden to	
Category A (Indirect Cost)	<u>94,343,238</u>
Nonreimbursable Category D Expenses	
Distributed as Burden to Category A	196,467
Total: After Burden Allocation	
(Total Cost)	<u>205,708,482</u>

^{1/} Net Federal Reserve Expense = Total Expense (undistributed) minus Memorandum--Reimbursements and Recoveries for each function and unit listed in the Functional Expense Report. All figures are System totals.

should note that the figure denoted Total: Before Burden Allocation in Table III is the same as the Net Federal Reserve Expense figure for Category A in Table II. Both statistics, of course, must be identical as they both represent total net Category A expense for the Federal Reserve System.

To develop realistic total payments mechanism expenses for the System, an appropriate portion of net overhead (nonreimbursed expenses of Category C and of Category D) must be added to the direct Total: Before Burden Allocation figure listed in Table III. The "appropriate portion" is determined by multiplying each functional component of burden expense by an appropriate distribution ratio. Table III lists these portions of burden actually distributed to the payments mechanism. These portions (Indirect Costs) are added to Total: Before Burden Allocation (Direct Cost) to produce Total: After Burden Allocation (Total Cost) which represents the realistic total payments mechanism operating expense for the Federal Reserve in 1969. This figure (\$205,708,482) represents the approximate amount the Federal Reserve System, as a whole, would not have spent (neglecting any savings arising from elimination of Federal Reserve Check Float) if it could have eliminated all its payments mechanism operations and the essential overhead support for the entire year of 1969.

Following reasoning analogous to that given above, one can develop realistic total expense figures for Category B functions by adding the complement of each "appropriate portion" of overhead to the Category B expense given in Table II. These complementary burden

portions (totaling \$42,705,450) are added to System Category B expense (\$26,669,777) to arrive at the realistic total operating expense for the non-payments mechanism activities of the Federal Reserve in 1969. This final figure (\$69,375,227) could be thought of as representing the total expenses of the Federal Reserve System if its payments mechanism operations and their overhead support had been completely eliminated for the entire year of 1969.

The ratios actually used to develop the 1969 burden figures for nonreimbursed Category D expense and the expenses of all Category C functions and units except for Protection and Vault Maintenance (a unit of the General Services function) and Assessment for Expenses of Board of Governors (a major component of the General Overhead function) are the employee ratios of Table IV. The ratios of Table V are used to allocate Protection and Vault Maintenance; and the ratios of Table VI are used for distribution of Assessment for Expenses of Board of Governors. The derivation and application of each of these ratios are discussed in some detail below.

ALLOCATION USING EMPLOYEE RATIOS

The employee ratios of Table IV give the fraction of employees in each of Category A and B to the total number in functions included in Categories A and B combined. Multiplying these ratios by the expense charged to an overhead function, such as Personnel, one can split the function's expense into two components: one for addition

TABLE IV

EMPLOYEE RATIOS FOR ALLOCATION OF EXPENSES OF
FUNCTIONS ASSIGNED TO CATEGORY C

[To Category A: Col.(4); to Category B: Col.(5)]

(1) Federal Reserve Bank or Branch	(2) a* (employees)	(3) b** (employees)	(4) a a+b	(5) b a+b
Boston	494.68	143.33	.775	.225
New York	1,340.42	789.24	.629	.371
Philadelphia	350.85	123.00	.740	.260
Cleveland	202.84	113.62	.641	.359
Richmond	257.93	83.57	.775	.245
Atlanta	131.82	73.52	.642	.358
Chicago	1,033.32	177.88	.853	.147
St. Louis	197.40	90.17	.686	.314
Minneapolis	268.38	79.02	.773	.227
Kansas City	173.32	68.36	.717	.283
Dallas	159.95	59.38	.729	.271
San Francisco	198.86	106.43	.651	.349
Buffalo	100.89	6.39	.940	.060
Cincinnati	134.81	15.24	.898	.102
Pittsburgh	133.81	18.39	.879	.121
Baltimore	149.57	13.52	.917	.083
Charlotte	150.07	12.16	.925	.075
Birmingham	65.27	8.37	.886	.114
Jacksonville	150.05	8.72	.945	.055
Nashville	61.33	6.06	.910	.090
New Orleans	96.66	11.99	.890	.110
Detroit	218.78	28.14	.886	.114
Little Rock	46.44	9.36	.832	.168
Louisville	67.17	4.93	.932	.068
Memphis	48.85	8.85	.847	.153
Helena	24.52	2.97	.892	.108
Denver	83.06	12.63	.868	.132
Oklahoma City	69.74	9.90	.876	.124
Omaha	59.63	8.93	.870	.130
El Paso	31.35	2.81	.918	.082
Houston	88.55	10.46	.894	.106
San Antonio	75.88	6.35	.923	.077
Los Angeles	318.50	18.73	.944	.056
Portland	83.96	5.78	.936	.064
Salt Lake City	59.87	5.06	.922	.078
Seattle	122.44	3.87	.969	.031
SYSTEM TOTALS ⁺	7,256.52	2,147.13	.772	.228

NOTES EXPLAINING THE STATISTICS OF TABLE IV

*a ≡ Total average number of employees in the functions and units included in Category A (payments mechanism).

**b ≡ Total average number of employees in the functions and units included in Category B (those excluded from the payments mechanism).

The average number of employees in each function and unit is reported in the Functional Expense Report as directed by the Accounting Manual which states on page 104:

This statistic is intended to show the number of employees (except those on leave without pay) assigned to the work of a particular function and unit, whether present or not, during the report period averaged to reflect a result in terms of full-time assignments. Except in cases of continuing full-time assignments to one unit, this figure should be obtained by dividing the sum of the regular work hours prorated to a given unit during the report period by the number of regular hours one employee who was assigned full time to the unit would have worked during the whole report period. Where the resulting figure is not a whole number, the fraction should be expressed as a two-place decimal.

+ Columns may not add to exact system totals due to rounding.

TABLE V

RATIOS FOR ALLOCATION OF THE EXPENSE OF PROTECTION AND VAULT MAINTENANCE
 [to Category A: Col. (4); to Category B: Col. (5)]

(1)	(2)	(3)	(4)	(5)
Federal Reserve Bank or Branch	% of Total Vault Space Devoted to Storage of Currency & Coin (Jan 31, 1967)	% of Total Vault Space Devoted to Storage of Securities (June 1, 1967)	<u>(2)</u> (2)+(3)	<u>(3)</u> (2)+(3)
Boston	26.23	2.45	.91	.09
New York	17.66	8.63	.67	.33
Philadelphia	15.30	4.03	.79	.21
Cleveland	10.88	0.70	.94	.06
Richmond	29.03	1.93	.94	.06
Atlanta	6.79	1.28	.84	.16
Chicago	10.79	1.29	.89	.11
St. Louis	10.42	1.31	.89	.11
Minneapolis**	8.98	2.04	.81	.19
Kansas City*	21.87	5.06	.81	.19
Dallas	10.62	1.80	.85	.15
San Francisco	12.84	0.62	.95	.05
Buffalo	32.71	0.01	.996	.004
Cincinnati**	16.91	2.15	.89	.11
Pittsburg	15.36	3.82	.80	.20
Baltimore	9.17	0.97	.90	.10
Charlotte	32.38	1.00	.97	.03
Birmingham	13.78	1.54	.90	.10
Jacksonville	17.63	1.50	.92	.08
Nashville	28.15	3.18	.90	.10
New Orleans	16.25	1.06	.94	.06
Detroit	14.79	2.71	.84	.16
Little Rock	10.84	1.57	.87	.13
Louisville	22.61	0.51	.98	.02
Memphis**	19.78	1.45	.93	.07
Helena	59.17	0.01	.999	.001
Denver*	37.65	7.72	.83	.17
Oklahoma City	9.54	2.34	.80	.20
Omaha	15.06	3.40	.82	.18
El Paso	10.37	0.74	.93	.07
Houston	18.64	1.85	.91	.09
San Antonio	7.85	8.01	.49	.51
Los Angeles	11.65	0.79	.94	.06
Portland	9.94	0.60	.94	.06
Salt Lake City	16.78	0.45	.97	.03
Seattle	11.95	0.48	.96	.04
SYSTEM TOTAL	14.50	2.21	.87	.13

NOTES ON TABLE V

* Vault space at the Kansas City Bank has been expanded from 23,806 to 88,512 cubic feet since the vault study of 1967. In addition, a new 252,504 cubic foot vault has replaced Denver's old vault of 10,183 cubic feet. However, since three-fourths of this new vault space is used for national defense purposes, only about one-fourth is available for general branch use. Because of lack of current data on vault space utilization, this current study assumes that the percentages of total vault space devoted to currency and coin and to securities for this Bank and Branch are the same as indicated by the 1967 study.

**Minneapolis, Cincinnati, and Memphis currently have new vaults under construction. The new vault being constructed at the Miami Branch will, of course, increase the total vault space of the Sixth District. A vault available for Federal Reserve use is also being constructed in San Juan, P. R. Vaults are in various stages of planning in Boston, Richmond, Pittsburgh, and Houston. Future cost studies should note the effects of these changes in order to appropriately allocate Protection and Vault Maintenance.

TABLE VI
RATIOS FOR ALLOCATION OF
ASSESSMENT FOR EXPENSES OF BOARD
OF GOVERNORS

Fraction of expense distributed to:

Category A	.0690
Category B	<u>.9310</u>
	1.0000

NOTE: Assessment For Expenses of Board
of Governors is an expense item
included in the Category C function
General Overhead in the Functional
Expense Report.

to Category A and the other for addition to Category B expenses. These ratios thus enable one to allocate a fraction of overhead expenses to Category A equal to the ratio of the number of employees in Category A to the total number in Categories A and B (Col. 4 of Table IV).

Similarly, the second expense component is the same fraction of total function expense as the fraction of employees assigned to Category B functions is to the total number in Categories A and B together (Col. 5 of Table IV).

The employee ratios derived from employee data in the 1969 Annual Report edition of the Functional Expense Report are the ones listed in Table IV. The ratios could be easily rederived for future studies using the average employee data from future Functional Expense Reports, but, for at least several years, would not differ greatly from the 1969 ratios unless radical changes in the personnel structure of the Federal Reserve were to occur. For this reason and for simplicity, any cost projections made in the near future could justifiably utilize the 1969 employee ratios for burden allocation instead of ratios based upon predictions of future personnel data. The 1969 ratios are also used in the compilation of Federal Reserve payments mechanism expense figures for 1966, 1967, and 1968 which are presented in the next section.

The functions allocated according to employee ratios are General Overhead (all except Assessment for Expenses of Board of Governors), Provision of Space, Personnel, Furniture and Equipment, General Services (all except Protection and Vault Maintenance),

Stock of Supplies, Accounting (all except Transfers of Funds), Planning, Emergency Operations (Security Files only), Legal, Auditing, and Research, Public Information, and Bank Relations (all except Monetary and Economic Studies). Moreover, in the future, Data Processing (treated as a separate function in the Functional Expense Report for the first time in 1970) and the proposed new function Data Systems Support should also be distributed according to employee ratios.

Employee ratios are generally appropriate means for allocation of Category C functions for two important reasons. First, employee ratios are easy to derive because no complicated numerical relationships are involved, and because the total average number of employees assigned to each function and unit is listed in the Functional Expense Report. In addition, since this report is compiled each calendar quarter, reasonably current employee statistics are available at all times. Therefore, up-to-date employee ratios could always be easily compiled and used for allocation of overhead expense if this proves necessary in future years.

The specific rationale for allocation of each of the above overhead functions by employee ratios is stated below. Justification for the special treatment given Assessment for Expenses of Board of Governors and Protection and Vault Maintenance is also presented in some detail.

The function Personnel is normally distributed to direct expense totals using employee ratios. The justification for this

practice rests on the assumption that expenses incurred performing personnel services are, on the average, equal for every employee regardless of his particular job function. This assumption should apply to the personnel activities of the Federal Reserve as well as to those of completely private organizations. Therefore, Personnel expenses are distributed to payments mechanism and to non-payments mechanism expense totals by applying the employee ratios of Table IV.

Of course, the amount of expense incurred by the Federal Reserve in performing a particular function might be totally independent of any employee relationship. For example, none of the three expense units of Provision of Space (Housekeeping, Maintenance and Operation, and Administration and Other) can be very successfully correlated with an average number of employees statistic. Allocation according to ratios computed from the actual floor space used performing the various functions would seem to be a more appropriate method for these expense units. However, information on how much Bank floor space is currently devoted to each function and unit is not now available. In any case, the error resulting from distribution of Provision of Space according to employee ratios could not possibly be greater than 10 per cent (and is probably less than 1 per cent) of total expense simply because of the relative size of the figures being allocated as compared to total functional expense in 1969. For these reasons, Provision of Space is distributed according to the employee ratios of Table IV.

A significant portion of the total expenses of several Category C functions (such as Stock of Supplies and Data Processing in 1970), are distributed elsewhere by the Functional Expense Report. These distributions are accepted as given for the purposes of this study. Expenses of other functions could be likewise distributed on the basis of the actual aid they perform for other functional areas. For example, the expenses of the Legal function could be expensed to the functions whose operations are the subject of legal questions and controversy. Similar direct distribution programs could be developed for the functions Planning; Auditing; Furniture and Equipment; General Service; Research, Public Information, and Bank Relations; Data Processing; and Stock of Supplies. However, such methods require detailed information which is not now available on a uniform basis (except for the Protection and Vault Maintenance unit of General Services which is indeed treated separately). Moreover, the time and money devoted to each functional area can vary greatly from year to year - thus distorting current cost figures and interbank comparisons. For instance, the legal staff of one Bank might spend six to eight months on a complex issue concerning check clearing while another Bank's Legal Department might very well devote almost no time to this area. Distribution of these overhead expenses according to relatively stable employee ratios may be less elegant than more direct methods, but this procedure does provide for cross-District comparisons and time series analyses.

Therefore, perhaps the gross approximation implying a direct correlation between total function expense and the relative number of payments mechanism employees which is inherent when one uses employee ratios for cost distribution is indeed defensible.

As noted above, this study does develop special ratios for allocating the expense of Protection and Vault Maintenance and Assessment for Expenses of Board of Governors. Discussion of the derivation of those ratios and justification for their use follow.

ALLOCATION OF PROTECTION AND VAULT MAINTENANCE

The expenses of Protection and Vault Maintenance are allocated as burden to Categories A and B on the basis of actual space devoted to currency and coin and to securities, as reported in the "Report of Study of Vault Space at Federal Reserve Banks and Branches" by the Division of Bank Operations (June 1, 1967).

Allocation to Category A (payments mechanism functions) and to Category B (functions excluded from the payments mechanism) is accomplished by means of the ratios in Table V. Column (4) in this table consists of the ratios for distribution to Category A and Column (5) consists of the ratios for distribution to Category B. Columns (2) and (3) are calculated using the equations of Figure 2 which draw on information from Tables II and III of the 1967 Vault Study.

$$(2) \equiv \left[\frac{\text{holdings of coin (Jan. 31, 1967)}}{\text{maximum space available under desirable conditions (for coin)}} \right] \cdot \left[\frac{\text{maximum space available under desirable conditions (for coin)}}{\text{total vault space}} \right] +$$

$$\left[\frac{\text{holdings of currency (Jan. 31, 1967)}}{\text{maximum space available under desirable conditions (for currency)}} \right] \cdot \left[\frac{\text{maximum space available under desirable conditions (for currency)}}{\text{total vault space}} \right]$$

$$= \frac{\text{holdings of coin (Jan. 31, 1967) and currency}}{\text{total vault space}} \equiv (2)$$

$$(3) \equiv \left[\frac{\text{holdings of securities as stated in the Vault Study dated June 1, 1967}}{\text{maximum space available under desirable conditions (for securities)}} \right] \cdot \left[\frac{\text{maximum space available under desirable conditions (for securities)}}{\text{total vault space}} \right]$$

$$= \frac{\text{holdings of securities as stated in the Vault Study dated June 1, 1967}}{\text{total vault space}} \equiv (3)$$

FIGURE 2: Equations used to develop Columns (2) and (3) of Table V

Table III in the vault study report shows actual holdings as a percentage of maximum holdings under "desirable conditions." These capacities are determined by "trading-off" the relative benefits of the effective use of vault space against the constraints of operating efficiencies and security requirements.

The method described above for allocating the expenses of Protection and Vault Maintenance, although certainly not perfect, appears to be the most optimum for the purposes of this study. This method is tractable and based on reasonably current figures giving the actual utilization of vault space at the Banks and Branches.

One must note, however, that for the Federal Reserve System as a whole, only about one-fourth of total vault space is available for actual storage (and only about 17 per cent is actually used). The other 75 per cent is devoted to aisles, working areas, and volume lost within actual storage areas due to non-Inca-vault stacking procedures and other limitations. Moreover, space assigned to the storage of securities accounts for only 13 per cent of total vault space available for storage under "desirable conditions," but space needed for handling securities within the vaults accounts for a much larger percentage of total vault space. This is true because relatively large working areas within a vault are generally required for cutting coupons and other servicing of the securities without removing them from the vault.

For the above reason, the ratios based upon actual space utilized for storage of currency and coin and of securities are

biased toward currency and coin. It appears that final Category A expenses will be overstated. However, considering Federal Reserve Note Issues as the principal Category A function requiring the services of a vault and of a security department, and, similarly, considering Safekeeping of Securities as the principal Category B function requiring these services, one can justify somewhat allocation by the vault utilization ratios of Table V. In 1969, for the Federal Reserve System as a whole, the total expenses charged to Safekeeping of Securities was \$2,896,150, or 12.9 per cent of the \$22,422,359 charged to Federal Reserve Note Issues. Likewise, in 1968, the total expense charged to Storage of Securities was \$2,657,254, or only 12.8 per cent of the \$20,722,855 charged to Federal Reserve Note Issues. These average figures compare very favorably with the previously mentioned vault utilization percentages which show that, on the average, space required for securities storage amounts to only 13.3 per cent of total vault space used. Therefore, in this case, the vault utilization ratios seem to be more accurate for allocation of expenses than simple employee ratios. This can be readily seen since more than ten times as many employees were assigned to the less costly Storage of Securities than were assigned to Federal Reserve Note Issues in 1968 and in 1969. Of course, most of the expense of the Federal Reserve Note Issues function was and is incurred purchasing the Federal Reserve Notes from the Treasury. However, one must still feel that if he used the employee ratios, he would understate the true

cost of the payments mechanism to the Federal Reserve. The additional computation described above is justified therefore if it will contribute to more accurate final expense figures.

ALLOCATION OF ASSESSMENT FOR EXPENSES OF BOARD OF GOVERNORS

The twelve Districts are charged for the expenses incurred by the Board of Governors of the Federal Reserve System. According to the "Statement of Assessments and Expenses for the Year Ended December 31, 1969,"* the Banks were assessed a total of \$15,067,500 that year. This report also stated that 1969 expenses for the Board were \$14,947 million. Budgeted expenses for the Division of Federal Reserve Bank Operations were \$1.032 million in 1969 or 6.90 per cent of total Board expenses.

For the purposes of this study, the activities of the Division of Federal Reserve Bank Operations are assigned to Category A and all the activities of the remaining divisions of the Board are included in Category B. Thus, for each Bank and Branch, 6.90 per cent of its Assessment for Expenses of Board of Governors (an expense item included in the function General Overhead in the Functional Expense Report) is distributed to Category A. The remaining 93.10 per cent of this Category C item is distributed as burden to Category B. (See Table VI.)

*"Statement of Assessments and Expenses for the Year Ended December 31, 1969," 56th Annual Report, Board of Governors of the Federal Reserve System, released May 7, 1970, p 323.

The justification for use of these ratios is obviously founded on two rather coarse assumptions: that the Division of Federal Reserve Bank Operations is only concerned with payments mechanism operations and that no other divisions of the Board are in any way involved in this area. Of course, neither of these assumptions is completely valid.

The first assumption disregards the fact that the Examination and Audit of Federal Reserve Banks (Field Examinations and Reports Review Sections) of the Division of Federal Reserve Bank Operations is not concerned with and should not theoretically be expensed to the payments mechanism. Also, all sections of this division concerned with commercial paper, discount rates, and regulation thereof (note the Discount Operations Section) should also be expensed as a part of Category B. The Cash and General Books, Special Studies, and Operations Analysis Sections, however, are all greatly concerned with the Federal Reserve's role in the payments mechanism.

One must also note that other divisions do perform some payments mechanism-related functions. For example, legal problems arising from the application of Regulation J (dealing with clearing and collection of checks by Federal Reserve Banks) are handled by and thus contribute to the expenses of the Board's Legal Division. Other divisions (such as Administrative Services, Personnel Administration, Data Processing, Office of the Secretary, and Office of the Controller)

as well as the Governors, themselves, also serve in overhead capacities, and perhaps their expenses should be distributed as burden to Categories A and B.

Since the above divisions are totally expensed to Category B, (as are Research and Statistics, International Finance, and Supervision and Regulation) there seems to be a definite bias understating the FRS's cost for participating in the payments mechanism. However, this bias is somewhat counterbalanced by the addition of the Division of Federal Reserve Bank Operations' total expenses to Category A - tending to exaggerate payments mechanism costs. Because of the small relative size of this division (with respect to budget), the inclusion of all its sections - whether or not directly concerned with the payments mechanism - may not completely counterbalance the lack of the also small overhead which would otherwise be credited to Category A. However, in order to allocate by any significantly more accurate method, the entire cost structure of the Board of Governors would have to be closely analyzed with emphasis on areas dealing with the payments mechanism. Thus, allocation of 6.90 per cent of the assessments for Expenses of Board of Governors to Category A expenses and 93.10 per cent to Category B expenses does seem to be a reasonable method for distributing this element of burden. However, a detailed analysis of payments mechanism - related activities and expenses of the Board of Governors would be an interesting and important topic for more detailed investigation.

TABLE VI

RATIOS FOR ALLOCATION OF
ASSESSMENT FOR EXPENSES OF BOARD
OF GOVERNORS

Fraction of expense distributed to:

Category A	.0690
Category B	<u>.9310</u>
	1.0000

NOTE: Assessment for Expenses of Board of Governors is an expense item included in the Category C function General Overhead in the Functional Expense Report.

ALLOCATION OF THE REMAINING CATEGORY C UNITS

The remaining Category C expense units -- General Overhead; the General Books, Bank Accounts, and Expenditures units of Accounting; and the Security Files unit of Emergency Operations -- are considered as indirect overhead costs and therefore should be distributed according to some generally accepted accounting technique. For this reason, these remaining Category C units are also allocated to payments mechanism and to non-payments mechanism expenses according to employee ratios.

ALLOCATION OF NONREIMBURSED CATEGORY D EXPENSES

Category D consists only of the Fiscal Agency units which are reimbursable by the U. S. Treasury and which must, therefore, be excluded from any calculation of net Federal Reserve System expenses. (The reimbursements must, of course, be included in any determination of the Executive Branch's payments mechanism participation expense.) However, all the expenses charged to these reimbursable units are not recovered. For the entire Federal Reserve System in 1969, \$231,924 or 1.2 per cent of the \$19,243,312 expensed to these Treasury reimbursable Fiscal Agency units were not recovered. This discrepancy occurs simply because (as is noted on page 208 of the Accounting Manual) expenses charged to reimbursable units need not necessarily be confined to amounts reimbursable. Nonreimbursable expense includes charges for sick leave beyond 90 days, for extra audits beyond those approved or specified by the reimbursing agency,

and for use of Bank-owned or rented computers and related equipment for purposes such as program testing.

This \$231,924 not recovered must indeed be included in net Federal Reserve System expenses for 1969. The surplus or deficiency in reimbursements and recoveries for Category D expenses for each Bank and Branch is therefore distributed to Category A (payments mechanism) and to Category B (direct functions not included in the payments mechanism). The employee ratios of Table IV are once more used for this purpose because of the ease of derivation of these statistics and the ease of implementation of this generally accepted technique.

OVERHEAD ALLOCATION FOR THE CULPEPER FACILITY

Note that in 1969, Culpeper, involved in start-up operations, was not charged for any function included in either Category B or D. The only payments mechanism functions charged were Federal Reserve Note Issues (\$5,023) and Emergency Operations - Other Emergency Preparations (\$29,357). Culpeper will be payments mechanism-oriented in the future, as well, since future operations will center around the wire communications center and the large amounts of currency to be stored there in case of national emergency.

Category C expenses for Culpeper in 1969 were mainly for General Overhead (\$79,578), Provision of Space (\$130,533), Furniture and Equipment (\$176,277), and Protection and Vault Maintenance (\$123,215) which together accounted for \$509,603 or 80.6 per cent of

the expenses credited to this category. These expenses were incurred mainly in the start-up activities required to establish Culpeper as an operating component aiding the Fifth District in its future payments mechanism participation. For this reason, all of Culpeper's 1969 overhead or Category C expenses are allocated to the payments mechanism and none to Category B.

A FINAL NOTE ON COMPUTATIONAL ACCURACY

Before proceeding to the concluding section, the reader should note that the expenses for each of the four major definitional categories represent direct totals of data in the Functional Expense Report. Therefore, the Total: Before Burden Allocation figure of Table III and the analogous figure for Category B expenses are as accurate as the constraints (discussed in Section One) imposed by the functional definition allow.

The same cannot be said for the Total: After Burden Allocation figures. Theoretically, the sum of the Total: After Burden Allocation payments mechanism expense figure for the entire System given in Table III and Total: After Burden Allocation for Category B expenses should equal the Total All Functions figure in Table II; in other words, they both represent the entire net expense to the Federal Reserve System for all its 1969 activities. The sum of the System-wide payments mechanism Total: After Burden Allocation and the System-wide Category B Total: After Burden Allocation figures for 1969 is \$275,083,709 (\$205,708,482 + \$69,375,227). However, Net

Federal Reserve System Expense as listed for Total All Functions in Table II is only \$274,973,608 or \$110,101 less than the sum of System-wide Category A and Category B expenses.

This statistically insignificant discrepancy (four hundredths of one per cent) simply results from the rounding process used in developing the employee and vault utilization ratios used for burden distribution. As explained in the foregoing text, these ratios are derived from data accurate to only three significant figures. For this reason, the Total: After Burden Allocation figures are only accurate to three significant figures as well. This situation is not really too bad considering the somewhat coarse assumptions made in order to use the employee ratios for allocation of several of the overhead components and in order to employ the vault utilization ratios for allocation of Protection and Vault Maintenance.

For the above reason, the program presented in this section does not generate totals "accurate to the dollar". However, accuracy to a minimum of three significant figures obviously does provide for meaningful comparisons of gross payments mechanism and non-payments mechanism expenses.

SECTION FOUR

SUMMARY AND CONCLUSIONS

By studying Tables III and IV, (the figures developed in the preceding section in a manner consistent with the definition in the first section,) one can gain a proper perspective of the current cost to the Federal Reserve for its participation in America's payments mechanism. These tables graphically show the relative importance of the various payments mechanism activities depicted in the second major section of this paper. In 1969, the total net payments mechanism operation expense (\$205,708,482) was 74.8 per cent of the total net expense (\$274,973,608) of the Federal Reserve System. In other words, payments mechanism expense was three times as large as non-payments mechanism expense. Neglecting burden, the \$111,168,777 payments mechanism (Category A) expense was more than four times as great as was the \$26,669,777 non-payments mechanism (Category B) expense in 1969.

One should also note that, for the System in 1969, the two functions Currency and Coin and Check Collection alone cost \$83,353,878 (75.0 per cent of Category A expense and 30.3 per cent of total net expense for all functions). For the 24 Branches as a group, Currency and Coin and Check Collection were even relatively more important as these functions accounted for \$28,467,344 or 44.6 per cent of the \$63,770,370 total net expense incurred for all functions.

The statistics of Table VII also serve to indicate this importance of the Currency and Coin and Check Collection units relative to those of other payments mechanism functions. The volume of checks processed in 1969 was tremendously large--1.369 billion City checks, 5.132 billion Country checks, and 64.98 million Return Items. In addition, 5.720 billion pieces of currency were sorted and counted as were 12.421 billion of coin. The System volume totals for the remaining payments mechanism components are not so impressive. Moreover, the average number of employees assigned to all Check Collection and Currency and Coin expense units together, except for the completely reimbursed Wrapping Coin unit, was 6,495.43 or 89.5 per cent of the total number assigned to all payments mechanism operations. Thus, the fact that salary cost as a percentage of total cost for the high man-hour currency, coin, and check operations was generally lower than for the other payments mechanism functions (the notable exception being Federal Reserve Note Issues) gives added weight and meaning to the above volume figures. Therefore, any significant improvement in the efficiency of Currency and Coin or Check Collection operations will also have a significant effect upon the future level of total Federal Reserve expenses. Any operational efficiencies in the other payments mechanism functional areas (Transfers of Funds, Other Emergency Preparations, Federal Reserve Note Issues, Government Checks, Currency Verification: F. R. Currency, Currency Verification: Treasury Currency, Money Orders, and Food Stamp Program Processing) will tend to have much less overall effect.

TABLE VII

1969 COST STATISTICS FOR PAYMENTS MECHANISM FUNCTIONS
All Figures are System Totals

Function or Unit as Expensed in the <u>Functional Expense Report</u>	Volume (millions of items)	Average Number of Employees	Total (undistributed) Expense	Net Expense to F.R.
Currency Sorting and Counting	5,720.	918.40	\$6,379,448	\$6,379,448
Coin Sorting and Counting	12,421.	120.76	1,061,603	1,061,603
Wrapping Coin	1.009 (rolls)	63.32	807,823	(142,792)
All Other (Currency and Coin)	-	983.70	23,967,921	23,453,279
City Checks	1,369.	605.41	6,295,769	6,295,769
Country Checks	5,132.	3,675.50	44,639,387	44,639,387
Return Items	64.98	191.66	1,667,186	1,667,186
Accounting: Transfers of Funds only	6.661	253.73	1,995,899	1,995,899
Emergency Operations: Other Preparations only	-	14.47	238,611	238,611
Federal Reserve Note Issues	-	27.37	22,374,943	22,374,943
Government Checks	575.1	183.73	1,515,582	1,515,582
Currency Verification: F.R. Currency	863.2	87.98	746,317	746,317
Money Orders	187.1	68.63	540,147	540,147
Food Stamp Program-- Processing only	519.4	62.05	404,530	403,400

TABLE VII

1969 COST STATISTICS FOR PAYMENTS MECHANISM FUNCTIONS

(continued)

All Figures are System Totals

Function or Unit as Expensed in the <u>Functional Expense Report</u>	Salary Cost Per 1000 Items	Total Cost Per 1000 Items	Salary Cost as a Per Cent of Total Cost
Currency Sorting and Counting	\$ 0.92	\$ 1.12	82.1%
Coin Sorting and Counting	0.058	0.085	68.2
Wrapping Coin	0.003	0.008	37.5
All Other (Currency and Coin)	--	--	29.9
City Checks	3.32	4.60	72.2
Country Checks	4.49	8.62	52.1
Return Items	18.92	25.66	73.7
Accounting: Transfers of Funds only	234.00	300.00	78.0
Emergency Operations: Other Preparations only	--	--	54.7
Federal Reserve Note Issues	--	--	11.1
Government Checks	1.89	2.64	71.6
Currency Verification: F.R. Currency	0.26	0.35	74.3
Money Orders	2.08	2.89	80.0
Food Stamp Program-- Processing only	0.625	0.778	80.3

Source: Functional Expense Report (Annual 1969)
Board of Governors of the Federal Reserve System

One should also note that the expense figures of Table III actually understate the true cost to the Federal Reserve System for its Check Collection activities and therefore for its payments mechanism participation. To these "handling" or "operating" expenses, one must add a major economic opportunity cost which results from the existence of Federal Reserve Float. This non-interest-bearing net asset (Cash Items in Process of Collection minus Deferred Availability Cash Items) of the Federal Reserve System had an average daily value of \$2,577 million in 1969. Policy changes directed toward the elimination of Federal Reserve Float therefore would tend to reduce the true cost of the payments mechanism to the System.

The fact that there really is a pressing need to reevaluate current payments mechanism operations and to institute procedural and policy changes is evident upon examination of Tables VIII and IX. The annual net expense of all payments mechanism functions increased 27.2 per cent between 1966 and 1969. Percentage increases in the volume of operations were almost as great. In fact, when one adjusts for inflation (the Consumer Price Index rose 16.2 per cent and the Wholesale Price Index rose 10.2 per cent between 1966 and 1969), the percentage volume increases become greater than the adjusted percentage expense increases over this three year period. Therefore, for the System as a whole, rather large expense increases for payments mechanism operations cannot be attributed to wide-spread lapses in the management or conduct of operations at the Banks and Branches. In fact, overall unit costs in real (1958) dollars decreased in the late sixties in

TABLE VIII

NET FEDERAL RESERVE EXPENSE* FOR
PAYMENTS MECHANISM FUNCTIONS, 1966-69

Function	1966	1967	1968	1969	Percentage increase (decrease) 1966 - 69
Currency and Coin	\$25,108,843	\$26,673,281	\$28,676,739	\$30,751,536	22.4%
Check Collection	38,205,099	45,926,182	46,511,667	52,602,342	37.7
Accounting					
• Transfers of Funds only	1,317,447	1,460,210	1,728,354	1,995,899	51.5
Emergency Operations					
Other Preparations only	189,986	193,448	206,785	238,611	25.6
Federal Reserve Note Issues	20,365,467	19,023,925	20,722,855	22,374,943	9.9
Fiscal Agency					
Treasury Department					
• Government Checks	1,206,767	1,293,282	1,397,070	1,515,582	25.6
Currency Verification:					
F.R. Currency	271,588	522,911	652,849	746,317	174.8
Post Office Department					
Money Orders only	564,099	533,764	523,774	540,147	(4.2)
Other Govt. Depts. and Agencies					
Food Stamp Program Pro- cessing	148,754	231,173	312,188	403,400	171.2
Total: Before Burden Allocation (Direct cost)	<u>87,378,050</u>	<u>95,858,176</u>	<u>100,732,281</u>	<u>111,168,777</u>	27.2
Category C Expenses Distributed as Burden to Category A:					
Protection and Vault Maintenance	7,317,997	8,223,582	9,112,387	10,118,234	
Assessment for Board of Governors	622,490	743,102	979,676	1,039,658	
Other Category C Expenses Distributed as Burden to Category A	63,863,573	63,736,036	71,735,478	83,185,346	
Total Category C Expenses Distributed as Burden to Category A (Indirect cost)	71,804,060	72,702,720	81,827,541	94,343,238	
Nonreimbursable Category D Expenses Distributed as Burden to Category A	34,200	41,369	313,673	196,467	
Total: After Burden Allocation (Total cost)	<u>159,216,310</u>	<u>168,602,265</u>	<u>182,873,495</u>	<u>205,708,482</u>	<u>29.2</u>

* Net Federal Reserve Expense = Total Expense (undistributed) minus Memorandum--Reimburse-
ments and Recoveries for each function and unit listed in the Functional Expense Report.
All figures are System totals.

TABLE IX

VOLUME OF OPERATIONS IN PRINCIPAL DEPARTMENTS OF FEDERAL RESERVE BANKS, 1966-69

(Number in thousands; amounts in thousands of dollars)

Operation	1966	1967	1968	1969	Percentage Increase (Decrease) 1966 - 69
NUMBER OF PIECES HANDLED^{1/}					
Currency received and counted	5,232,806	5,338,781	5,561,500	5,720,491	9.3%
Coin received and counted ^{2/}	9,304,120	10,958,606	10,957,259	12,931,413	39.0
Checks handled:					
U. S. Govt. checks	504,049	540,065	554,813	575,118	14.1
Postal money orders	217,473	205,343	195,871	187,123	(14.0)
All other ^{3/}	5,021,454	5,419,583	5,904,929	6,504,161	29.5
Transfers of funds	4,832	5,444	^r 5,894	6,660	36.6
Food stamps redeemed	166,615	273,983	384,763	519,393	211.7
AMOUNTS HANDLED					
Currency received and counted	37,001,390	38,410,969	40,585,320	43,273,577	17.0
Coin received and counted	957,282	1,184,616	1,173,761	1,441,123	50.5
Checks handled:					
U. S. Govt. checks	160,014,331	175,068,179	190,653,523	208,155,031	30.1
Postal money orders	4,626,573	4,860,925	4,640,992	4,603,938	(0.5)
All other ^{3/}	1,893,974,522	2,043,772,112	2,350,761,951	2,791,831,294	47.4
Transfers of funds	5,555,075,862	6,565,594,328	^r 7,727,430,321	9,800,324,538	76.4
Food stamps redeemed	226,508	368,569	513,618	694,394	206.6

^r Revised.

^{1/} Packaged items handled as a single item are counted as one piece.

^{2/} Excludes coins handled in separating operation.

^{3/} Exclusive of checks drawn on the Federal Reserve Banks.

Source: Board of Governors of the Federal Reserve System, 56th Annual Report, released May 7, 1970, p. 340.

almost all functional areas. This fact implies the presence of economies of scale which have been at least partially realized. For instance, installation of the third generation computer equipment listed in Table I has aided in the large-scale production operations involved in proving, sorting, and reconciling checks. However, there is no indication that the upward trend in the volume of payments will level off in America's expanding (if cyclic) economy. Further improvement in its payments mechanism operations will, therefore, be absolutely essential if the Federal Reserve is to maintain its present level of payments services. Introduction of fourth generation computer systems will certainly provide for even greater efficiencies in the high-leverage Check Collection function, but policy changes may be required to meet the demands of greater payments volume and are certainly essential in order to improve on services now offered to member banks.

In any case, all proposals for change must be offered with a view of the entire system of payments continuously flowing through the Federal Reserve System. Proper coordination will optimize the net benefits of specific changes in operations involving currency, coin, wire transfers, currency verification, postal money orders, food stamps, the issuance of Federal Reserve Notes, and the collection of commercial and Government checks.

APPENDIX A

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