

ANALYSIS OF THE SHORTFALL IN FEDERAL BUDGET
OUTLAYS FOR FISCAL YEAR 1978

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NOTES

Unless otherwise indicated, all years referred to are fiscal years. For 1976 and before, fiscal years ran from July 1 through June 30 and were referred to by the years in which they ended. The Congressional Budget act of 1974 changed the fiscal year to begin on October 1 and end on September 30. The interim between the old and new fiscal years, July 1 through September 30, 1976, is called the transition quarter; fiscal year 1977 began on October 1, 1976.

Details in the text, tables, and figures of this report may not add to totals because of rounding.

PREFACE

This analysis was prepared at the request of Senators Edmund S. Muskie and Henry Bellmon, the Chairman and Ranking Minority Member, respectively, of the Senate Committee on the Budget. The paper discusses the reasons for the shortfall in federal budget outlays below the level specified in the second budget resolution for fiscal year 1978. The paper also contains estimates of the economic effects of the 1978 outlay shortfall, and discusses the prospects for further spending shortfalls in 1979 and beyond.

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SUMMARY

Federal budget outlays for fiscal year 1978 fell short of the level specified by the second Congressional budget resolution by \$8.4 billion, or 1.8 percent, primarily because of an upward bias in the agency outlay estimates used for the resolution. This marks the third year in a row that actual outlays have fallen short of the levels planned by the Congress. In each case, the outlay shortfalls have been caused by estimating problems rather than as the result of deliberate policy actions. For fiscal year 1979, however, the second resolution outlay ceiling appears to be too low, largely because of a change in the economic outlook. Also, the upward bias in outlay estimates was effectively removed from the 1979 second resolution. As a result, the outlay shortfall problem is not expected to continue in fiscal year 1979.

REASONS FOR THE 1978 SHORTFALL

Misestimates of federal budget outlays can be divided into two basic categories: those that are potentially correctable through the use of better estimating techniques, and those that are caused by intrinsic uncertainties and probably cannot be avoided. The CBO analysis of the 1978 outlay shortfall suggests that the entire shortfall can be attributed to misestimates that can be improved. In fact, misestimates because of intrinsic uncertainties--unanticipated Congressional action or inaction, unexpected administrative actions by the Executive Branch, inaccurate economic assumptions, and abnormal weather conditions and disasters--resulted in an outlay overrun of \$1.3 billion from the second budget resolution estimates. The use of inaccurate spending rates, faulty models, inaccurate programmatic assumptions, and other estimating problems that are potentially correctable was responsible for a shortfall of \$9.7 billion from the second resolution outlay estimates, as shown in the following table. Over 80 percent of the total shortfall resulting from these reasons is accounted for by shortfalls in the Department of Defense (-\$4.3 billion), Department of Energy programs (-\$1.8 billion), EPA construction grants (-\$1.2 billion) and the Department of Housing and Urban Development (-\$1.2 billion).

REASONS FOR THE SHORTFALL IN FEDERAL BUDGET OUTLAYS IN FISCAL YEAR 1978: IN BILLIONS OF DOLLARS

Reasons	Shortfall
Misestimates of Outlays Because of Intrinsic Uncertainties	
Inaccurate legislative assumptions	-1.4
Unexpected administrative actions by the Executive Branch	0.7
Inaccurate economic assumptions	0.1
Abnormal weather conditions	
disasters	<u>2.0</u>
Subtotal, intrinsic uncertainties	<u>1.3</u>
Misestimates of Outlays That Are Potentially Correctable	
Faulty models or inaccurate programmatic assumptions	0.9
Inaccurate spending rates and other estimating problems	-10.6
Subtotal, potentially correctable misestimates	<u>-9.7</u>
Total shortfall from second budget resolution	-8.4

Given all of the uncertainties in estimating federal budget outlays, complete accuracy in outlay estimates is not attainable, except by chance. If there are no systematic biases in the assumptions and methodology, however, the statistical law of large numbers, in which individual estimating errors are likely to be offsetting, suggests that the overall estimating error for total budget outlays could be as small as 1 to 2 percent before the start of a fiscal year.

OUTLOOK FOR 1979 OUTLAYS

The upward bias in agency outlay estimates, which was primarily responsible for the outlay shortfalls in the past three fiscal years, was effectively removed by the Budget Committees before the adoption of the

second resolution for 1979. It is highly unlikely, therefore, that there will be a continuing shortfall in outlays in fiscal year 1979. On the contrary, it is very probable that there will be an overrun from the \$487.5 billion level set by the second budget resolution for 1979. This outlay overrun, which is estimated to be as much as \$4 to \$9 billion, is expected to result largely because of a revised economic outlook for calendar year 1979. The second resolution economic assumptions for real growth, unemployment, inflation, and interest rates now appear to be unrealistic. Using the revised CBO economic forecast for calendar year 1979, it is estimated that budget authority and outlays for net interest payments, unemployment compensation, social security benefits, and other programs sensitive to changes in economic conditions will be about \$6 billion higher than the levels assumed for the second budget resolution (see table below).

CBO REESTIMATES OF FISCAL YEAR 1979 SPENDING BECAUSE OF REVISED ECONOMIC FORECAST: IN BILLIONS OF DOLLARS

	Budget Authority	Outlays
Second Budget Resolution Ceilings	555.65	487.5
Reestimates Because of Changes in Economic Outlook		
Net interest	3.8	3.8
Unemployment compensation	0.9	0.8
Federal civilian and military retirement benefits	0.6	0.3
Social security (OASDI)	0.2	0.5
Medicare and medicaid	0.4	0.2
Assistance payments	<u>0.1</u>	<u>0.1</u>
Second Budget Resolution with Revised Economic Forecast	561.7	493.3

NOTE: Preliminary, subject to change.

OUTLAY ESTIMATING METHODS

CBO uses four basic methods for estimating outlays for individual budget accounts: (1) independent models that correlate program characteristics and spending data for major benefit payment programs, interest on the public debt, and other programs that, all together, account for 52 percent of total outlays; (2) projected spendout rates from new budget authority, mostly for appropriated accounts that represent 37 percent of total outlays; (3) OMB and agency estimates for a limited number of programs in which Executive Branch estimating accuracy generally has been good, or for which CBO has not developed any better alternative methodology; and (4) other methods, including staff judgments based on experience and information provided by federal agencies for programs that are particularly volatile or for which it is difficult to build accurate estimating models.

A comparison of actual 1978 outlays with the estimates used by the Budget Committees for the second budget resolution shows that the total estimates produced by the CBO independent estimating models for the second resolution were off by only 0.4 percent (\$1 billion). Furthermore, during the fiscal year, CBO revised these estimates in its scorekeeping reports so that they were almost equal in aggregate to the actual outlays reported by the Treasury for these programs.

On the other hand, the outlay assumptions for the 1978 second resolution that were based on projected spendout rates from new budget authority were too high by 5.7 percent, or nearly \$9 billion. During the year, as CBO monitored actual outlay trends, the scorekeeping estimates for these accounts were lowered by \$10 billion, or \$1.3 billion below the actual level. This area represents the greatest potential for improvement, and it is here that CBO concentrated most of its attention during the past year, with relatively good success. The results of these efforts were incorporated in the estimates used for the 1979 second budget resolution.

Based on CBO's recent experience, the prospects are also quite good for removing any upward bias in agency outlay estimates before the first budget resolution for 1980 is adopted. Nevertheless, there will remain potential inaccuracies in the 1980 estimates because of the intrinsic uncertainties involved in anticipating legislative and administrative actions, projecting economic and weather conditions, and foreseeing other factors affecting outlay estimates. This means that the possibility will remain for an outlay shortfall or overrun from the 1980 budget resolutions. The removal of any biases from the outlay estimates, however, should result in an equal probability for either a shortfall or an overrun.

CHAPTER I. INTRODUCTION

Federal outlays for fiscal year 1978 fell short by \$8.4 billion from the level specified in the second budget resolution adopted by the Congress on September 15, 1977. In addition, actual receipts for fiscal year 1978 exceeded the second resolution level by \$4.1 billion. As a result, as shown in Table 1, the budget deficit for 1978 turned out to be \$12.5 billion below the level the Congress believed appropriate when it adopted the second resolution fifteen days before the start of the fiscal year.

TABLE 1. FEDERAL BUDGET FOR FISCAL YEAR 1978: IN BILLIONS OF DOLLARS

	Second Resolution	Actual <u>a/</u>	Overrun/ Shortfall (-)
Receipts	397.0	401.1	4.1
Outlays	458.25	449.9	-8.4
Deficit	61.25	48.8	-12.5

a/ Earned income credit payments have been deducted from revenues to conform to the 1978 budget resolution treatment.

Table 2 shows that the second resolution receipts assumptions were too low for individual and corporation income taxes and customs duties but were too high for social insurance and excise taxes. The overall revenue estimating error, however, was only 0.1 percent.

TABLE 2. RECEIPTS FOR FISCAL YEAR 1978, BY MAJOR SOURCE: IN BILLIONS OF DOLLARS

Major Source	Second Resolution	Actual <u>a/</u>	Overrun/ Shortfall (-)
Individual Income Taxes	175.0	180.1	5.1
Corporation Income Taxes	59.0	60.0	1.0
Social Insurance Taxes	124.4	123.4	-1.0
Excise Taxes	20.3	18.4	-1.9
Estate and Gift Taxes	5.6	5.3	-0.3
Customs Duties	5.4	6.6	1.2
Miscellaneous Receipts	7.3	7.4	0.1
Total	397.0	401.2	*.1

a/ Earned income credit payments have been deducted from revenues to conform to the 1978 budget resolution treatment.

Table 3 shows that the major shortfalls in outlays from the 1978 second resolution assumptions for functional categories were for national defense, energy programs, natural resources and environment, veterans' benefits and services, and international affairs. In all, estimated outlays in the second resolution were too high for 13 out of 18 major functional categories, for a total of over \$1* billion. This was partially offset by outlay overruns in five functional categories totaling almost \$6 billion. The total net shortfall of \$8.4 billion for 1978 is 1.8 percent of the second resolution level for outlays. Chapter II presents a detailed discussion of the reasons for the shortfall in actual 1978 outlays below the second resolution level.

TABLE 3. OUTLAYS FOR FISCAL YEAR 1978, BY FUNCTION: IN BILLIONS OF DOLLARS

Function	Second Resolution	Actual <u>a/</u>	Overrun/ Shortfall (-)
National Defense	109.5	105.2	-4.3
International Affairs	7.2	6.0	-1.1
General Science, Space and Technology	4.7	4.7	<u>b/</u>
Energy	7.8	5.9	-1.9
Natural Resources and Environment	12.3	10.9	-1.4
Agriculture	6.3	7.7	1.4
Commerce and Housing Credit	3.8	3.3	-0.5
Transportation	15.9	15.4	-0.5
Community and Regional Development	9.8	11.0	1.2
Education, Training, Employment and Social Services	27.2	26.5	-0.7
Health	44.3	43.7	-0.6
Income Security	146.2	145.3	-0.9
Veterans' Benefits and Services	20.4	19.0	-1.4
Administration of Justice	4.1	3.8	-0.3
General Government	4.0	3.6	-0.4
General Purpose Fiscal Assistance	9.85	9.6	-0.3
Interest	41.7	44.0	2.3
Undistributed Offsetting Receipts	<u>-16.8</u>	<u>-15.8</u>	<u>1.0</u>
Total	458.25	449.9	-8.4

a/ Excludes earned income credit payments and the Exchange Stabilization Fund.

b/ Less than \$50 million.

Table 4 shows the budget aggregates (budget authority, revenues, outlays, budget deficits) specified in budget resolutions adopted to date by the Congress. The table also presents the actual values of these aggregates and computes overruns/shortfalls from the last budget resolution adopted for each fiscal period. ^{1/} In general, the table shows that, since fiscal year 1976, actual outlays and budget deficits have consistently fallen short of final resolution estimates. For fiscal year 1977, actual outlays were \$7.3 billion (1.8 percent) below the level specified in the final budget resolution adopted by the Congress only four and one-half months before the end of the fiscal year. Actual outlays were \$10.1 billion (2.7 percent) below the level specified in the second budget resolution for fiscal year 1976, the first year of operation for the new Congressional budget process established by the Congressional Budget Act of 1974.

Revenues and budget authority, on the other hand, have both run over and fallen short of resolution levels. Moreover, the overruns and shortfalls for revenues and budget authority have been relatively small in terms of both dollars and percentages. The major estimating problem for the budget resolutions clearly has been with outlays, for which the shortfalls have been relatively large in both dollars and percentages. The focus of this report, therefore, will be on the outlay estimates used for Congressional budget resolutions.

SIGNIFICANCE OF ESTIMATING ERRORS

Estimates of budget outlays are inherently uncertain. They are based on a number of factors, including assumptions about how the economy is expected to perform during the next 12 to 18 months, the nature and timing of Congressional action on spending measures, financial market conditions, actions to be taken by federal agencies and by state and local governments, weather conditions, and a host of other factors discussed in Chapter II. Given the uncertainty involved in the underlying assumptions, there will always be estimating errors for budget outlays. If there are no systematic biases in the assumptions and methodology, however, the law of large numbers, in which individual estimating errors are offsetting, suggests that the overall estimating error for total budget outlays could be quite small. Furthermore, the magnitude of this overall estimating error should diminish as the end of the fiscal year draws nearer.

^{1/} See Appendix C for a reconciliation of the actual budget totals shown in the Administration's 1980 budget document and the actual budget totals shown in Table 4.

TABLE 4. CONGRESSIONAL BUDGET RESOLUTIONS AND ACTUAL BUDGET TOTALS, FISCAL YEARS 1976-1978: IN BILLIONS OF DOLLARS

Fiscal Year	Budget Authority	Receipts	Outlays	Deficit
Fiscal Year 1976				
First resolution	395.8	298.18	367.0	68.82
Second resolution	408.0	300.8	374.9	74.1
Actual	413.8	299.2	364.8	65.6
Overrun/Shortfall (-)	5.8	-1.6	-10.1	-8.5
Transition Quarter (July 1 to September 30, 1976)				
First resolution	91.1	86.0	101.7	15.7
Second resolution	96.3	86.0	102.0	16.2
Actual	90.9	81.7	94.4	12.7
Overrun/Shortfall (-)	-5.4	-4.3	-7.8	-3.5
Fiscal Year 1977				
First resolution	454.2	362.5	413.3	50.8
Second resolution	451.55	362.5	413.1	50.6
Third resolution	472.9	347.7	417.45	69.75
Third resolution amended	470.2	356.6	409.2	52.6
Actual	464.4	356.9	401.9	45.0
Overrun/Shortfall (-)	-5.0	0.3	-7.3	-7.6
Fiscal Year 1978				
First resolution	503.45	396.3	460.95	64.65
Second resolution	500.1	397.0	458.25	61.25
Actual	500.4	401.1	449.9	48.8
Overrun/Shortfall (-)	0.3	4.1	-8.4	-12.5

NOTE: The overruns/shortfalls (-) shown in this table are the differences between the actuals and the last budget resolution.

An estimating error of 1 or 2 percent would ordinarily seem quite reasonable, given the uncertainties of the underlying assumptions used for estimating budget outlays. While errors of this magnitude can be significant, they probably cannot be avoided. For two reasons, however, it is important to minimize all estimating errors, insofar as that is possible:

- o Congressional budgetary procedures require a high level of precision in budget estimates.
- o In recent years, the errors in estimating budget outlays appear to have contributed to a slower recovery from the 1974-1975 recession than believed desirable by the Congress in formulating its budget resolutions.

Budgetary Procedures

The procedures established by the Congressional Budget Act provide little room for uncertainty. The second budget resolution sets binding limits on further spending and revenue legislation that the Congress can adopt for the fiscal year. Under these procedures, the Congress is prohibited from considering any legislation that would cause the spending totals for budget authority and outlays to be exceeded or the revenue total to be reduced. For example, if a particular proposed spending action was estimated to have the effect, if enacted, of causing total outlays to exceed the level specified in a second resolution, a point of order could be raised against the measure, which would prevent further action. Under the new procedures this is the major device for controlling Congressional actions on the budget.

Under the Congressional Budget Act, one means for dealing with uncertainty in outlay estimates is for the Congress to adopt a new budget resolution to provide for a higher (or lower) outlay ceiling. In order to maintain stability in the budget process, however, the two Budget Committees are reluctant to recommend the adoption of more than two resolutions for a fiscal year.

Since the budget resolutions provide for specific amounts of total revenues and outlays, the scorekeeping of Congressional budget actions must also be in terms of specific amounts or point estimates, even though there may be great uncertainty about these estimates. If misestimates of outlays cause a point of order to be raised or a new budget resolution to be adopted needlessly, the credibility of the new Congressional budget process could be seriously threatened. For example, a desired spending measure might be turned down because the scorekeeping estimates showed that, if enacted, the measure could exceed the second resolution spending ceilings. Sub-

sequently, actual spending data might reveal that the scorekeeping estimates were too high, and that the desired spending measure could have been enacted without violating the resolution ceilings. This would tend to undermine the credibility of the scorekeeping estimates and the budget process that uses these estimates to control Congressional actions.

On the other hand, if the scorekeeping estimates were too low, the Congress could enact spending measures that would later prove to exceed the level specified by the final budget resolution. This would tend to defeat the budgetary control purposes of the Budget Act.

Furthermore, misestimates of spending could cause second resolutions to be adjusted needlessly, which would also tend to undermine the credibility of the Congressional budget process. This could happen if the scorekeeping estimates indicate that an adjustment to a second resolution was needed in order to accommodate desired spending measures (for example, the end-of-year supplemental appropriation bill), but the actual spending data later revealed that the spending measures could have been enacted without such an adjustment.

To date, misestimates of outlays have not been a serious problem for the functioning of the Congressional budget process because the outlay ceilings under the second or subsequent resolutions have always been high enough to accommodate proposed spending measures. As discussed in this chapter, the systematic upward biases in many of the outlay estimates used for the resolutions have been mainly responsible for this leeway. For fiscal year 1979, however, CBO believes that these upward biases essentially have been removed from the outlay estimates used for the second resolution. This has significantly tightened the second resolution spending ceilings in 1979, compared to previous years, thus reducing the room for upward adjustments in scorekeeping estimates. Because of the changing economic outlook for 1979, it is likely that estimates of 1979 spending will have to be increased, as discussed in more detail in Chapter IV. Because not all of the spending actions for 1979 have been completed, this could pose a significant problem for the Congress if the second resolution ceilings are not adjusted.

Economic Consequences

An unexpected shortfall in federal spending could have important economic consequences. For example, during the November 1976 hearings before the House Committee on the Budget, CBO testified that it seemed likely that the growth of real gross national product (GNP) was as much as 0.1 percentage point (annual rate) lower during the second and third quarters of calendar 1976 than it would have been if the shortfall had not occurred in fiscal year 1976 and the transition quarter. In its January 1977 annual

report, the Council of Economic Advisers also agreed that the shortfall in federal spending helped explain the unexpected weakness in the economy after the spring of 1976. The shortfall in federal outlays from the second budget resolution for fiscal year 1978 is estimated to have had a similar effect.

An unexpected overrun in federal spending could also have significant economic effects. For example, if the economy was growing at its full-employment potential, greater than expected federal spending could result in increased inflation. On the other hand, if the economy was at less than its full-employment potential, a spending overrun would provide further stimulus to the economy, resulting in greater growth and lower unemployment.

While the unified budget presents a fairly comprehensive record of all federal government revenues and outlays, the federal sector account in the national income and product accounts (NIPA) is generally considered a better measure of the government's impact on current economic activity. These accounts remove from the unified budget such items as asset transfers and advance payments, which are unlikely to affect significantly real economic activity or prices. If unified budget outlays deviate from estimated levels because of changes in such items, the federal sector in the NIPA is unaffected.

For fiscal year 1978, Table 5 summarizes the differences in federal sector expenditures in the national income and product accounts between CBO estimates for its July 1977 economic forecast and the estimates now available from the Department of Commerce. In NIPA terms, the shortfall is estimated to be \$11.8 billion, compared to \$8.4 billion in the unified budget. The NIPA shortfall occurs in virtually all categories, and is greatest in the last two quarters of the fiscal year.

TABLE 5. SHORTFALLS IN FEDERAL SECTOR EXPENDITURES IN THE NATIONAL INCOME AND PRODUCT ACCOUNTS, FISCAL YEAR 1978: IN BILLIONS OF DOLLARS, QUARTERLY DATA AT SEASONALLY ADJUSTED ANNUAL RATES

	Calendar Year: Quarter				Fiscal Year
	1977:4	1978:1	1978:2	1978:3	1978
Total Federal Sector					
Estimated <u>a/</u>	446.7	457.6	468.5	479.9	463.2
Actual <u>b/</u>	<u>444.1</u>	<u>448.8</u>	<u>448.3</u>	<u>464.5</u>	<u>451.4</u>
Shortfall	-2.6	-8.8	-20.2	-15.4	-11.8
Shortfalls (-)/Overruns by Major Category					
Purchases:					
Defense	-2.6	-3.9	-5.3	-5.0	-4.2
Nondefense	1.9	-1.0	-6.9	-1.9	-1.9
Transfers	-2.5	-3.5	-6.1	-2.8	-3.8
Grants	-3.0	-2.1	-1.9	-2.1	-2.3
Net interest	0.6	0.3	-1.3	-2.8	-0.8
Subsidies less					
current surplus	3.1	1.4	1.4	-0.5	1.4
Wage accruals					
less disburse-					<u>c/</u>
ments	--	--	--	-0.2	
Total Shortfall	<u>-2.6</u>	<u>-8.8</u>	<u>-20.2</u>	<u>-15.4</u>	<u>-11.8</u>

a/ CBO estimate for the second budget resolution economic assumptions.

b/ As reported by the Department of Commerce, Bureau of Economic Analysis. Subject to revision.

c/ Less than \$50 million.

CBO's estimates of the impact of the shortfall on the economy in fiscal years 1978 and 1979 are presented in Table 6. These estimates were derived from the CBO multipliers model for federal government purchases

and transfers. ^{2/} The estimated effects of the 1978 shortfall on the GNP, measured in both current and constant dollars, build slowly over the year and reach their maximum value of \$18 billion--roughly \$11 billion in constant dollars--in the fourth quarter of fiscal year 1978. The estimated impact on the rate of real economic growth for the full fiscal year is a reduction of 0.5 percent from the rate assumed for the second budget resolution. This is about the same impact on growth that CBO estimated for the effect of the 1976 shortfall.

TABLE 6. ESTIMATED ECONOMIC EFFECTS OF THE FISCAL YEAR 1978 FEDERAL SECTOR EXPENDITURE SHORTFALL: BY FISCAL YEARS

	1978 Average	1978 4th Quarter	1979 4th Quarter
Gross National Product			
Current dollars (in billions)	-11	-18	-6
Constant (1972) dollars (in billions)	7	-11	-2
Unemployment Rate (percent)	+0.1	+0.3	+0.1
Consumer Price Index (percent change, 4th quarter over 4th quarter)	—	—	-0.1

The estimated effect on the unemployment rate peaks at 0.3 percent in the fourth quarter of fiscal year 1978. By the fourth quarter of fiscal year 1979, the effects on GNP and unemployment are estimated to be substantially lower. In addition, a modest reduction in the growth of the Consumer Price Index is estimated for 1979. After 1979, the real economic effects of the fiscal year 1978 shortfall are not likely to be significant, assuming that the shortfall does not persist. As discussed in Chapter IV, the shortfall is not expected to continue.

^{2/} See Congressional Budget Office, The CBO Multipliers Project, Technical Analysis Paper (August 1977).

CHAPTER II. THE REASONS FOR THE 1978 SHORTFALL

In any given fiscal year, actual outlays may be greater or less than specified in a Congressional budget resolution for a number of reasons. One set of reasons involves uncertainties that are intrinsic in the budgetary process. These include unanticipated Congressional actions or inactions, unexpected administrative actions by the Executive Branch, inaccurate economic assumptions, and abnormal weather conditions and disasters. It is unlikely that the effects of these uncertainties can be reduced through better estimating techniques. Misestimates of outlays for these reasons are likely to be random, resulting in estimating errors in both directions.

Another set of reasons for outlay misestimates involves the use of faulty cost models and inaccurate spending rate assumptions. Errors in estimating outlays for these reasons are potentially correctable through the improvement of models and the use of more realistic spending rates. For example, federal agencies tend to overestimate what they can accomplish each year, thus putting an upward bias in their outlay estimates. This upward bias has been the principal reason for outlay shortfalls during the past three years, and removing it will result in more accurate estimates of total outlays.

This chapter discusses the \$8.4 billion shortfall in outlays from the 1978 second budget resolution in terms of these two sets of reasons. Table 7 provides a summary of the dollar magnitude associated with each of these general categories. The major reasons for the 1978 outlay shortfall were the failure of agencies to spend annual appropriations at the rates assumed for the second resolution (-\$10.6 billion), faulty models or inaccurate programmatic assumptions for benefit payment programs (-\$1.9 billion), and the delay or nonenactment of new legislative initiatives assumed for the second budget resolution (-\$1.4 billion). This underspending was partially offset by higher than expected outlays for disaster loans and payments because of abnormal weather conditions (\$2.0 billion), and faulty models or inaccurate programmatic assumptions for financial transactions and other open-ended programs (\$2.7 billion). It is notable that the misestimates of outlays caused by inaccuracies in the economic assumptions used for the 1978 second resolution are judged to be quite small in the aggregate.

TABLE 7. REASONS FOR THE SHORTFALL IN FEDERAL BUDGET OUTLAYS IN FISCAL YEAR 1978: IN BILLIONS OF DOLLARS

Reason	Shortfall (-)/ Overrun
Misestimates of Outlays Caused by Intrinsic Uncertainties	
Inaccurate legislative assumptions	-1.4
Unexpected administrative actions by the Executive Branch	0.7
Inaccurate economic assumptions	0.1
Abnormal weather conditions and disasters	<u>2.0</u>
Subtotal, intrinsic uncertainties	<u>1.3</u>
Misestimates of Outlays That Are Potentially Correctable	
Faulty models or inaccurate programmatic assumptions	
Benefit payment programs	-1.9
Financial transactions	0.5
Other open-ended programs	2.2
Inaccurate spending rates and other estimating problems	<u>-10.6</u>
Subtotal, potentially correctable misestimates	<u>-9.7</u>
Total shortfall from second budget resolution	-8.4

Table 7 also indicates that, if there had been no outlay misestimates of the potentially correctable type (or if these misestimates were exactly offsetting), it might have been necessary to adjust the second budget resolution for 1978, largely because abnormal weather conditions and unexpected administrative actions increased the estimated outlays. As discussed in Chapter IV, it may also be necessary to adjust the second budget resolution for fiscal year 1979, this time because of an unexpected change in the economic outlook. Thus, even with accurate cost models, spending rates, and programmatic assumptions, total outlays may deviate from the level specified for a budget resolution for reasons beyond the control of the outlay estimators.

INTRINSIC UNCERTAINTIES

This section provides details on the extent to which outlays for the second budget resolution for 1978 were misestimated for reasons that essentially are beyond the control of the Congressional budget estimators. The figures shown in Table 8 are CBO estimates based on the two Budget Committees' reports on the second resolution, the conference report on the resolution, and other information. The assignment of outlay shortfalls and overruns to various reasons should be considered approximate. Appendix A provides the basic data base used for the analysis presented in this chapter.

Inaccurate Legislative Assumptions

In formulating a budget resolution, the Budget Committees must make assumptions about future Congressional actions that will affect spending, including legislation to establish new spending programs, to expand existing programs, or to cut program costs. However, these anticipated actions may occur later than the time assumed for a resolution, be substantially different than assumed, or never happen. For example, the third budget resolution for fiscal year 1977 assumed that total outlays would be increased by \$3.2 billion by the enactment of \$50 tax rebates and special payments to nontaxpayers as part of an effort to stimulate the economy. The President, however, subsequently withdrew his support for this proposal, and it was not enacted. This resulted in a \$3.2 billion shortfall from the third resolution level.

Also, the legislative assumptions made for a budget resolution may not include provisions for certain items that are enacted. Under the procedures of the Congressional Budget Act, the enactment of unanticipated legislation is permitted so long as it will not breach the spending ceilings of a second or subsequent resolution.

TABLE 8. MISESTIMATES OF FISCAL YEAR 1978 OUTLAYS BECAUSE OF INTRINSIC UNCERTAINTIES: IN BILLIONS OF DOLLARS

Reason	Shortfall (-)/ Overrun
Inaccurate Legislative Assumptions	
New veterans' entitlements	-1.0
New energy programs	-0.4
Medicare and medicaid cost control legislation	0.4
Public assistance and SSI, net	0.2
Youth employment and minimum wage increase for CETA programs	-0.2
Claims and judgments and other Treasury programs	-0.2
Child health assessment and other health programs	-0.1
All other, net	-0.1
Subtotal	<u>-1.4</u>
Unexpected Administrative Actions by the Executive Branch	
Farm price supports	0.3
Farmers Home Administration public enterprise funds	0.6
Railroad rehabilitation fund	-0.1
Subtotal	<u>0.7</u>
Inaccurate Economic Assumptions	
Net interest	0.7
Food stamp program	0.1
Social security (OASDI)	-0.5
Antirecession financial assistance	-0.2
Subtotal	<u>0.1</u>
Abnormal Weather Conditions and Disasters	
SBA disaster loan fund	1.8
Disaster relief and CCC disaster payments	0.2
Subtotal	<u>2.0</u>
Total overrun from second resolution	1.3

It is estimated that the delay or failure to enact new legislative initiatives assumed for the 1978 second budget resolution resulted in a shortfall in outlays of \$1.4 billion (See Table 8). The major portion of this amount was caused by the delay in enactment of veterans' pension reform legislation. Other anticipated changes in veterans' entitlements programs, new energy programs, child health assessment and other health programs were not enacted. The resolution allowances for additional spending for claims and judgments and for the cost of minimum wage increases for certain employment and training programs were not used. On the other hand, medicare and medicaid cost control legislation, which the resolution assumed would result in an outlay reduction, also was not enacted resulting in an overrun.

Public assistance payments to the states in 1978 were higher than estimated for the second resolution, in part because no allowance was made for fiscal relief provided to the states by the social security legislation enacted in December 1977. On the other hand, the resolution did provide an allowance for other public assistance legislation that was not enacted until October 1978, after the end of the fiscal year.

Estimated outlays for supplemental security income (SSI) benefits under existing law for the second resolution were also too low by \$166 million. This underestimate or overrun was the result of legislation passed in December 1977 that requires benefit checks to be mailed early if the day regularly scheduled for delivery falls on the weekend or a public holiday. SSI checks are usually paid on the first of the month. Because October 1, 1978, was a Sunday, October 1978 checks were issued on Friday, September 29. This meant that 13 monthly payments were included in fiscal year 1978 outlays. On the other hand, the resolution did include an allowance for other SSI legislation that would raise outlays by \$86 million, which was not enacted until after the end of the fiscal year, thus contributing to the shortfall.

Unexpected Administrative Actions by the Executive Branch

Federal agencies are authorized to take various independent actions that can cause expected increases or decreases in outlays. For each budget resolution, assumptions must be made about what these actions may be—assumptions that may later prove to be inaccurate. For fiscal year 1978, it is estimated that the net result of such unexpected actions by the Executive Branch was an overrun of about \$700 million from the second budget resolution (see Table 8).

Estimated outlays in 1978 farm price supports for the second resolution were too low by almost \$900 million. About \$300 million of this overrun or underestimate is attributed to administrative actions taken by the Secretary of Agriculture in March 1978 to initiate a paid grazing and haying program for wheat and a paid diversion program for feed grains and cotton. Another part of the overrun was caused by greater than expected disaster payments to farmers for crop losses (shown in Table 8). The remaining overrun was caused by unexpected changes in commodity market conditions and farmers' behavior shown in Table 10 which summarizes potentially correctable misestimates.

The net outlays for various financial transactions can be affected by management decisions regarding the sale of assets to the private sector or the Federal Financing Bank (FFB), an off-budget agency. If assumed asset sales are not made, net outlays will be greater than expected for these transactions. Net outlays in 1978 from the Farmers Home Administration public enterprise funds were \$574 million (or 86 percent) higher than estimated for the second budget resolution. After loans from these funds are disbursed, the loan assets are usually sold to the FFB. These sales are treated in the budget as offsetting collections. Net outlays from the funds can fluctuate sharply, depending on whether and when such asset sales take place. The budget impact of these asset sales is difficult to predict because their timing and volume are determined by the Farmers Home Administration, which can change its plans on very short notice. For fiscal year 1978, asset sales were much lower than assumed for the second resolution.

Under the Railroad Revitalization and Regulatory Reform Act of 1976 the Secretary of Transportation is allowed discretionary use of the railroad rehabilitation and improvement financing fund to purchase redeemable preference shares from railroads to provide for capital needs critical to preserving essential rail freight services. At the time the second resolution outlay estimates were made, there were valid applications at the Secretary's office for the \$200 million available for this purpose, and estimated outlays reflected that amount. However, the Secretary decided to restrict use of this fund until all other existing rail program alternatives were exhausted. Thus, rail lines were encouraged to borrow money under the Section 511 loan guarantee program, rather than use the financing fund. This resulted in a \$134 million shortfall from the second resolution assumptions.

Inaccurate Economic Assumptions

The economic assumptions used to formulate a budget resolution may also prove to be inaccurate, which can especially affect those spending programs that are particularly sensitive to the assumptions used to estimate outlays. For example, under the antirecession financial assistance program,

funds are allocated quarterly on the basis of the unemployment rate in the previous quarter. If actual unemployment was less than assumed, estimates of payments to state and local governments would be too high. Similarly, unexpected increases in the level of unemployment can result in higher than anticipated outlays for unemployment compensation, as happened in fiscal year 1975.

If the actual rate of inflation turned out to be higher than assumed for a budget resolution, outlays for social security benefits and other benefit payment programs that are automatically adjusted for increases in the cost of living would be greater than estimated. In addition, outlay estimates for interest on the public debt are sensitive to the assumptions used for the level of interest rates.

In formulating the second resolution for 1978, a major issue that had to be resolved in conference was differences in the economic assumptions used by the two Budget Committees. The House Budget Committee based its revenue and spending estimates on a 5 percent real economic growth rate during calendar year 1978; the Senate Budget Committee used a 4.6 percent real growth rate. Recognizing the imprecision of growth rate predictions, the reasonableness of both assumptions, and the possibility of substantial change in the estimates over the coming months, the conferees agreed to a compromise of 4.8 percent of real economic growth for calendar year 1978. Based on current information, it now appears likely that the actual rate of real economic growth during calendar 1978 was roughly a full percentage point lower than assumed by the Budget Committees.

Table 9 compares the economic assumptions adopted for the second budget resolution for fiscal year 1978 with the actual performance of the economy. These assumptions are for calendar years 1977 and 1978. Fiscal year 1978 covers the last quarter of calendar 1977 and the first three quarters of calendar year 1978.

The major differences between the economic assumptions for calendar year 1978, used for the second resolution budget estimates, and actual results, as shown in Table 9, are as follows:

- o Lower real economic growth (3.9 percent compared to 4.8 percent assumed);
- o Lower unemployment (6.0 percent calendar year average compared to 6.5 percent assumed);
- o Higher inflation (7.6 percent increase in the CPI compared to 5.6 percent assumed); and
- o Higher interest rates (7.2 percent monthly average in 3-month Treasury bills compared to 5.8 percent assumed).

TABLE 9. SECOND RESOLUTION ECONOMIC ASSUMPTIONS COMPARED TO ACTUAL, CALENDAR YEARS 1977 AND 1978

Economic Variable	1977	1978
Gross National Product		
Current dollars (in billions)		
Second resolution	1,898	2,107
Actual	1,887	2,107
Constant (1972) dollars (in billions)		
Second resolution	1,338	1,403
Actual	1,333	1,385
Real growth (percent)		
Second resolution	5.0	4.8
Actual	4.9	3.9
Unemployment Rate (percent)		
Calendar year (average)		
Second resolution	7.0	6.5
Actual	7.0	6.0
End of year (fourth quarter)		
Second resolution	6.9	6.3
Actual	6.6	5.8
Consumer Price Index (percent change, year over year)		
Second resolution	6.5	5.6
Actual	6.5	7.6
Interest Rate, 3-month Treasury Bills (monthly average)		
Second resolution	5.2	5.8
Actual	5.3	7.2

The lower than anticipated real economic growth during calendar year 1978 appears to be a result of overly optimistic predictions of consumption, net exports, and federal expenditures. The possible effect of lower than expected federal expenditures was discussed in Chapter I.

Unemployment rates were lower than expected in 1978 because employment grew much more rapidly than the growth in real output would usually imply. Stated another way, there was an unanticipated slowdown in labor productivity in 1978. Furthermore, in January 1978, several months after the second resolution for fiscal year 1978 was adopted, the Bureau of Labor Statistics (BLS) revised its unemployment rate during the previous year to show a relatively smooth downward trend instead of a fairly constant rate. It seems reasonable to expect that forecasts of unemployment made prior to January 1978 would have been too high in the light of the BLS revision of the 1977 data.

Probably the most important factor contributing to the higher than expected inflation was the rapid increase of food prices in general, and meat, fruit, and vegetable prices in particular. The surge in meat prices was the result of strong demand coupled with an unexpectedly small supply, especially of pork. The Florida frosts in 1977, cold weather in early 1978, and heavy rains in California all contributed to exceptionally poor fruit and vegetable crops. Home financing costs and the direct and indirect effects of the falling value of the dollar in world money markets also contributed significantly to the unexpected higher rate of inflation.

Despite the significant divergences between the economic assumptions and the actual results for calendar year 1978, the net effect on federal budget outlays for fiscal year 1978 is judged to have been very small, less than \$100 million (see Table 8). To some extent, the higher inflation offset the lower than expected unemployment rates. As discussed in Chapter IV, however, inaccurate economic assumptions are likely to be responsible for a difference between estimated and actual outlays for fiscal year 1979 amounting to several billions of dollars. The major effects of inaccurate economic assumptions for fiscal year 1978 outlay estimates are concentrated in four program areas: food stamps, social security, antirecession financial assistance, and net interest payments.

Actual outlays for the food stamp program in fiscal year 1978 were \$178 million higher than assumed for the second resolution. It is estimated that the higher than expected food prices were responsible for \$122 million of this overrun.

Social security (OASDI) outlays for 1978 were \$1.2 billion less than assumed for the second resolution. Of this shortfall, \$525 million is attributed to the inaccuracies in the economic assumptions used for the second resolution. The lower than expected level of unemployment tended to slow the rate of enrollment into the programs. The slightly higher than anticipated benefit increase for the cost-of-living adjustment added only a small amount to outlays in the last quarter of fiscal year 1978.

The \$221 million shortfall in outlays from the second resolution for the antirecession financial assistance program is largely the result of lower than expected unemployment. Higher than anticipated interest rates are estimated to have caused outlays for net interest payments to be \$700 million above the level assumed for the second budget resolution. The average rate on publicly held debt during the year was approximately 12 basis points higher than anticipated for the second resolution estimates.

Abnormal Weather Conditions and Disasters

Abnormal weather conditions can directly affect federal outlays by as much as several billion dollars. Disaster payments to farmers for crop losses and unemployment compensation paid to workers who have been laid off because of a weather-related shortage of natural gas are examples of the direct effects of unfavorable weather on budget outlays. ^{1/} In preparing spending estimates for a budget resolution, normal weather conditions and disasters based on historical experience are assumed for disaster loan programs and other programs directly affected by weather. To the extent that abnormal weather and disasters occur, actual appropriations and outlays for these programs could be greater or less than estimated. For 1978, disaster loans and payments were \$2 billion greater than estimated for the second budget resolution (see Table 8).

The major unanticipated change in outlays in 1978 because of abnormal weather conditions and disasters was for the Small Business Administration disaster loan fund. The second resolution allowed only \$290 million in new budget authority for this fund in 1978 and estimated outlays at \$353 million. Actual appropriations for 1978 totaled \$2.6 billion, and net

^{1/} For a discussion of these and other effects of weather on federal spending, see Committee on the Budget, House of Representatives, Weather Impacts on the Budget and the Economy, Hearing before the Task Force on Community and Physical Resources, March 14, 1978.

outlays were \$2.1 billion, or \$1.75 billion higher than anticipated. The substantially higher than anticipated outlays were primarily for drought-related disaster loans for farmers who received over \$1.6 billion of the \$2.75 billion total disaster loan approvals in fiscal year 1978. There was also considerable demand for disaster loans from the fund's traditional constituency--homeowners and small businesses--resulting from severe winter weather in the Northeast and heavy rains in California.

Appropriations for federal disaster assistance under the Disaster Relief Act of 1974 were \$100 million higher than assumed for the second resolution for 1978, resulting in an outlay overrun of \$84 million. Under this program, assistance is provided to individuals, businesses and state and local governments in the event of a Presidentially declared emergency or natural disaster. Disaster payments to farmers for crop losses by the Commodity Credit Corporation also were more than \$100 million higher than estimated for the second resolution.

POTENTIALLY CORRECTABLE MISESTIMATES

Misestimates of total budget outlays caused by faulty cost models and upwardly biased spending rate assumptions are potentially correctable by improving models and using more realistic spending rates. Estimating errors will still occur, but removing any systematic biases should produce more accurate total outlay estimates through the working of the statistical law of large numbers in which individual estimating errors are likely to be offsetting.

Faulty Models or Inaccurate Programmatic Assumptions

For 1978, the estimated net impact of faulty cost models or inaccurate programmatic assumptions for benefit payments, financial transactions, and other open-ended programs was an outlay overrun of almost \$1 billion compared to the second resolution assumptions (see Table 10). The estimated net effect of the upward bias in spending rate assumptions, however, was an outlay shortfall of \$10.6 billion (see Table 12).

Benefit Payment Programs. Estimates of outlays for various benefit payment programs often are based on uncertain assumptions quite apart from uncertain economic assumptions. For example, the mathematical relationships between various variables in the models used for making outlay estimates may change over time, causing the estimates to be too high or too low. At best, these relationships are close approximations of what happened in the past, but past trends cannot always predict the future.

TABLE 10. MISESTIMATES OF FISCAL YEAR 1978 OUTLAYS CAUSED BY FAULTY MODELS OR INACCURATE PROGRAMMATIC ASSUMPTIONS: IN BILLIONS OF DOLLARS

Benefit Payment Programs	
Medicare and medicaid	-0.8
Social security (OASDI)	-0.6
Civil service retirement	-0.4
Veterans' compensation and pensions, readjustment benefits, and insurance trust funds	-0.3
Unemployment compensation programs	0.2
Assistance payments	0.2
All other, net	-0.1
Subtotal	<u>-1.9</u>
Financial Transactions	
OCS rents and royalties	0.7
Government National Mortgage Association	0.5
Federal Housing Administration fund	-0.4
Foreign military sales trust fund, net	-0.3
Export-Import Bank	-0.3
All other, net	0.3
Subtotal	<u>0.5</u>
Other Open-ended Programs	
Net interest	1.7
Farm price supports	0.4
Other	0.1
Subtotal	<u>2.2</u>
Total overrun from Second budget resolution	0.9

The second budget resolution for 1978 assumed that outlays for various federal benefit payment programs would be about \$200 billion, or about 45 percent of total budget outlays. Actual 1978 outlays for these programs, however, were almost \$3 billion less than assumed for the resolution. Unanticipated Congressional actions or inactions and inaccurate economic assumptions account for almost \$1 billion, or one-third of this shortfall. The remaining \$1.9 billion shortfall can be attributed to faulty estimating models and/or inaccurate programmatic assumptions (see Table 10). This represents an estimating error of only 0.9 percent for these programs, which is well within the confidence intervals for the statistical models used to make these estimates. This means that these models are reasonably accurate in the aggregate and probably cannot be improved very much.

The second resolution outlay estimates for the medicare and medicaid programs under existing law (excluding provisions for cost containment and other anticipated legislation) were too high by over \$800 million, or 2.2 percent. A lower than expected rise in hospital costs accounts for much of this shortfall. Although the behavior of hospital costs is difficult to interpret, the impact of state cost containment programs or the voluntary efforts of the hospital industry may have contributed to the recent pattern.

Leaving aside the effect of inaccurate economic assumptions, the remaining shortfall of \$646 million in social security outlays in 1978 represents an error of only 0.7 percent, well within the expected range of error for any statistical estimating model. It is possible, however, that savings from the social security legislation passed in December 1977 were greater than anticipated.

The shortfall in civil service retirement outlays was primarily caused by an overestimate of 46,000 in the number of annuitants and survivors receiving benefits. This overestimate was partially offset by an overestimate of the Postal Service payroll base, causing estimated offsetting receipts for employer contributions to be too high.

The shortfall in veterans' benefits was largely because of the impact of new antifraud and abuse procedures instituted by the Veterans Administration in fiscal year 1977. These procedures resulted in fewer than anticipated trainees in veterans education, training, and rehabilitation programs in 1978 and consequently lower costs.

The \$159 million overrun in unemployment compensation benefits represents an estimating error of only 1.3 percent, which is also within the expected range of error for the statistical model used to make these estimates. This overrun is attributed largely to an inaccurate estimate of

state extended benefit programs. The second resolution correctly anticipated that the national insured unemployment rate would fall below 4.5 percent, resulting in the termination of the national extended benefit program. However, the outlay effects of the continued extended benefit program in 14 states and Puerto Rico after the termination of the national program were not estimated accurately.

Leaving aside the impact of unanticipated Congressional action and inaction, estimated outlays for public assistance payments were about \$200 million too low for the second resolution. An underestimate of the cost of average benefit payments accounts for most of this overrun from the resolution.

Financial Transactions. The assumptions used to estimate the net effect of various financial transactions on total outlays often are very uncertain. It is very difficult to forecast accurately all of the factors that affect the level of new loans, loan repayments, sale of assets, the proceeds from the sales of leases for off-shore oil lands, and other variables affecting these outlays. In the past, programs involving financial transactions have accounted for the largest estimating errors in percent terms. ^{2/}

The second resolution net outlay assumptions for various financial transactions were too low by about \$500 million (see Table 10). The largest estimating error was for receipts from the sale of leases on the Outer Continental Shelf. The \$741 million shortfall in receipts resulted largely from two assumed sales that did not occur. The lower than expected level of receipts results in an increase in net budget outlays since these receipts are treated as negative outlays. Table 11 summarizes the results for OCS receipts for 1978.

Net 1978 outlays by the Government National Mortgage Association (GNMA) for existing programs were expected to be negative (-\$315 million) for the second resolution. Actual outlays were \$201 million, or \$516 million higher. The substantially higher than anticipated outlays resulted from two factors. First, larger asset sales in fiscal year 1977 and the tightening market conditions in 1978 led to lower than expected asset sales from the GNMA special assistance functions fund (\$231 million of the \$516 million overrun). Secondly, holders of prior year commitments from the emergency mortgage purchase assistance fund began to draw down these commitments, resulting in relatively large purchases by GNMA of mortgages that were not fully offset by mortgage sales (\$359 million overrun). The net budget effect of the remaining GNMA operations was a shortfall of \$74 million (actual receipts were greater than expected).

^{2/} See Congressional Budget Office, Estimates of Federal Budget Outlays, Staff Working Paper (February 1978).

TABLE 11. OUTER CONTINENTAL SHELF RECEIPTS FOR FISCAL YEAR 1978: IN MILLIONS OF DOLLARS

Sale	Second Resolution Assumption	Actual
CI Cook Inlet	300	400
42 North Atlantic	700	delayed
43 South Atlantic	300	101
45 Gulf of Mexico	400	734
46 Eastern Gulf of Mexico	300	rescheduled
Rents, Royalties, and Escrow	<u>1,000</u>	<u>1,024</u>
Total	3,000	2,259

The second resolution assumptions for 1978 net outlays from the Federal Housing Administration (FHA) fund were made before it became clear that the program adopted by the Department of Housing and Urban Development (HUD) to reduce net outlays from this fund was having its desired effect. Section 8 and rent supplement assistance provided to projects with HUD-insured or HUD-held mortgages has lowered the amount of claims against the FHA fund and enhanced the marketability of projects owned by the fund.

Net outlays from the foreign military sales trust fund were estimated to be zero for the 1978 second budget resolution. It was assumed that the establishment of the centralized management office within the Defense Security Assistance Agency would provide better management of the trust fund and stop, if not reverse, the recent trend of growing trust fund balances. Actual outlays and receipts for the trust fund were both lower than expected, but total receipts exceeded outlays by \$341 million, resulting in a net outlay shortfall of this amount from the second resolution.

The \$327 million shortfall for net outlays by the Export-Import Bank can be attributed to a shift in the product mix of the Bank's credit authorizations, which reduced the anticipated level of disbursements based on historical averages. A significant proportion of the Bank's recent credit authorizations has been for nuclear technology projects, which disburse slowly and tend to reduce overall disbursement levels.

Other Open-Ended Programs. There are a number of other open-ended programs, such as interest payments and farm price supports. Aside from the effects of inaccurate interest rate assumptions, estimated net interest payments for the second resolution were too low by \$1.7 billion. Because publicly held debt was \$11 billion more at the beginning of fiscal year 1978 than was anticipated, interest payments were about \$900 million more, accounting for a major portion of the net interest overrun. CBO staff expected a major decrease of cash balances held by the Treasury in the third quarter of calendar 1977, which did not occur. The remaining estimating error was the result of an underestimate of the amount of government-held debt at the beginning of the fiscal year (\$200 million), an underestimate of the amount of interest that would be paid to trust funds (\$119 million), and an overestimate of the amount of interest receipts from agencies that have borrowed from the Treasury (\$450 million).

Excluding the effect of the unanticipated administrative actions by the Secretary of Agriculture and the greater than expected disaster payments to farmers for crop losses shown in Table 8, Commodity Credit Corporation outlays for farm price supports in 1978 were \$448 million above the level assumed for the second budget resolution. The demand for short-term export credits and storage facility loans was much greater than assumed, resulting in an overrun of \$1.2 billion from the levels estimated for the resolution. This was offset by a \$1.3 billion shortfall in outlays for wheat programs largely because of higher than projected wheat prices. On the other hand, mainly because of lower than expected prices, outlays for feed grain programs were \$460 million above the level estimated for the second resolution. In addition, net lending and direct payments to sugar producers were \$395 million above the level estimated, and dairy price supports were \$240 million less than estimated. Estimates of commodity market conditions and farmers' behavior are usually independent of general economic forecasts.

Inaccurate Spending Rates and Other Estimating Problems

As noted at the beginning of this chapter, the 1978 shortfall in outlays below the second resolution can be attributed primarily to the tendency of federal agencies to overestimate what they can accomplish each year, thus putting an upward bias in the spending rates used for the outlay estimates. This may result from a combination of the natural optimism of agencies about their ability to implement programs and the conservative tendency of program managers to husband their resources through most of the year to meet unanticipated needs or to avoid over-spending appropriations. As noted in an earlier study, agency budget

officials also have various incentives to overestimate outlays. ^{3/} The bureaucratic penalties for underestimates of spending are generally greater than for overestimates. For example, the focus of governmental accounting traditionally has been on preventing overspending of appropriations.

There is also a general tendency of outlay estimates for new or expanding programs to be based on desirable policy goals rather than realistic judgments of how fast these programs can be implemented. Federal programs that provide grants to state and local governments often experience unanticipated delays in issuing program regulations, reviewing and approving plans and applications, and implementing the programs at the state and local level. Optimism may be appropriate for justifying appropriation requests and for implementation plans, but not for realistic estimates of outlays.

Also, federal agencies occasionally exceed expectations and spend more than estimated for certain programs. This may result from previous program delays that cause costs to be greater than estimated, or from improvements in administrative procedures that speed up the rate of payments, or for other factors that are difficult to anticipate in advance.

The upward bias in outlay rates assumed for the second budget resolution for fiscal year 1978 and other estimating problems resulted in a shortfall of \$10.6 billion, which was widely distributed among federal agencies. As shown in Table 12, the largest shortfall (\$-4.4 billion) occurred in defense programs, for the third year in a row. Shortfalls also continued in energy programs, municipal waste treatment construction grants, military assistance and foreign aid, community planning and development programs, highway construction programs, and HEW education programs. Over 80 percent of the total shortfall in this category is accounted for by the shortfalls in the Department of Defense, Department of Energy, EPA construction grants, and the Department of Housing and Urban Development.

Procurement programs accounted for the largest shortfall in defense spending in 1978. Total spending for procurement was \$2.8 billion, or 12 percent, below the level assumed for the second budget resolution. Appropriations for defense procurement totaled \$30 billion for fiscal year 1978, which is 80 percent above the level appropriated for fiscal year 1975. The increases in procurement outlays, however, have not kept pace with the rapid increase in procurement appropriations. Procurement outlays in 1978

^{3/} Congressional Budget Office, Estimates of Federal Budget Outlays Staff Working Paper (February 1978).

were \$20 billion, only 25 percent above the level of outlays in 1975. One possible explanation for the growing lag between procurement appropriations and outlays is the increasing complexity of major weapon systems, which increases production lead times and thereby slows outlays. In 1978, for example, the greatest shortfalls in defense procurement activities were for Navy shipbuilding and Air Force aircraft procurement (\$-700 million each).

TABLE 12. MISESTIMATES OF FISCAL YEAR 1978 OUTLAYS BECAUSE OF INACCURATE SPENDING RATES AND OTHER ESTIMATING PROBLEMS: IN BILLIONS OF DOLLARS

Department of Defense - Military	
Procurement	-2.8
Other programs n.e.c. <u>a/</u>	-1.6
Department of Energy	-1.8
Department of Housing and Urban Development	
Housing for the elderly or handicapped fund	-0.6
Community planning and development programs	-0.4
Other programs n.e.c. <u>a/</u>	-0.2
EPA Construction Grants	-1.2
Department of Agriculture Programs n.e.c. <u>a/</u>	-0.4
Department of Transportation Highway Programs	-0.3
International Development Assistance	-0.3
International Security Assistance	-0.2
HEW Education Programs	-0.2
Veterans Administration Construction Projects and Medical Care	-0.2
All Other Programs not Elsewhere Classified, net	<u>-0.4</u>
Total shortfall from second budget resolution	-10.6

a/ N.E.C. means not elsewhere classified in Tables 8 or 10.

The remaining \$1.6 billion shortfall in 1978 defense outlays was spread over a number of different areas, including research, development, test, and evaluation activities (-\$460 million); operations and maintenance (-\$368 million); DoD revolving and management funds (-\$429 million); 4/ and military construction (-\$151 million).

The largest single factor causing the \$1.8 billion shortfall in Department of Energy outlays was the slower than expected spending for the strategic petroleum reserve program. The 1978 second resolution assumptions for this program were based on the Department's schedule of oil acquisitions, which the Department fell far short of meeting. Acquisition delays have been caused primarily by difficulties in developing storage capacity. The total 1978 estimated outlay shortfall for strategic petroleum reserves is \$1.4 billion. The remaining shortfall in Department of Energy spending, apart from the nonenactment of new legislative initiatives assumed for the second resolution (see Table 8), is attributable primarily to overestimates of outlays for energy supply and conservation programs. Appropriations for these programs have increased rapidly, and outlays have not kept pace.

For 1978, outlays by the Environmental Protection Agency (EPA) for municipal waste treatment facilities were \$3.2 billion, \$1.2 billion below the level assumed for the second resolution, and over \$300 million below the 1977 level. The major reason for this shortfall was a significant slowdown in beginning new construction programs. These project delays resulted from adverse weather conditions, legal and jurisdictional problems, contract negotiation problems, and major design problems.

The second resolution assumed that over \$700 million would be spent from the Department of Housing and Urban Development (HUD) housing for the elderly or handicapped fund. Actual 1978 outlays from this fund, however, were less than \$200 million, a shortfall of \$561 million. At the start of fiscal year 1978, HUD had outstanding commitments of almost \$1.5 billion for this program. Many of these commitments were made, however, before final site or zoning approval was obtained, and construction starts have been much lower than were expected when the second resolution assumptions were made. Beginning in fiscal year 1978, HUD is requiring that an applicant for these funds already have purchased a site or have an option to purchase. This is expected to shorten the time between reservation of funds and the start of construction.

4/ In September 1978, there was an uncommonly large net receipt in the revolving and management funds (\$326 million), which accounts for most of the shortfall from the resolution assumptions for these accounts.

The second resolution estimated levels of 1978 outlays for the expiring urban renewal program and community development block grants were also too high by over \$400 million. The urban renewal program is in its final stages, and remaining projects are not closing out as quickly as anticipated. All funds are obligated and outlays depend upon demand from program participants. The shortfall in the community development block grant program can be attributed to a programmatic shift toward more capital-intensive projects which require more preparatory work and longer spend-out periods.

Outlays for various Department of Agriculture programs not classified elsewhere fell short of the 1978 second resolution assumptions by almost \$400 million. The major shortfalls were for the Forest Service (-\$171 million), in part because the incidence of forest fires during the year was less severe than in recent years; P.L. 480 foreign assistance programs (-\$120 million), largely because of an underestimate of receipts from the sale of foreign currencies, an overestimate of ocean transportation costs, and slippage in shipments resulting from the implementation of new human rights provisions; and agricultural science and education programs (-\$82 million), because of slower than anticipated spending rates.

There was a \$348 million outlay shortfall for Department of Transportation highway programs. About two-thirds of this shortfall involved various small highway programs authorized by the Federal Highway Act of 1976 and funded in the economic stimulus appropriation bill in the spring of 1977. The remaining shortfall (-\$124 million) was for federal-aid highways (trust fund), which is the major federal highway account. The rate at which outlays in this account flowed from obligated funds in 1978 was slower than in previous years.

Outlays for military assistance and foreign economic aid in 1978 were about \$500 million lower than estimated for the second budget resolution. The pattern of late obligations experienced in fiscal year 1977 for functional development assistance loans and grants continued into 1978, which resulted in a \$178 million shortfall in outlays. Military assistance outlays also were \$121 million less than assumed for the resolution, because of a general slowdown in deliveries of defense articles and services. In addition, defense cooperation agreements with Greece and Turkey were not concluded as anticipated.

Actual outlays for HEW education programs were \$236 million less than estimated for the second resolution. This shortfall is attributed largely to late enactment of supplemental appropriations for student loan insurance and impact aid (-\$90 million), an overestimate for higher education programs (-\$60 million), and an overestimate of the number of children served in education for the handicapped programs (-\$40 million).

In a few instances, agency outlays for 1978 exceeded the assumptions of the second budget resolution. For example, outlays for the local public works program in 1978 were \$157 million above the resolution assumption, largely because of an acceleration in the expected monthly spending pattern for this program. The peak spending months occurred in the summer of calendar 1978 rather than in the fall, as was anticipated for the resolution.

The resolution outlay estimates for Corps of Engineers construction activities allowed for construction delays caused by bad weather, design problems, and other unpredictable factors. Fewer such delays occurred than were anticipated, and, as a result, Corps outlays were over \$100 million higher than expected.

Outlays from the Tennessee Valley Authority fund also were over \$200 million higher than expected, in part because of greater than anticipated costs for nuclear plant construction. An unanticipated supplemental appropriation of \$92 million to the Postal Service fund was made to cover the revenue foregone under new postal rates approved by the Governors of the Postal Service on May 19, 1978, as well as expenses incurred by the Postal Service Commission. Outlays by the Community Services Administration were over \$100 million higher than expected, in part because of a new program to provide emergency fuel bill assistance to low-income families.

These unexpected outlay overruns were more than offset by shortfalls in other programs. Appendix A contains a listing of all the major differences between actual outlays and resolution assumptions that is the basic data base for the analysis in this chapter.

CHAPTER III. THE ACCURACY OF CBO OUTLAY ESTIMATES

During its first year of operation, the Congressional Budget Office relied primarily on Office of Management and Budget (OMB) and agency estimates of outlays and spending rates for its scorekeeping tabulations. CBO made independent estimates only in limited instances to reflect the different economic assumptions used for the Congressional budget resolutions or other different assumptions that might affect outlays. The final results for fiscal year 1976, however, clearly demonstrated that this approach to scorekeeping would not be accurate enough for the needs of the new Congressional budget process. The final CBO scorekeeping tabulation of outlays for fiscal year 1976 was too high by \$7.7 billion, or 2.1 percent.

Accordingly, during the past two years, the CBO has made a concerted effort to develop a comprehensive capability for estimating federal budget outlays. This effort has proceeded on two levels. First, CBO has developed various methods for estimating total outlay levels independent of the results of adding up the outlay estimates for the more than one thousand individual budget accounts. The second level of effort has been to improve the accuracy of CBO outlay estimates for individual accounts. ^{1/} This effort has been concentrated on removing the upward bias from spending rates and constructing statistical models for estimating outlays for benefit payments and other open-ended programs.

TOTAL OUTLAY ESTIMATES

Based on its analysis of past spending trends (especially the fiscal year 1977 outlay shortfall experience) and consultation with several New York banking and investment firms that make independent estimates of federal spending, CBO anticipated well before the beginning of the fiscal year that there would be an outlay shortfall relative to the first resolution for 1978. In its July 1977 economic forecast, for example, CBO estimated that federal budget outlays would not exceed \$455 billion. This was \$6

^{1/} See Congressional Budget Office, *Estimates of Federal Budget Outlays*, Staff Working Paper (February 1978), Chapter III, for further details on this CBO effort.

billion below the level set as a target by the first budget resolution for 1978, adopted on May 17, 1977, and \$8 billion below the level estimated by OMB in its mid-session review of the 1978 budget issued on July 1, 1977.

After the first quarter of the fiscal year (October 1 to December 31), the evidence for a shortfall in 1978 was more apparent. In its analysis of the President's 1979 budget proposals submitted to the Congress on January 20, 1978, CBO estimated that fiscal year 1978 outlays would fall within the range of \$450 to \$455 billion, or \$3 to \$8 billion below the \$458 billion second budget resolution ceiling. In contrast, the President's January budget estimate for 1978 outlays was \$462 billion, an increase of over \$2 billion from the November OMB estimate.

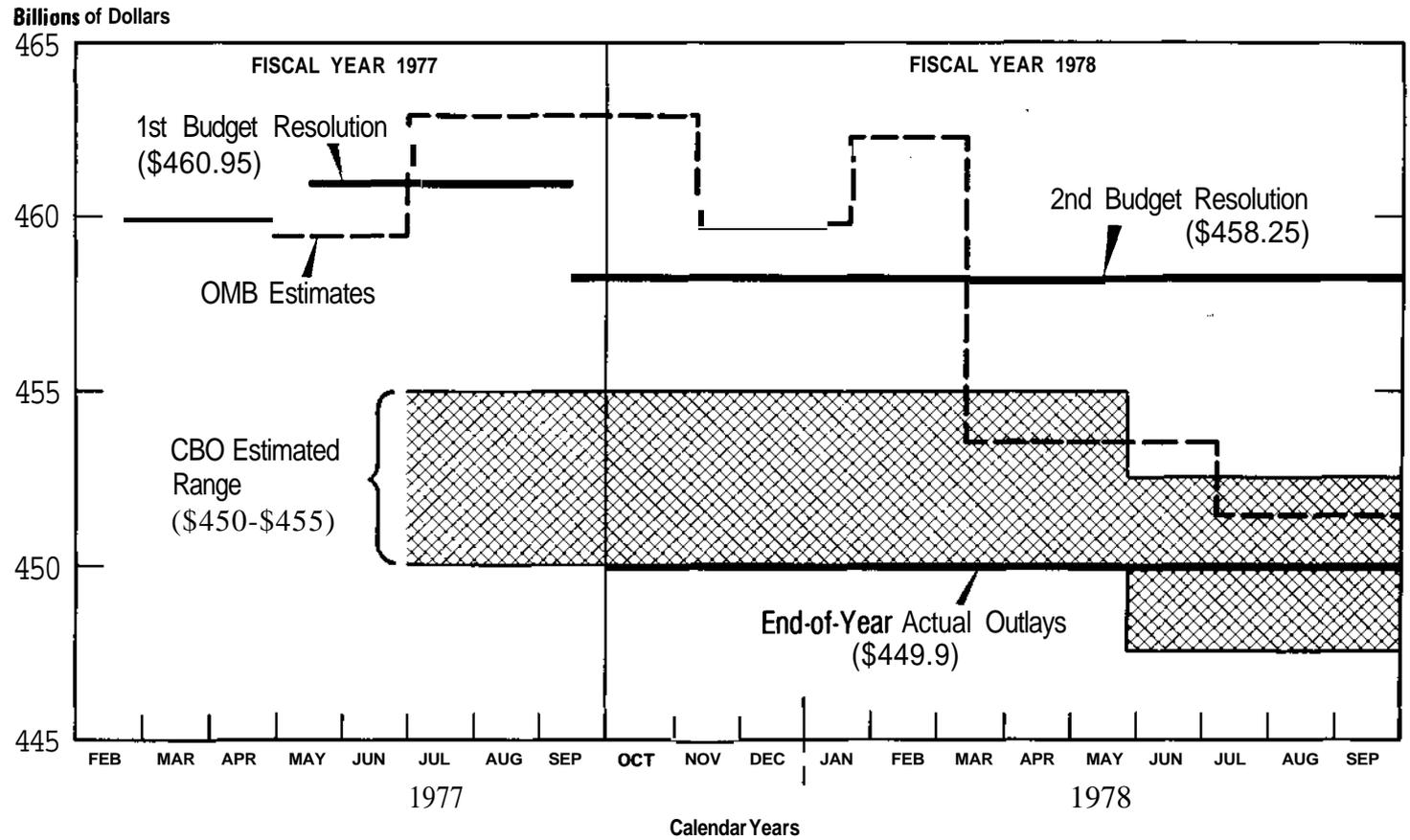
In March, OMB lowered its total outlay estimate for 1978 to \$453.5 billion. Based on actual spending through the first seven months of the fiscal year (through April), CBO reduced in May its estimate of the relevant range for total outlays from \$450 to \$455 billion to \$447.5 to \$452.5 billion. OMB further lowered its total outlay estimate to \$451 billion (excluding earned income credit payments) in its July 6th mid-session review of the 1979 budget. CBO's final scorekeeping estimate for 1978, published in August, was \$448 billion, at the lower end of its expected range, but \$2 billion below the comparable actual level reported by the Treasury Department on October 27.

Figure 1 illustrates the 1978 budget resolution estimates, the various OMB estimates, and the CBO estimated range for total outlays. It shows that actual outlays for 1978 were at the lower end of the range estimated by CBO several months before the start of the fiscal year. OMB estimates, in contrast, were well above the actual level until almost half of the fiscal year had passed.

CBO SCOREKEEPING REPORTS

CBO estimates of total outlays are used to judge the reasonableness of the results obtained by adding up the staff estimates for the individual spending accounts. These latter estimates are used for the official CBO scorekeeping tabulations required by the Congressional Budget Act. These scorekeeping tabulations measure the status of Congressional budget actions in comparison to the most recent budget resolution in effect. They are particularly important after a second budget resolution is adopted since the Budget Act establishes a point of order against legislative proposals that would have the effect, if enacted, of causing budget authority or outlays to exceed the levels set forth in the resolution. CBO advises daily the two Budget Committees on the current level of spending based on Congressional

Figure 1.
 Estimates of Federal Budget Outlays for Fiscal Year 1978^a



^aExcludes earned income credit payments.

appropriation actions already taken and estimates of future appropriations for items that are mandatory under existing law. These daily reports are used by the committees to advise the parliamentarians of the two Houses, pursuant to Section 311 of the Budget Act.

As shown in Table 13, the CBO estimated current level of budget authority for 1978 increased by \$47.7 billion between the first and final parliamentary status reports, from \$452.2 billion to \$499.9 billion, or within \$200 million of the second resolution ceiling. The CBO estimate of the current level of outlays increased by only \$8.8 billion between October 1977 and September 1978, from \$439.1 billion to \$447.9 billion, well below the second resolution outlay ceiling. Congressional action added \$43.3 billion in budget authority and \$20.9 billion in outlays during this 12-month period. Budget reestimates made by CBO during the year raised the current level of budget authority by \$4.4 billion, and lowered outlays by \$12.0 billion.

TABLE 13. SUMMARY OF CHANGES TO THE ESTIMATED CURRENT LEVEL OF BUDGET AUTHORITY AND OUTLAYS FOR FISCAL YEAR 1978 BETWEEN OCTOBER 1977 AND SEPTEMBER 1978: IN BILLIONS OF DOLLARS

	Budget Authority	Outlays
First Parliamentary Status Report, as of October 3, 1977	452.2	439.1
Final Parliamentary Status Report, as of September 30, 1978	<u>499.9</u>	<u>447.9</u>
Changes Because of Congressional action	43.3	20.9
CBOreestimates	<u>4.4</u>	<u>-12.0</u>
Total Changes	47.7	8.8

CBO reviews its scorekeeping estimates on a comprehensive basis about four times during the year to incorporate new information provided by OMB and other federal agencies, revised economic assumptions that may be adopted by the Budget Committees, and other relevant data. Any reestimates resulting from these reviews are reviewed by the staffs of the two Budget Committees (and also the staffs of the two Appropriations Committees). The CBO reestimates for 1978 were concentrated in three periods through the fiscal year. The first set of reestimates was made in November 1977, based on the actual spending results for fiscal year 1977 and the revised 1978 outlay estimates released by OMB on November 11. The second set of reestimates was made in February and March, based on the January 1978 budget submission, the March OMB reestimates, and actual spending trends through December 1977. The final set of reestimates was made in July, based on the OMB mid-session review of the 1979 budget (released July 6) and actual spending trends through May and June. The CBO reestimates generally kept the current level of estimated outlays for 1978 within the CBO projected range of total outlays shown in Figure 1.

ESTIMATES FOR INDIVIDUAL ACCOUNTS

CBO uses four basic methods for estimating outlays for individual spending accounts. First, CBO has developed independent estimating models for a number of individual accounts that account for about 50 percent of total outlays. These models are often quite sophisticated, relating federal spending to various economic, demographic, and other programmatic variables. The CBO models include social security benefits, interest on the public debt, unemployment compensation, medicare and medicaid, assistance payments, food stamps, federal civilian and military retirement benefits, and veterans' benefits.

Second, CBO uses projected spend-out rates based largely on historical relationships between outlays and budget authority for the bulk of annually appropriated programs. These relationships are sometimes calculated by statistical time series methods. The budget accounts in which this method is used represent about 40 percent of total outlays. The major program areas include most of the Department of Defense and Energy programs.

Third, CBO uses OMB and agency outlay estimates for a number of individual accounts in which estimating accuracy in the past has generally been good, or in which outlays depend primarily on administrative decisions regarding asset sales to the Federal Financing Bank, or in which CBO has not developed a suitable methodology that would produce estimates of greater accuracy than agency estimates. These accounted for only 5

percent of total outlays for 1978 and included general revenue sharing, railroad retirement payments, supplemental security income, and Farmers Home Administration public enterprise funds.

Finally, CBO uses a variety of means, including staff judgments based on experience and information provided by the agencies, to estimate outlays for the remaining accounts. These accounts, which either are particularly volatile or for which it is difficult to build accurate models, make up only 6 percent of total outlays.

Table 14 provides a comparison of actual outlays for fiscal year 1978 with the second resolution assumptions by these four basic estimating methods, excluding misestimates of outlays because of intrinsic uncertainties (see Table 8). The table also shows the final CBO scorekeeping outlay estimate by the four methods. The purpose of the table is to measure the aggregate accuracy of each general estimating method for the second resolution assumptions and for the final CBO scorekeeping tabulation. Misestimates of outlays because of intrinsic uncertainties, such as inaccurate economic assumptions, abnormal weather conditions, and unexpected Congressional and administrative actions, are excluded from the table since these are not potentially correctable by Congressional budget estimators.

Table 14 shows that the independent models developed and used by CBO are very accurate in the aggregate. The total estimates produced by these models for the second resolution were off by only 0.4 percent (\$1 billion). Furthermore, during the fiscal year, CBO revised these estimates in its scorekeeping reports to almost equal in total the actual outlays reported by the Treasury. It is doubtful that much improvement can be made in the existing models. It is possible that independent models can be developed for other accounts in which the estimating error is higher.

The use of inaccurate spend-out rates accounts for over 90 percent of the estimating error for the second resolution outlay assumptions. As shown in Table 14, the estimates used for the second resolution that were derived from projected spend-out rates were too high by 5.7 percent, or nearly \$9 billion. During the year, as CBO monitored actual outlay trends, the scorekeeping estimates for these accounts were revised downwards by \$10 billion. The final CBO scorekeeping estimate for these accounts was \$1.3 billion (0.8 percent) below the actual level. This area represents the greatest potential for improvement, and it is the area on which CBO concentrated most of its attention during the past year, with relatively good results, as judged by the general accuracy of the final CBO scorekeeping estimates for 1978.

TABLE 14. COMPARISON OF ACTUAL OUTLAYS FOR FISCAL YEAR 1978 WITH THE SECOND RESOLUTION ASSUMPTIONS AND FINAL CBO SCOREKEEPING ESTIMATE, BY ESTIMATING METHOD: IN BILLIONS OF DOLLARS

Estimating Method	Second Resolution <u>a/</u> Assumptions	Final CBO Estimate	Actual <u>b/</u>	Actual Less (percent)	
				2nd Res.	Final CBO%
CBO Models	234.7	233.6	233.7	-0.4	<u>c/</u>
Projected Spend-out Rates	176.8	166.7	168.1	-5.7	0.8
Agency Estimates	22.4	21.8	21.9	-2.2	0.1
Other Methods	<u>25.6</u>	<u>25.8</u>	<u>26.2</u>	<u>2.5</u>	<u>1.7</u>
Total	459.5	447.9	449.9	-2.1	0.4

a/ Excludes misestimates of outlays due to intrinsic uncertainties (Table 8).

b/ Excludes earned income credit payments.

c/ Less than 0.05 percent.

Agency estimates that were used for the second resolution were too high by about \$500 million (2.2 percent). During the year, these estimates were revised downwards to within 0.1 percent of the actual result. The final scorekeeping estimating errors for those accounts for which CBO used a variety of means was the greatest in relative terms, compared to the other three methods. As shown in Table 14, CBO estimates for these accounts tended on the whole to be too low. The impact of an estimating error for these accounts on total outlays, however, is quite small.

In the aggregate, the second resolution outlay assumptions for 1978, leaving aside misestimates of outlays because of intrinsic uncertainties, were too high by \$9.7 million, resulting in a shortfall of 2.1 percent. The final CBO scorekeeping tabulation, on the other hand, was too low by \$1.9 billion, for an overrun of only 0.4 percent. The forecasting error for the second resolution assumptions was somewhat smaller than could be obtained from using aggregate time trend models, and the estimating error in the final CBO scorekeeping tabulation was about the same as could be achieved through a time series projection. ^{2/}

It should be possible to do better than this, particularly for accounts for which historical spend-out rates are used. As discussed in Chapter IV, the general accuracy of the outlay estimates used for the 1979 second resolution should be better than for 1978, using this same measurement technique, largely because CBO was able to remove the upward bias from agency outlay estimates.

FURTHER ESTIMATING IMPROVEMENTS

During the next year, CBO will continue to develop new methods for making independent estimates of outlays and to review and refine existing methods, especially for programs in which there were significant estimating errors in 1978. One new estimating tool that CBO will use is the results of a statistical analysis of actual outlays over the past 10 years. The 151 federal program components included in the CBO automated data base for monitoring monthly outlays were analyzed to produce a set of mathematical equations for making short-range (up to one year) projections. ^{3/}

CBO will also expand its monitoring of monthly outlays, reported by the Treasury Department to cover more program detail at the budget account level. This is particularly important for those accounts in which spend-out rates are the basic estimating method used by CBO.

^{2/} For a discussion of the forecasting accuracy of time series projections of total federal outlays developed for CBO, see Systems Exploration, Inc. Final Report; Forecasting Treasury Outlays (prepared for the Congressional Budget Office, October 1978).

^{3/} For a more detailed description of this analysis, see Appendix B.

The technical background paper for the annual CBO five-year budget projections report contains a detailed description of the models and other methods used by CBO to estimate federal outlays. ^{4/} As time permits, CBO will also issue technical analysis papers to describe estimating models that are particularly complex or of special interest. Three such papers are now in preparation for social security benefits, veterans' readjustment benefits, and the foreign military sales trust fund. Technical analysis papers have already been published for interest on the public debt ^{5/} and for unemployment compensation. The latter paper is now out of date and will be revised during the next year.

^{4/} Congressional Budget Office, Five-Year Budget Projections: Fiscal Years 1979-1983, Technical Background, Staff Working Paper (January 1978).

^{5/} Congressional Budget Office, Estimating Outlays for the Interest on Public Debt, Technical Analysis Paper (October 1977).

CHAPTER IV. THE PROSPECTS FOR FURTHER SPENDING SHORTFALLS

It is highly unlikely that federal budget outlays for fiscal year 1979 will fall below the \$487.5 billion level specified by the second budget resolution adopted by the Congress on September 23, 1978. The outlay shortfall problem is not expected to continue for two reasons:

- o First, the Congressional budget staffs effectively removed the upward bias in agency outlay estimates by lowering OMB estimates by more than \$10 billion before the adoption of the second resolution for 1979.
- o Second, the economic assumptions for real growth, unemployment, inflation, and interest rates underlying the second resolution spending estimates for 1979 now appear to be overly optimistic. Lower real growth and higher unemployment, inflation, and interest rates will result automatically in higher spending than assumed in the second resolution for programs such as unemployment compensation, social security benefits and interest on the public debt. As a result, outlays for 1979 are likely to be \$4 to \$9 billion above the level assumed for the second resolution, a direct reversal of the outlook a year ago for 1978 outlays.

1979 BUDGET RESOLUTIONS

The first budget resolution for fiscal year 1979, adopted by the Congress on May 17, 1978, set an outlay target of \$498.8 billion, which was slightly under the President's 1979 budget estimate. Four months later, the Congress adopted the second budget resolution for 1979, with an outlay ceiling of \$487.5 billion, \$11.3 billion below the first resolution target and \$9.1 billion below the July 6 Administration estimate (see Table 15). About \$6 billion of the \$11 billion reduction in outlays between the first and second resolutions was the result of outlay reestimates based largely on actual spending patterns for fiscal year 1978. The remaining \$5 billion reduction was because of changes in spending policies assumed for the second budget resolution, reflecting in part a reaction to Proposition 13.

TABLE 15. ESTIMATES OF FEDERAL BUDGET OUTLAYS FOR FISCAL YEAR 1979: IN BILLIONS OF DOLLARS

Source	Estimate
Budget Resolution	
First resolution, May 17, 1978	498.8
Second resolution, September 23, 1978	487.5
Administration Estimates	
January 20, 1978	501.0 <u>a/</u>
March 13, 1978	499.4 <u>a/</u>
July 6, 1978	496.6
October 27, 1978	491.6
January 22, 1979	493.4
CBO Reestimates of Administration's Budget	
Scorekeeping Report No. 1, as of May 26, 1978	495.4
Scorekeeping Report No. 3, as of July 26, 1978	491.1
Scorekeeping Report No. 4, as of September 30, 1978	490.4

a/ Adjusted to include earned income credit payments.

The Administration also lowered its outlay estimates for 1979 during the year as the spending shortfall in 1978 became evident. In its mid-session review of the 1979 budget, released July 6, 1978, OMB estimated total outlays for 1979 at \$496.6 billion, a reduction of \$4.4 billion from the January budget estimate. The revised OMB estimate was the result of downward reestimates of \$6.5 billion based on actual spending trends and policy changes which added \$2.1 billion to the January budget proposals. Most of the outlay reestimates contained in the OMB July review had already been anticipated by CBO and incorporated in the assumptions used by the Budget Committees for the first resolution for 1979.

On October 27, 1978, OMB released revised estimates for the 1979 budget, based on further changes in policy proposals as well as reestimates of spending under existing programs. The revised estimate for total 1979 outlays was \$491.6 billion, a reduction of \$5 billion from the July estimate. This was the net result of nonenactment of proposed energy rebates and

parts of the President's urban initiative proposals (-\$3.0 billion), higher interest rates and other changes in economic assumptions (+\$3.5 billion), and other changes, largely reestimates (-\$6.5 billion).

Again, most of the OMB outlay reestimates contained in its October release had been anticipated by CBO in July. While there are many estimating and some policy differences between the October OMB estimates and the second resolution assumptions, the largest single difference is for net interest payments. An estimating difference of \$3.4 billion for net interest accounts for most of the \$4 billion net difference between the October OMB estimate for total outlays and the second resolution level of \$487.5 billion.

Based on the experience of the past three years, it now appears that the upward bias in agency outlay estimates has been removed from both the current Administration estimates and the estimates used by the Budget Committees for the second budget resolution for 1979. Thus, any shortfall in outlays from the second resolution would most likely occur for other reasons, including inaccurate economic assumptions, unexpected Congressional action or inaction, unexpected administrative actions, or abnormal weather conditions or disasters. As discussed in the next section, it appears likely that the second resolution for 1979 was based on inaccurate economic assumptions. The expected effect of the revised CBO economic forecast for calendar year 1979 would be to add several billion dollars to the outlay estimates for fiscal year 1979.

REVISED ECONOMIC OUTLOOK

The fiscal policy contained in the second budget resolution for 1979 was designed to maintain the current economic expansion and to reduce unemployment further without adding to inflationary pressures. The major economic assumptions underlying the revenue and spending limits specified in the second resolution are shown in Table 16. The rate of real economic growth for calendar year 1979 was assumed to be 3.9 percent. The unemployment rate was assumed to fall to 5.6 percent by the fourth quarter of 1979, and the rate of inflation--as measured by the annual percent change in the Consumer Price Index (CPI)--was assumed to be under 7 percent in both 1978 and 1979.

TABLE 16. SECOND RESOLUTION ECONOMIC ASSUMPTIONS COMPARED TO REVISED CBO FORECAST, CALENDAR YEARS 1978 AND 1979

Item	1978	1979
Gross National Product		
Current dollars (in billions)		
Second resolution	2,092	2,313
Revised CBO forecast <u>a/</u>	2,107	2,351
Constant (1972) dollars (in billions)		
Second resolution	1,385	1,438
Revised CBO forecast <u>a/</u>	1,385	1,428
Real growth (percent)		
Second resolution	4.0	3.9
Revised CBO forecast <u>a/</u>	3.9	3.1
Unemployment Rate (percent)		
Calendar year average		
Second resolution	5.9	5.7
Revised CBO forecast <u>a/</u>	6.0	6.2
End of year (fourth quarter)		
Second resolution	5.8	5.6
Revised CBO forecast <u>a/</u>	5.8	6.7
Consumer Price Index (percent change, year over year)		
Second resolution	6.9	6.7
Revised CBO forecast <u>a/</u>	7.6	8.4
Interest Rate, 3-Month Treasury Bills (monthly average)		
Second resolution	6.8	7.4
Revised CBO forecast <u>a/</u>	7.2	9.1

a/ Midpoints of range.

The Administration's actions taken in November to defend the dollar, the continuing actions by the Federal Reserve Board to combat the rising rate of inflation, and other factors now make the second resolution assumptions for calendar year 1979 unrealistic. As shown in Table 16, CBO

now forecasts that the percent change in real economic activity between 1978 and 1979 is likely to be close to 3 percent, that the unemployment rate will increase rather than decrease during the year, and that the rate of inflation in 1979 may be over 8 percent. Interest rates for 1979 are also expected to be significantly higher than assumed for the second resolution by as much as 100 basis points. ^{1/}

The net effect of these changes in the economic assumptions would be to add several billion dollars to the level of total outlays estimated for the second resolution, as shown in Table 17. The major increases would be for net interest (\$3.8 billion), unemployment compensation (\$0.8 billion), social security (\$0.5 billion), and federal civilian and military retirement benefits (\$0.3 billion).

TABLE 17. CBO REESTIMATES OF FISCAL YEAR 1979 SPENDING BECAUSE OF REVISED ECONOMIC FORECAST: IN BILLIONS OF DOLLARS

	Budget Authority	Outlays
Second Budget Resolution Ceilings	555.65	487.5
Reestimates Because of Changes in Economic Outlook		
Net interest	3.8	3.8
Unemployment compensation	0.9	0.8
Federal civilian and military retirement benefits	0.6	0.3
Social security (OASDI)	0.2	0.5
Medicare and medicaid	0.4	0.2
Assistance payments	<u>0.1</u>	<u>0.1</u>
Second Budget Resolution with Revised Economic Forecast	561.7	493.3

NOTE; Preliminary, subject to change.

^{1/} For more details, see Congressional Budget Office, The Policy Response to Inflation, A Report to the Senate and House Committees on the Budget, Part I (January 1979).

OUTLOOK FOR 1979 OUTLAYS

At this time, it appears likely that total federal budget outlays for 1979 will be \$491 to \$496 billion. This is \$4 to \$9 billion above the second resolution level, largely because of changes in the economic outlook for calendar year 1979. The percent increase in total outlays above the 1978 level would be 9 to 10 percent. This compares to an 11.9 percent increase in outlays in fiscal year 1978 over 1977, as shown in Table 18. The rate of increase for 1978 was high because of the increased spending for CETA employment and training programs, local public works, farm price supports, and Small Business Administration disaster loans. Total spending for these programs in 1979 is not expected to exceed the 1978 levels. The rate of increase of spending for other programs in 1978 was about 9.5 percent, or within the range expected for 1979 outlays.

TABLE 18. ANNUAL RATE OF GROWTH IN TOTAL FEDERAL BUDGET OUTLAYS BY FISCAL YEARS

Fiscal Year	Total Outlays in (Billions of dollars)	Percent Increase from Previous Year
1970	196.6	6.5
1971	211.4	7.5
1972	232.0	9.7
1973	247.1	6.5
1974	269.9	9.1
1975	326.2	21.0
1976	366.4	12.4
1977	402.7	8.9 <u>a/</u>
1978	450.8	11.9
1979		
Second resolution estimate	487.5	8.1
CBO estimated range	491.0 to 496.0	8.9 to 10.0

a/ Comparable prior period is October 1, 1975, to September 30, 1976, because of the change in the fiscal year period beginning with fiscal year 1977.

The **President's** budget for 1980, which was submitted to the Congress on January 22, 1979, estimates 1979 outlays at **\$493.4** billion, \$1.8 billion above the October OMB estimate and \$5.9 billion above the second budget resolution. Most of the change from the October OMB estimate was because of outlay reestimates based on new economic assumptions and recent spending patterns.

The **Administration's** latest estimate of total outlays for 1979 appears to be reasonable, given the Administration's economic forecast. CBO **reestimated** the Administration's spending estimates for 1979 using the CBO economic forecast and estimating methodology. The Administration's forecast of **inflation** and unemployment are at or near the optimistic end of the CBO range for both calendar years 1979 and 1980. 2/ These economic assumptions have a significant impact on spending estimates, because both the lower unemployment and lower inflation in the Administration's forecast result in lower spending estimates.

As shown in Table 19, however, the differences between the Administration's and CBO's economic forecasts have more of an impact on spending estimates for fiscal year 1980 than for fiscal year 1979. Under CBO's economic forecast, 1979 outlays would be **\$0.4** billion higher than the Administration's latest estimate. This is more than offset by other estimating differences of **-\$0.6** billion. In total, CBO estimates that the Administration's latest budget proposals for 1979 would result in outlays of \$493.2 billion, only \$0.2 billion less than estimated by the Administration.

Actual outlays for the first four months of fiscal year 1979 totaled \$164.3 billion, or 9.4 percent above the level for the first four months of fiscal year 1978. If outlays were to continue at this rate, 1979 outlays would total \$493.1 billion. This is near the center of the CBO expected range of \$491 to \$496 billion and very close to the Administration estimate of \$493.4 billion.

2/ For further details on these differences, see Congressional Budget Office, An Analysis of the President's Budgetary Proposals for Fiscal Year 1980, Staff Working Paper (January 1979).

TABLE 19. CBO REESTIMATES OF THE ADMINISTRATION'S LATEST OUTLAY ESTIMATES: BY FISCAL YEAR, IN BILLIONS OF DOLLARS

	1979	1980
Administration's Latest Estimate, January 22, 1979	493.4	531.6
Changes Under CBO Economic Assumptions		
Unemployment insurance	0.3	2.3
Food stamps, social security, medicare and other	0.1	1.5
Changes Because of Other Estimating Differences	<u>-0.6</u>	<u>3.5</u>
CBO Reestimate of Administration's Outlay Estimate	493.2	538.9

NOTE; Preliminary, subject to change.

1980 SPENDING ESTIMATES

CBO also reestimated the Administration's spending estimates for fiscal year 1980 using the CBO economic forecast and estimating methodology. The somewhat higher unemployment and inflation forecast by CBO could add \$3.8 billion in 1980 for programs such as unemployment insurance, food stamps, and social security (see Table 19). Other estimating differences could add another \$3.5 billion to the Administration's 1980 outlay estimate for programs such as medicare and medicaid, farm price supports, social security, SBA disaster loans, and various transportation programs. In total, CBO estimates that the Administration's 1980 budget proposals could result in outlays of \$538.9 billion, or \$7.3 billion above the Administration's estimate.

Based on the CBO review of the Administration's 1980 budget estimates, it appears that OMB was generally successful in removing any upward bias in agency spending estimates. In fact, it appears that there may be a slight downward bias in the Administration's 1980 estimates.

There will remain uncertainties, nevertheless, in the 1980 estimates because of the uncertainties involved in anticipating legislative and administrative actions, projecting economic assumptions, and foreseeing weather conditions and other factors affecting outlay estimates.

Given all of these uncertainties, complete accuracy in estimates of total outlays or for any functional category or individual program is not attainable, except by chance. With the removal of any upward or downward biases in the estimates, however, it should be possible to forecast total outlays within 1 to 2 percent, up to 12 to 18 months in advance. This means that a possibility will always exist for spending shortfalls or overruns from budget resolution assumptions. The removal of any biases from the resolution estimates should also result in an equal probability for either shortfalls or overruns in total outlays. As pointed out in the first chapter, however, an outlay overrun could pose a serious problem for the Congressional budgeting procedures by requiring an adjustment to the second resolution spending ceilings, or by the denial of a planned spending measure for procedural rather than substantive reasons.

APPENDIXES

APPENDIX A. DATA BASE FOR ANALYSIS OF 1978 OUTLAY
SHORTFALL

Table A-1 presents the basic data base used for the analysis of the reasons for the shortfall in outlays from the second resolution level for fiscal year 1978, contained in Chapter II of this report. Actual outlays for 1978 are compared to the assumptions used for the second resolution for 151 major agency and program categories. These categories are also used for the CBO automated data base for monitoring monthly outlays and for the statistical analysis of past spending patterns discussed in Appendix B.

The figures shown in Table A-1 for the second resolution assumptions represent CBO estimates based on the reports by the two Budget Committees presenting their recommendations for the second resolution, the conference report on the second resolution, and the committee allocations of the spending totals included in the conference report. The allowance for federal civilian pay raises contained in the second resolution has been spread among the various salary and expense accounts in proportion to the actual appropriations for this purpose. Allowances for new legislative initiatives for spending increases and savings were also assigned to related agency and program categories.

Actual outlays for fiscal year 1978 by agency and major programs are based on the September Treasury Statement, released October 17, 1978, with some accounting adjustments for energy programs. Outlays for earned income credit payments are excluded from the 1978 figures in keeping with the convention used by the budget resolution to treat these payments as an offset to revenues. For fiscal year 1979, these payments are counted as outlays by the second budget resolution. The September Treasury Statement included profits on gold sales and excluded the administrative expenses and interest income of the Exchange Stabilization Fund, as assumed for the 1978 budget resolutions (see Appendix C).

TABLE A-1. ACTUAL OUTLAYS FOR FISCAL YEAR 1978 COMPARED TO SECOND BUDGET RESOLUTION ASSUMPTIONS, BY AGENCY AND MAJOR PROGRAMS: IN MILLIONS OF DOLLARS

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Legislative Branch	1,074	1,049	-25	-2.4
The Judiciary	496	435	-60	-12.2
Executive Office of the President	81	75	-7	-8.3
Funds Appropriated to the President				
Appalachian regional development programs	326	262	-65	-19.8
Disaster relief	386	470	84	21.7
Security supporting assistance	1,985	1,908	-77	-3.9
Advances, foreign military sales (FMS)	8,800	8,104	-696	-7.9
Foreign military credit sales	521	570	48	9.2
Other international security assistance	318	192	-126	-39.6
Functional development assistance	792	614	-178	-22.0
International financial transactions	982	919	-64	-6.5
Other international development assistance	591	524	-67	-11.4
Naval petroleum reserve	-439	-392	47	10.7
Other funds appropriated to the President	41	39	-2	-5.3
Foreign military sales trust fund receipts	-8,800	-8,445	355	4.0
Proprietary receipts, international development assistance	-537	-534	3	0.7
FMS, credit sales receipts	-310	-308	1	0.4
Subtotal, FAP	<u>4,658</u>	<u>3,922</u>	<u>-736</u>	<u>-15.8</u>
Department of Agriculture				
P.L. 480 foreign assistance	928	808	-120	-12.9
Agricultural Stabilization and Conservation Service	522	522	a/	a/
Commodity Credit Corporation	4,779	5,656	877	18.4
Farmers Home Administration				
Public enterprise funds	664	1,238	574	86.4
Salaries and expenses	212	188	-24	-11.2
Grants and other	201	212	11	5.6
Soil Conservation Service	494	499	5	1.1
Food stamp program	5,321	5,499	178	3.3
Agriculture science and education	990	908	-82	-8.3
Domestic feeding programs	3,840	3,782	-58	-1.5
Forest Service	1,681	1,509	-171	-10.2
Other agriculture programs	234	233	a/	a/
Proprietary receipts	-839	-687	152	18.8
Subtotal, Agriculture	<u>19,027</u>	<u>20,368</u>	<u>1,342</u>	<u>7.1</u>

(Continued)

TABLE A-1. (Continued)

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Department of Commerce				
Local public works program	2,900	3,057	157	5.4
Other economic development assistance	476	471	-6	-1.2
National Oceanic and Atmospheric Administration	728	682	-46	-6.3
Maritime Administration				
Ship construction	213	157	-56	-26.5
Operating-differential subsidies	352	303	-49	-13.9
Other Maritime Administration	55	138	84	152.8
Other Commerce programs	538	444	-94	-17.5
Subtotal, Commerce	<u>5,262</u>	<u>5,252</u>	<u>-10</u>	<u>-0.2</u>
Department of Defense-Military				
Military personnel	27,094	27,075	-19	-0.1
Retired pay	9,105	9,171	66	0.7
Operations and maintenance	33,946	33,578	-368	-1.1
Procurement	22,789	19,976	-2,813	-12.3
Research, development, test and evaluation	10,968	10,508	-460	-4.2
Military construction	2,083	1,932	-152	-7.3
Family housing	1,529	1,405	-125	-8.1
Revolving funds	6	-429	-435	N. A.
Other DoD	-75	-92	-17	-22.7
Subtotal, DoD-Military	<u>107,446</u>	<u>103,124</u>	<u>-4,323</u>	<u>-4.0</u>
Department of Defense-Civil				
Corps of Engineers	2,444	2,554	109	4.5
Other	26	-1	-27	-102.3
Subtotal, DoD-Civil	<u>2,470</u>	<u>2,553</u>	<u>83</u>	<u>3.4</u>
Department of Energy				
Energy activities	6,711	4,512	-2,199	-32.8
Atomic energy defense activities	2,096	2,070	-25	-1.2
General science and basic research	369	355	-14	-3.7
Power marketing admin.	158	166	7	4.6
Other	15	12	-3	-20.8
Proprietary receipts	-120	-132	-12	-10.3
Subtotal, Energy	<u>9,229</u>	<u>6,983</u>	<u>-2,246</u>	<u>-24.3</u>

(Continued)

TABLE A-1. (Continued)

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Department of Health, Education and Welfare				
Supplementary medical insurance	7,592	7,356	-236	-3.1
Hospital insurance	17,912	17,862	-51	-0.3
Medicaid	10,970	10,680	-290	-2.6
Old-age and survivors insurance	81,788	81,205	-582	-0.7
Disability insurance	13,244	12,655	-589	-4.4
Supplemental security income	5,775	5,855	80	1.4
Special benefits for disabled coal miners	966	982	17	1.7
Public assistance	6,290	6,639	350	5.6
Social services grants	2,878	2,809	-69	-2.4
Health programs	6,782	6,758	-25	-0.4
Education Division	8,999	8,764	-236	-2.6
Trust fund transactions	-1,703	-1,684	19	1.1
Other HEW	3,011	2,929	-82	-2.7
Subtotal, HEW	<u>164,504</u>	<u>162,809</u>	<u>-1,694</u>	<u>-1.0</u>
Department of Housing and Urban Development				
Federal Housing Admin. fund	800	357	-443	-55.4
Housing payments and low- income housing	3,664	3,612	-52	-1.4
Other housing programs	782	89	-693	-88.6
GNMA special assistance functions fund	-286	-55	231	80.9
Other GNMA	-15	255	270	N.A.
Community development grants	2,619	2,464	-155	-5.9
Urban renewal programs	650	376	-274	-42.2
Other community planning and development	137	125	-12	-8.7
Other HUD	583	538	-45	-7.7
Subtotal, HUD	<u>8,934</u>	<u>7,761</u>	<u>-1,173</u>	<u>-13.1</u>
Department of the Interior				
Bureau of Land Management	702	740	38	5.5
Bureau of Reclamation	776	669	-107	-13.8
National Park Service	488	449	-39	-8.0
Operation of Indian programs	669	644	-26	-3.8
Historic preservation, recreation, fish and wildlife programs	972	983	11	1.1
Energy and mineral programs	744	677	-67	-9.0
Other Interior programs	752	725	-28	-3.7
Offsetting receipts	-1,361	-1,208	153	11.3
Subtotal, Interior	<u>3,741</u>	<u>3,678</u>	<u>-64</u>	<u>-1.7</u>

(Continued)

TABLE A-1. (Continued)

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Department of Justice				
Federal Bureau of Investigation	548	552	4	0.7
Immigration & Naturalization				
Service	273	275	2	0.6
Drug Enforcement Administration	189	178	-11	-6.0
Federal prison system	327	312	-15	-4.5
Law Enforcement Assistance				
Administration	794	724	-70	-8.8
Other Justice programs	419	357	-62	-14.8
Subtotal, Justice	<u>2,550</u>	<u>2,397</u>	<u>-152</u>	<u>-6.0</u>
Department of Labor				
Temporary employment assistance	4,413	4,769	357	8.1
Employment & training assistance	5,185	4,764	-421	-8.1
Grants to states for unemployment				
insurance and employment services	54	46	-7	-13.5
Federal unemployment benefits				
and allowances	1,140	1,165	25	2.2
Advances to the unemployment				
trust fund	500	1,110	610	122.0
Unemployment trust fund	10,992	11,169	177	1.6
Special benefits	439	304	-136	-30.9
Occupational Safety and				
Health Administration	136	147	12	8.6
Other Labor programs	626	580	-46	-7.3
Intrabudgetary transactions	-500	-1,153	-653	-130.7
Subtotal, Labor	<u>22,984</u>	<u>22,902</u>	<u>-82</u>	<u>-0.4</u>
Department of State	1,197	1,252	54	4.5
Department of Transportation				
Coast Guard	1,350	1,284	-66	-4.9
Federal Aviation Administration	2,720	2,778	58	2.1
Federal-aid highways (trust fund)	6,001	5,876	-124	-2.1
Other Federal Highway				
Administration programs	423	200	-224	-52.9
Federal Railroad Administration	1,163	1,075	-88	-7.5
Urban Mass Transportation Admin.	2,043	2,028	-15	-0.7
Other Transportation programs	195	211	16	8.1
Subtotal, Transportation	<u>13,894</u>	<u>13,452</u>	<u>-443</u>	<u>-3.2</u>

(Continued)

TABLE A-1. (Continued)

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Department of the Treasury				
Antirecession financial assistance	1,550	1,329	-221	-14.2
General revenue sharing	6,814	6,823	9	0.1
Bureau of Government Financial Operations				
U.S. Customs Service	515	353	-162	-31.5
Refunding internal revenue collections	664	634	-30	-4.5
Other Internal Revenue Service	440	505	64	14.5
Interest on the public debt	1,936	1,940	5	0.2
Other Treasury programs	46,887	48,695	1,807	3.9
Proprietary receipts	516	464	-52	-10.1
Intrabudgetary transactions	-654	-897	-243	-37.2
Subtotal, Treasury	<u>-5,037</u>	<u>-4,418</u>	<u>619</u>	<u>12.3</u>
Environmental Protection Agency				
Construction grants	53,631	55,428	1,797	3.4
Other EPA	4,402	3,187	-1,215	-27.6
Subtotal, EPA	<u>870</u>	<u>885</u>	<u>14</u>	<u>1.7</u>
General Services Administration				
Stockpile sales	5,272	4,071	-1,201	-22.8
Other GSA programs	-61	-90	-29	-47.2
Other offsetting receipts	464	257	-207	-44.7
Subtotal, GSA	<u>-45</u>	<u>-50</u>	<u>-5</u>	<u>-10.8</u>
National Aeronautics and Space Administration				
	358	117	-241	-67.3
Veterans Administration				
Compensation and pensions	3,957	3,980	23	0.6
Readjustment benefits	9,529	9,573	44	0.5
Medical care	3,695	3,362	-333	-9.0
Construction projects	4,863	4,809	-54	-1.1
Insurance trust funds	382	243	-139	-36.3
Other veterans programs	645	680	35	5.3
Offsetting receipts	1,801	814	-987	-54.8
Subtotal, VA	<u>-556</u>	<u>-519</u>	<u>38</u>	<u>6.8</u>
	<u>20,358</u>	<u>18,962</u>	<u>-1,396</u>	<u>-6.9</u>

(Continued)

TABLE A-1. (Continued)

Agency and Major Program	Second Resolution Assumptions	Actual Outlays	Difference	Difference as % of Second Resolution
Other Independent Agencies				
Action	199	203	4	2.1
Civil Service Commission:				
Payment to civil service retirement fund	6,876	7,434	558	8.1
Government payment for employees health benefits	506	507	a/	a/
Civil service retirement fund	11,304	10,908	-397	-3.5
Other trust fund	-449	-565	-116	-25.7
Other CSC programs	131	140	9	6.9
Intrabudgetary transactions	-6,923	-7,461	-537	-7.8
Subtotal, CSC	<u>11,445</u>	<u>10,963</u>	<u>-483</u>	<u>-4.2</u>
Community Services Administration	650	768	118	18.2
Corporation for Public Broadcasting	107	119	12	11.2
District of Columbia	484	371	-113	-23.3
Export-Import Bank	222	-106	-328	-147.7
Federal Deposit Insurance Corp.	-379	-567	-188	-49.5
Federal Home Loan Bank Board	-399	-403	-4	-1.0
Federal contribution to Washington Metro Area Transit Authority	209	149	-59	-28.4
International Communications Agency	366	352	-14	-3.8
Legal Services Corporation	205	157	-48	-23.2
National Foundation on the Arts and the Humanities	281	247	-34	-12.0
National Labor Relations Board	91	90	-1	-0.8
National Science Foundation	795	803	7	0.9
Nuclear Regulatory Commission	269	271	2	0.8
Postal Service fund	1,696	1,778	83	4.9
Railroad Retirement Board	4,097	4,075	-22	-0.5
Small Business Administration	951	2,766	1,816	191.0
Smithsonian Institution	122	125	3	2.7
Tennessee Valley Authority	1,178	1,412	234	19.9
U.S. Railway Association	611	754	142	23.3
Other independent agencies	726	750	24	3.3
Subtotal	<u>23,926</u>	<u>25,079</u>	<u>1,153</u>	<u>4.8</u>
Undistributed offsetting receipts				
Employer's share, employee retirement	-5,030	-4,863	167	3.3
Interest received by trust funds	-8,770	-8,651	119	1.4
OCS rents and royalties	-3,000	-2,259	741	24.7
Subtotal	<u>-16,800</u>	<u>-15,772</u>	<u>1,028</u>	<u>6.1</u>
Total	458,250	449,877	-8,373	-1.8

a/ Less than \$500 thousand.



APPENDIX B. FORECASTING FEDERAL OUTLAYS WITH TIME
SERIES METHODS

In May 1977, CBO contracted with Systems Exploration, Inc., (SEI) for a study to evaluate some of the standard mathematical methods for forecasting a time series of data, based on the monthly stream of federal budget outlays as reported by the Department of the Treasury. The purpose of the study was to determine if statistical time series methods could be used to provide an independent forecast of total federal outlays, 6 to 12 months in advance, using only past outlay data as information. If successful, such forecasts could be used to check the reasonableness of CBO outlay estimates based on other methods, as described in Chapter IV.

The results of the 1977 study indicated that time series projection techniques worked reasonably well for a large number of federal programs, but forecasts of total outlays based on the sum of forecasts for 50 individual program categories used for the study were not acceptably accurate to serve as an independent check of CBO estimates. CBO then asked SEI to extend its analysis to the more disaggregated data base used by CBO to monitor monthly outlays, and to study the effect of seasonal adjustments upon forecasting accuracy in an attempt to produce forecasts of total outlays with greater accuracy than produced by the first study.

This second study, completed in October 1978, showed that the accuracy of forecasts using time series methods was improved significantly by using a more **disaggregated** data base. It also found that explicit seasonal adjustments enhanced the accuracy of forecasting for nearly every individual outlay series. Furthermore, the study found that a forecast of total outlays, based on the sum of seasonally adjusted forecasts of 160 program categories, exceeds in accuracy the seasonally adjusted forecast of total outlays.

TECHNICAL APPROACH

The data base used for the second study consisted of 160 program categories of monthly outlay data collected by CBO from the Monthly Treasury Statement of Receipts and Outlays of the U. S. Government. Data were available for the majority of the series from January 1968 through December 1977. The data base is organized by federal agency and major programs in monthly and in quarterly formats (see Appendix A).

All of the individual program series and a combined total outlay series were analyzed by various nonseasonal and, in particular, by seasonal time series methods. The nonseasonal techniques used in the analysis were variants of double exponential smoothing, a statistical technique which produces forecasts based on the prediction and actual data for the previous time period and the error in the prediction. These techniques were found to work best in the first study. The seasonal techniques used were of the moving average or moving median methods, combined with the application of seasonal weighting factors. Initially, the data were passed through two types of filters in order to remove extreme values or outliers that could distort the forecasting process. In general, a filter tests the data for extreme or "wild shot" observations and replaces these with a previous observation.

One of the common problems with time series analysis is that the error criterion used to evaluate alternative estimates of parameters usually guarantees that extreme or "wild shot" observations will distort predictions. A unique characteristic of the SEI study was the use of an error criterion that is particularly robust, that is, does not give disproportionate weight to extreme observations. This criterion was the median absolute error in forecasting total annual outlays (using various months during the year as a starting point). ^{1/}

STUDY RESULTS

Different time series techniques were selected for different program categories for the final study, depending upon which method worked best. For example, some program series, such as the Railroad Retirement Board, are well-behaved with no seasonality and a readily apparent pattern of growth. They may have some sharp **fluctuations** in a few places, but these can be filtered out by a median filter that replaces the most recent observation with the median of itself and the two preceding observations. Such programs are relatively simple series to forecast with time series methods, and accurate results can be obtained.

^{1/} A more detailed description of these statistical methods and forecast accuracy criterion are contained in the SEI reports to CBO. Questions regarding these reports should be addressed to James Capra, Budget Analysis Division, CBO (225-5373).

Some program series exhibit a steep upward trend after the beginning of the time period analyzed, such as Farmers Home Administration grants. In this case, a trend filter in conjunction with double exponential smoothing was found to be a successful combination. ^{2/}

Other series show sharp changes in trend both up and down, such as HUD community development grants. The median filter/double exponential smoothing technique was found to work well in this case, adapting very rapidly to the changes in trends or direction.

Still other combinations of filters, time series methods, and seasonality adjustments were used for other program categories. Reasonably accurate short-run forecasts of total outlays can be obtained by summing the forecasts for the individual program categories, particularly for periods of six months. For longer periods, the forecasting error increases above one percent (derived by dividing the mean of the absolute values of the forecasting error by the real or actual value of the amount being forecast). For example, the percent error computed for the sum of the forecasts of all individual program categories for a 1 to 12-month time horizon ranged from 0.3 percent for 1 month to about 1 percent for 6 months to 3 percent for 12 months.

The final study produced a forecast of outlays for the last six months of fiscal year 1978, using the best combination of techniques for each of the individual program categories. The sum of the individual forecasts, when added to actual outlays during the first half of the fiscal year, projected total 1978 outlays at \$449.7 billion, or within \$200 million of actual outlays for the year. This result, however, is somewhat misleading because the study did not make forecasts for four individual program categories, largely because there were not enough data available for time series forecasts (for example, local public works program and antirecession financial assistance). Actual outlays for the 156 program categories for which time series forecasts were made totaled \$445.2 billion, or \$4.5 billion (1.0 percent) less than forecast. This result is consistent with the historical accuracy of the time series method when it is applied to data over the past 10 years.

^{2/} A trend filter is the same as a median filter except that an observation is not replaced if the previous three observations (including itself) are all increasing or decreasing in value.

In comparison, the final 1978 CBO scorekeeping estimate, based largely on actual spending through the first seven months of the fiscal year for the 156 program categories, was \$443.4 billion, or \$1.8 billion (0.4 percent) below actual 1978 outlays, and \$6.3 billion below the time series forecast. The accuracy of this estimate was better than could be expected using time series methods.

At the individual program level, time series forecasts of outlays based on six months of actual data were more accurate than CBO scorekeeping estimates using other methods for only 34 program categories, which accounted for 16 percent of total outlays. Had the time series forecasts been used instead of the CBO estimates for these 34 programs, the accuracy of the final CBO scorekeeping estimate would have been improved by almost 40 percent. Whereas actual 1978 outlays exceeded the final CBO scorekeeping estimate by \$1.9 billion using other methods, the use of time series methods for these 34 program categories would have reduced this overrun to \$1.2 billion. Most of this improvement would have been for the CBO estimate of Department of Defense outlays (military personnel and operations and maintenance).

CONCLUSION

Forecasts of total federal outlays using time series methods and only past outlay data as information can provide a useful independent check of the reasonableness of outlay estimates made through other means (for example, statistical models using other variables, historical spend-out rates, agency estimates, etc.). As a general rule, the forecast accuracy of these other methods is likely to be greater than using just time series methods, no matter how refined these time series methods are. The use of time series methods can potentially improve CBO outlay estimates for some program categories, however, especially midway in the fiscal year.

APPENDIX C. CONGRESSIONAL BUDGET RESOLUTIONS AND ACTUAL
BUDGET TOTALS

The actual budget totals for fiscal years 1976, 1977, and 1978 shown in the Administration's 1980 budget are not exactly comparable to the budget resolutions for those years because of changes in the budgetary treatment of various items. The purpose of this appendix is to reconcile the differences between the actual budget totals presented in Table 4 (Chapter I) with those contained in the Administration's 1980 budget.

Since fiscal year 1976, the budgetary treatment of five items has changed: the Export-Import Bank, the Housing for the Elderly or Handicapped Fund, the earned income tax credit, the Exchange Stabilization Fund, and gold sales. The changes in budgetary treatment are discussed below.

Export-Import Bank. The Bank was carried off-budget during fiscal year 1976 and the transition quarter under the budgets as submitted and the budget resolutions. Beginning with fiscal year 1977 the activities of the Bank have been recorded on-budget and included in the budget resolution totals. In the 1978 to 1980 budgets, the Bank is carried on-budget prior to fiscal year 1977 in order to show a consistent data series. The Bank must, however, be excluded from the 1976 and transition quarter totals shown in the budget document historical tables for comparisons with the budget resolutions for these periods.

Housing for the Elderly or Handicapped Fund. The operations of the Housing for the Elderly or Handicapped Fund were removed from the budget by the Housing and Community Development Act of 1974. The 1978 Department of Housing and Urban Development-Independent Agencies Appropriation Act, however, returned this revolving fund to on-budget status. The second budget resolution for 1978 recognized this change in budget status as do the budget documents for 1979 and 1980. The first resolution for 1978 and all prior resolutions, however, treated the fund as an off-budget entity. The operations of the fund must be excluded from the 1976, transition quarter, and 1977 budget totals shown in the recent budget documents for comparisons with the budget resolutions for these periods.

Earned Income Tax Credit (EITC). The budget resolutions treated the refundable portion of the EITC as an offset to receipts for all budget resolutions prior to fiscal year 1979. Beginning with the 1979 resolutions, the refundable portion of the EITC is treated as a budget outlay (with an

equal amount for budget authority). The Administration's 1980 budget includes the refundable portion of the EITC as outlays and budget authority for all fiscal years beginning with 1976. To derive actual budget totals that are comparable to the budget resolutions before fiscal year 1979, the refundable portion of the EITC should be deducted from the 1980 budget figures for revenues, budget authority, and outlays for 1976, the transition quarter, 1977, and 1978.

Exchange Stabilization Fund. Beginning with the 1980 budget, the administrative expenses and interest income of this revolving fund are included in the budget outlays for prior years. The budget resolutions to date, however, have treated the fund as an off-budget entity. Thus, the Fund's administrative expenses and interest income should be deducted from the budget totals for outlays and the deficit for fiscal years 1976 through 1978 to arrive at budget totals comparable to the budget resolution figures.

Gold Sales. Profits on gold sales have been reclassified as a means of financing rather than an offsetting collection, beginning with the 1980 budget. In the 1980 budget, the actual budget totals for budget authority, outlays, and the deficit have been adjusted retroactively for the period since these sales began in 1975. Thus, to obtain budget totals that are comparable to the budget resolutions, gold sales should be added to the 1980 budget figures for fiscal years 1976 through 1978 as an offsetting receipt.

Table C-1 shows the calculations necessary to adjust the budget: totals for fiscal years 1976 through 1978, as shown in the 1980 budget document, to a basis comparable to that used for each of the budget resolutions for these years.

TABLE C-1. ADJUSTMENTS TO BUDGET TOTALS FOR COMPARISONS WITH BUDGET RESOLUTIONS: IN MILLIONS OF DOLLARS

Fiscal Year	Budget Authority	Receipts	Outlays	Deficit
<u>Fiscal Year 1976</u>				
1980 Budget Document	416,149	300,005	366,439	66,434
Adjustments				
Export-Import Bank	-728	--	-856	-856
Housing for the Elderly or Handicapped Fund	-750	--	15	15
Earned income tax credit	-808	-808	-808	--
Exchange Stabilization Fund	--	--	74	74
Gold sales	<u>-63</u>	<u>--</u>	<u>-63</u>	<u>-63</u>
Adjusted Totals for Comparisons with Budget Resolutions	413,800	299,197	364,802	65,605
<u>Transition Quarter</u>				
1980 Budget Document	91,410	81,773	94,729	12,956
Adjustments				
Export-Import Bank	-384	--	-273	-273
Housing for the Elderly or Handicapped Fund	--	--	3	3
Earned income tax credit	-86	-86	-86	--
Exchange Stabilization Fund	--	--	15	15
Gold sales, net	<u>-1</u>	<u>--</u>	<u>-1</u>	<u>-1</u>
Adjusted Totals for Comparisons with Budget Resolutions	90,939	81,687	94,387	12,700
<u>Fiscal Year 1977</u>				
1980 Budget Document	466,132	357,762	402,725	44,963
Adjustments				
Housing for the Elderly or Handicapped Fund	-850	--	-4	-4
Earned income tax credit	-901	-901	-901	--
Exchange Stabilization Fund	--	--	a/ 77	a/ 77
Gold sales	<u>a/ ~</u>	<u>--</u>	<u>a/ 77</u>	<u>a/ 77</u>
Adjusted Totals for Comparisons with Budget Resolutions	464,381	356,861	401,897	45,036
<u>Fiscal Year 1978</u>				
1980 Budget Document	501,500	401,997	450,836	48,839
Adjustments				
Earned income tax credit	-881	-881	-881	--
Exchange Stabilization Fund	--	--	101	101
Gold sales	<u>-180</u>	<u>--</u>	<u>-180</u>	<u>-180</u>
Adjusted Totals for Comparisons with Budget Resolutions	500,439	401,116	449,877	48,761

a/ Less than \$500 thousand.

