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BY THE COMPTROLLER GENERAL



# Report To The Congress

## OF THE UNITED STATES

### An Analysis Of The Effects Of Indexing For Inflation On Federal Expenditures

Over half of all Federal expenditures are indexed for inflation. Indexed expenditures increase automatically when inflation occurs. For a number of reasons, Federal expenditures which are indexed have been increasing more rapidly than total Federal spending and much more rapidly than inflation.

Given the large and growing share of the budget accounted for by indexed programs, it would be difficult to bring Federal spending under control without some check on indexing. However, such a check should be weighed against its possible consequences and its effectiveness in an overall anti-inflation program.



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COMPTROLLER GENERAL OF THE UNITED STATES  
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To the President of the Senate and the  
Speaker of the House of Representatives

This report analyzes indexing for inflation and the uses, problems, and magnitude of indexing in the Federal budget.

In recent years, it has frequently been suggested that the Congress index Federal taxes, Government bonds, and other programs for inflation. Since inflation has returned to double digit rates, these proposals are likely to receive renewed attention. Often overlooked in these discussions is the amount of current indexing, which is both extensive and expanding. The purpose of this report is to review and assess that indexing. The report estimates the money spent on indexing and the growth in this spending.

We are also sending this report today to the Director, Office of Management and Budget, and the heads of the departments directly involved.

A handwritten signature in black ink, appearing to read "Paul A. Atch".

Comptroller General  
of the United States

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

AN ANALYSIS OF THE EFFECTS  
OF INDEXING FOR INFLATION  
ON FEDERAL EXPENDITURES

D I G E S T

Since 1967, consumer prices in the United States have doubled, and in 1979 even the optimists expect the rate of inflation to exceed 7 percent. Inflation has become a national preoccupation, and until it is eliminated, methods must be sought to live with it.

Indexing is a means of coping with inflation. Private contracts and Federal programs are said to be indexed whenever payments are linked to a price index. This practice is limited in the United States. The most common example is the cost of living adjustment in many labor contracts. It has been proposed for bonds, saving accounts, mortgages, and taxes.

A large and growing proportion of the Federal budget is indexed. Inflation currently automatically increases about half of the Federal budget. This report analyzes the methods, problems, and magnitude of current Federal indexing.

The indexing of Federal expenditures has been a useful practice. It has maintained the real value of benefits provided by Federal programs. GAO is not recommending that the Federal Government stop indexing these expenditures; however, indexing does pose certain problems for controlling Federal expenditures and reducing inflation.

INDEXING AND THE GROWTH  
OF FEDERAL EXPENDITURES

Most Federal expenditures ultimately will be affected by an increase in the price level. Indexed expenditures are unique;

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they increase automatically with inflation. In some cases, this is because they are linked by a formula to a price index; when the index rises so will the expenditures. Formal linkage to a measure of the cost of living is not required for some expenditures to automatically increase. Identifying a program in this category as indexed is somewhat arbitrary. GAO believes its choices are reasonable since only those programs which clearly adjust automatically with inflation have been included.

#### IDENTIFYING INDEXED PROGRAMS

Most indexed programs provide some form of income support. If the benefits provided by these programs were not adjusted for inflation, the real value of the benefits would decline and the beneficiaries' real incomes would fall. The 12 Federal programs GAO examined were grouped into three categories:

- Retirement and disability programs, including Old Age, Survivors, and Disability Insurance and Civil Service and Military Retirement.
- Other transfer programs, including Medicare, Medicaid, and various nutrition programs.
- Federal wages for civilian and military employees.

#### INDEXING AND PROGRAM COSTS

Increased Federal expenditures result from an increase in the price level, from an increase in the real value of benefits per person, or from an increase in the number of people receiving benefits.

GAO analyzed expenditures for selected Federal programs between 1970 and 1977, to determine expenditure growth attributable to inflation. GAO estimates that inflation accounts for 50 percent of increased Social Security expenditures in this period,

44 percent of increased expenditures for Civil Service and Military Retirement, and 42 percent of increased Medicare expenditures. Expenditures for the indexed programs generally were increasing faster than other Federal outlays. Between 1969 and 1977,

--average increases in the indexed programs were about 20 percent greater than the total Federal budget increase,

--indexed programs increased from 42 to 53 percent of the budget,

--indexed programs grew twice as rapidly as the Consumer Price Index, and

--the remaining programs grew three times as fast, if Federal pay is excluded.

#### INDEXING AND INFLATION

In the long run, indexing is not likely to affect the growth in Federal expenditures. The Congress has in the past been willing to adjust for inflation through the legislative process. However, in the short run, following a decision to hold down Federal spending, indexing may affect expenditure priorities. Indexed programs may receive a larger share of total expenditures since mandated increases in indexed programs may limit the funds available for programs which are not indexed.

Reducing the deficit in the Federal budget is one way of lowering inflation when the economy is near full employment. Such a reduction can be accomplished either through increases in taxes or decreases in the growth of expenditures. The Federal income tax is a progressive structure, and, consequently, tax revenue increases more rapidly than the rate of increase in the dollar value of taxable incomes unless taxes are deliberately cut. If expenditures grow no more rapidly than inflation, this automatic rise in tax revenue will act to diminish

the size of the deficit. If taxes are not permitted to increase in this way, the deficit can only be reduced by greater restraining expenditure growth.

Given the large and growing share of the budget accounted for by indexed programs, it would be difficult to reduce substantially the growth in total Federal spending without some check on programs which are indexed. A temporary cap on indexed Federal expenditures is one possible anti-inflation measure. However, other available options and their probable consequences also need to be identified. GAO believes, and has recommended, for example, that the cost-of-living adjustment provisions for Federal retirees should be revised to include annual adjustments rather than the semi-annual increases now provided by law. GAO has also recommended repeal of the provisions that allow new Federal retirees to receive higher starting annuities and initial adjustments based on increases in the cost of living that occurred before they retired. Such changes would make these provisions more rational and less costly.

A piecemeal approach to solving the problem of inflation is not as desirable as an overall program to deal with inflation. However, a successful anti-inflation program will require that many steps, including some modification in Federal indexing, be taken.

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ABBREVIATIONS

GAO	General Accounting Office
OMB	Office of Management and Budget
CPI	Consumer Price Index



## CHAPTER 1

### INTRODUCTION

A rising price level has been a fact of life in the United States since the 1960s. Public concern about the problem of inflation is great, but no immediate solution is in sight. The main objective of the President's current anti-inflation program is to control inflation in the long run. Administration officials expect the program to yield only gradual, though significant, results.

For a number of Federal programs, the Congress has established procedures to protect benefits from erosion by inflation. Indexation is such a procedure for preserving "real benefits" (as opposed to the dollar benefits that become less valuable during inflationary periods) of persons eligible for Federal programs. Most of the currently indexed programs fall under the income support category. In addition, the retirement pensions of Federal civilian and military workers are indexed. The wages and salaries of these workers are not explicitly linked to an index of the cost of living; however, they are adjusted based on a comparison with private sector pay which may be thought of as an implicit form of indexing.

The current rate of inflation greatly needs to be controlled. Since indexation appears to contribute to inflationary pressures by automatically increasing Federal expenditures during inflationary periods, this practice needs to be examined.

In a number of Federal programs, benefit levels measured in dollar figures are indexed by linking them to a price index. When the price index changes, the figures are adjusted by a proportional amount. The purpose of this linkage is to preserve the real values which the dollar figures would represent in the absence of inflation.

There are certain inherent limitations in any method chosen for achieving this purpose. The most important of these difficulties concern the measurement of real income which the indexing formula is designed to protect or, in other words, the choice of a price index.

The most commonly used index is the Bureau of Labor Statistics' Consumer Price Index (CPI). This index is computed by calculating the cost of a fixed "market basket" of goods and services. When its cost rises, the CPI is increased proportionately.

One limitation of the CPI is that consumers do not purchase an unchanging "market basket." Nor do all consumers purchase the same basket of goods and services. The composition of the typical consumer's budget will shift in response to changes in relative prices. 1/ By failing to reflect these substitutions, the CPI overstates increases in the cost of living. A further overstatement occurs because the CPI does not adjust its "market basket" for changes in the quality of the goods composing it. An increase in price reflecting and resulting from an improvement in quality is counted as if no change had occurred in the characteristics of the improved product.

There may also be occasions when the automatic protection of real incomes conflicts with other public policy goals. For example, full indexation would permit the continued purchase of a constant amount of gasoline without any sacrifice of other goods and services. Thus, it would partially check the incentive to conserve normally associated with rising fuel prices. More generally, when the prices of imported goods rise relative to domestic goods not all real incomes in this country can be protected. If some are insulated from such price increases, the burden of reduction is greater on those which are unprotected.

Over the last decade, the Congress has indexed about 50 percent of the expenditures in the Federal budget. However, questions have been raised concerning this practice and the proposals to extend Federal indexing. Some ask not only whether indexing contributes to inflation but also whether it reduces the ability of the Congress to control Federal expenditures.

This report examines the issues relating to indexing the Federal Government's expenditures. The report describes the extent of current indexing in the Federal budget and estimates the money it costs. In addition, the broader questions concerning indexing are discussed. In particular, two questions are analyzed:

- (1) Has the Congress lost control of the budget by indexing some Federal expenditures?

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1/The distinction between such changes and inflation which is properly defined as a substantial and sustained increase in the overall average of prices is elaborated in appendix 1.

- (2) Has this indexing contributed to economic instability in the United States?

#### OUTLINE OF THE REPORT

The report is organized in the following way. Chapter 2 describes indexing as a safeguard against inflation and discusses its relationship to the stability of the U.S. economy. Chapter 3 covers the degree to which Federal expenditure programs are currently indexed. Chapter 4 estimates the money spent as a result of this indexing, and Chapter 5 reveals the trends in Federal indexing and addresses the questions listed above.

#### SCOPE OF REVIEW

Our report is based largely on information found in the Office of Management and Budget's Budget of the United States Government, Special Analysis Budget of the United States Government, and the Budget of the U.S. Government Appendix, for fiscal years 1971 through 1980. Additional information was obtained from the Departments of Agriculture; Health, Education, and Welfare; Defense; and Labor; all are in Washington, D.C.

## CHAPTER 2

### INDEXING: ONE SAFEGUARD AGAINST INFLATION

The rapid inflation of the last decade has made the American public aware of the harmful consequences of a rising price level. In various ways inflation reduces the ability of the U.S. economy to perform its functions efficiently. Inflation makes money less useful and adds to the uncertainty of long-term contracts. However, the main effect of inflation, and the most immediate concern to the public, is the redistribution of wealth and income among various segments of society. 1/

Inflation redistributes income and wealth both within the private sector and between the private and public sectors. The redistribution within the private sector is less the result of such inflation than of the failure to correctly anticipate the rate of inflation. The redistribution between the private sector and the public sector can occur even if inflation is correctly foreseen. The effect of inflation on taxes, transfer payments, and subsidies can only be corrected by Government action. (See app. I.)

When people fail to anticipate correctly the rate of inflation, their mistakes have real economic consequences. Many of these consequences could be avoided if contracts were indexed. An indexed contract includes a formula which automatically adjusts the terms of the contract when there is a change in the cost of living as measured by a price index. The real terms of such a contract are insulated from the effects of unanticipated changes in average prices. Widespread indexing would prevent much of the redistribution of wealth and income caused by inflation.

Indexing is not a cure for inflation. There is no reason to believe that prices on average will be either lower or more stable as a result of it. However, indexing would make it easier to cope with whatever inflation does occur. Its supporters believe that widespread indexing would make it easier to reduce inflation through restrictive monetary and fiscal policy. However, there are many who believe that this would make the task of controlling inflation much more difficult.

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1/Appendix I surveys the major economic effects of inflation.

The first section of this chapter explains how indexing works to safeguard real incomes against inflation. The second section discusses the likely effect of indexing on the Federal Government's efforts to bring the rate of inflation under control.

#### HOW INDEXING WORKS IN THE PRIVATE SECTOR

To see how indexing can prevent some of the redistribution of wealth and income associated with inflation, consider the following example: an industry in which workers and managers have agreed to an hourly wage of \$5 expecting the cost of living to be stable over the course of their agreement. If, in fact, the cost of living increases, workers will, in effect, have accepted a real wage lower than they negotiated. The workers' loss is a gain for the owners of the firms. Their real labor costs have been lowered by inflation. If the industry is competitive, some of these gains may be passed along to the consumers of the industry's products in the form of prices lower than they otherwise would be.

These gains and losses could be avoided by adding a cost of living clause to the agreement. The clause would call for an adjustment in the wage when the price index used to measure the cost of living changes. If the index rises by 10 percent, workers receive a \$0.50 raise. The workers, thus, obtain the real wage they expected. Owners of capital invested in the industry do not receive an unexpected profit. The industry's customers will pay a price for its output which more accurately reveals the true cost of production. The unexpected inflation does not alter the distribution of income.

Indexing is not necessary for every contract. It is unnecessary if the terms of the agreement can be renegotiated at frequent intervals or if the exchanges which it calls for extend for only a short time. If the parties are obligated for a long time by the terms of their agreement, indexing would greatly improve their chances of achieving the real economic benefits they had anticipated.

The period over which an agreement must extend before indexing becomes practical depends on how fast prices are rising. Indexing becomes appropriate for contracts lasting only a few weeks when the rate of inflation exceeds 10 percent a month, and in a true hyperinflation even contracts lasting a few hours may need to be indexed. Inflation in the United States would have to substantially increase before indexing contracts of such short durations becomes even a practical consideration.

At current rates of inflation, labor contracts are logical candidates for indexing. They usually extend a year or more and their more frequent renegotiation would be costly. This may be true of informal arrangements between workers and employers as well as for the formal agreements between unions and corporations. 1/

Bonds are also likely candidates for indexing. A typical bond promises to pay money in the future in exchange for a sum of money paid in the present. (These future payments will reflect the lender's and the borrower's expectations and if these are incorrect, one will gain and the other will lose in real terms.) An indexed bond prevents such redistributions by linking the future payments to a price index. If the price index rises, so will the payments. The real return from the bond is not affected by unanticipated inflation.

Given the substantial and highly erratic inflation of the past decade, it is not surprising to find an increasing number of indexed contracts. What is surprising, given this experience, is that indexing is still relatively uncommon in the private sector.

#### INDEXING IN THE PUBLIC SECTOR

In the public sector, indexing, although far from universal, has become more common in recent years. An increasing proportion of Federal expenditures rises more or less automatically when the average price level increases. Those programs which are explicitly indexed mainly provide income support. In addition, the retirement pensions of Federal civilian and military workers are also explicitly indexed.

The wages and salaries of Federal employees are not formally indexed. The wages and salaries are not automatically increased as a direct result of an increase in the cost of living, but they are determined on a basis of comparability to pay in the private sector. When the comparability rule is followed, Federal pay will keep pace automatically with pay in the private sector, and this may be thought of as an implicit form of indexing.

The functions which indexing serves in the public sector are similar to those it fulfills in the private sector. It

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1/Arthur Okun, "Inflation: Its Mechanics and Welfare Costs,"  
Brookings Papers on Economic Activity 2, 1975 (pp. 351-402).

insulates the participants in Government programs from the consequences of inflation. It maintains real benefit levels and real wages when average prices are changing. If adjustments are not made for inflation, then a redistribution of real income and wealth will occur as inflation alters the real value of wages and transfers. The point is not that the level of real benefits should never be permitted to change, but that such changes should be the result of a conscious change in public policy not the accidental consequence of inflation. Indexing protects the participants in the programs from unpleasant surprises and reserves for the Congress the sole power to adjust real benefits.

The choice facing the Congress is whether adjustments for inflation should be automatic, as they would be if these programs were indexed, or whether the adjustments should always require deliberate action which may simultaneously alter the real value of benefits. The choice will depend not only on the relative advantages of indexing as a safeguard for real incomes, but on the impact indexing is likely to have on the Federal Government's efforts to control inflation.

#### INDEXING AND CONTROLLING INFLATION 1/

Indexing can protect people from unforeseen changes in the rate of inflation, but the desirability of this protection also depends on how it affects efforts to control inflation. A less than full adjustment in Federal expenditures to compensate for inflation may be a useful component of a broadly based anti-inflation program.

One popular explanation of inflation attributes it to the competing claims for real income of different groups in the economy. The real value of total wages, salaries, and property income, including the taxes which must be paid out of these earnings, cannot exceed the economy's production of goods and services. If the total expected real income represented by these claims exceeds total output, then someone must be disappointed. Actual real income will fall short of the expected total because there are not enough goods and services to satisfy everyone's claim.

The conduct of monetary policy determines the way in which total claims are reconciled with available output when there is a discrepancy between the two. The Federal Reserve

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1/For a more extensive discussion of this topic, see app. II.

System controls the supply of money in the United States. If it limits the growth in the quantity of money to the rate of growth in output, a recession will result whenever this is less than the rate of growth in total claims. Firms seeking to increase their profits by raising their prices will find sales declining and total revenue stagnating. Their price increases will result in higher markups on a smaller volume of sales and no real improvement in profitability. Similarly, unions which have pushed up wages will find some of their members losing their jobs and others working reduced hours. The attempt to increase real incomes by pushing up prices and wages will be frustrated by declining output and employment.

Such a recession can be prevented if the Federal Reserve System allows the supply of money to grow in line with the expansion in the dollar value of total claims. If this exceeds the rate of growth in output, inflation will result, but sales need not decline nor jobs be lost. The inflation will erode the real value of sales and wages, thus reconciling the competing claims with available output. It will persist as long as there is excessive growth in total claims. However, all expected real incomes can be protected from inflation since some inflation is based on unrealistic expectations.

Under these conditions the Federal Government can hope to reduce inflation only with the active cooperation of business and labor. It is necessary to scale down expected real incomes. To obtain this goal the Federal Government will need to demonstrate that it is serious about reducing inflation; this may require fiscal restraint in its own operations. Such restraint would involve a less than full adjustment for inflation in its expenditures.

Those who have advocated indexing have generally proceeded on a different view of inflation than this one. It is important to consider the implications of this alternative view for indexation in the public sector. In the other view inflation is attributed to excess demand for goods and services fueled by an expansive monetary policy. The main difference between it and the one outlined above is a shift in the emphasis given to monetary policy.

In the first view monetary policy plays an essentially passive role. It accommodates an inflation whose origin lies beyond the control of the monetary authority. In the other view the Federal Government is responsible for initiating as well as sustaining inflation, and the only necessary requirement for a successful anti-inflation policy is reducing the



growth rate of the quantity of money. However, achieving such a shift in monetary policy will be easier if it is accompanied by fiscal restraint.

Unless the rate of monetary expansion is accompanied by a reduction in the Federal deficit, accomplished through reduced real Federal spending or increased taxes, sharp increases in interest rates and reduced availability of credit for private investment will result. Fiscal restraint would spread the burden of reducing inflation more evenly throughout the economy. Therefore, in this view, as well as the one we outlined above, a less than full adjustment for inflation in Federal spending could help combat inflation.

### CONCLUSION

Indexing can prevent some of the redistribution of income and wealth caused by inflation. When the benefits of Federal programs are expressed in dollars, some adjustment for inflation is needed, if the real value of these benefits is to be maintained. Indexing is one method of making these adjustments. It provides automatic compensation for changes in the cost of living. It is already used extensively by the Federal Government, perhaps more widely than is commonly realized. The next two chapters describe this indexing and some of the problems associated with it. If a successful anti-inflation program requires a reduction in the real value of the Federal deficit, and it is the argument of this chapter that it does then changes in either taxes or expenditures are required. This might include some change in current indexing practices.

## CHAPTER 3

### INDEXING AND THE FEDERAL BUDGET

Most of the currently indexed Federal programs provide income support to retired or disabled workers. By far the largest of these is Social Security. In addition, the wages and salaries of Federal civilian employees are determined on a basis of comparability with pay in the private sector for similar work, and military pay is linked to civilian pay. This principle is an implicit form of indexing to the extent that wages and salaries in the private sector keep pace with inflation. The purpose of this chapter is to discuss the major issues raised by indexing these programs.

#### BUDGET CONTROL

When there is inflation, indexing increases Federal expenditures automatically. Some have concluded that this reduces the ability of the Congress to control the budget. It is argued that the Congress is less able to cut spending for indexed programs, and, consequently, it loses some of the flexibility which may be needed to either reduce the total budget or to change priorities. It has also been argued that indexing will result in less frequent congressional review of the spending levels for indexed programs, thus reducing their accountability. This section analyzes these arguments.

Over a long enough period to overcome short-term budget stringencies, it is unlikely that the growth of Federal programs will be greatly affected either positively or negatively if they are indexed for inflation. Given sufficient time to act, the Congress has distinguished real values from nominal values and has taken the steps necessary to achieve real benefit level targets. For example, in the 15 years before Social Security was indexed in 1973, benefit levels were increased across-the-board five times. Each of these served to restore the level of wage replacement that the program had attained in 1955 but which each time had been gradually eroded by inflation. The program did not grow any less rapidly because it was not explicitly indexed. In fact, expenditures measured in constant dollars have increased less rapidly since the program was indexed than they did during the 1960s.

Indexing does not appear to prevent benefit increases in excess of those required by the indexing formula. After indexing the food program for the elderly in 1974, the Congress in 1975 raised real benefit levels for both 1976 and

1977. Also, the automatic adjustments in Social Security for 1973 were preempted by an increase that more than compensated for the inflation since the previous increase in benefits in 1971.

Over the long run, indexing is not likely to affect either the composition or the total of Federal spending, but in the short run, lasting perhaps a congressional term, indexing may affect the size and composition of the budget. When there is a strong desire to hold down Federal spending, the mandated increases in indexed programs may limit the funds available for programs which do not automatically increase with inflation.

Indexing may make it more difficult for the Congress to reduce Federal spending. For example, in fiscal year 1976, the Congress did not approve the President's request for a 5 percent cap on inflation-indexed Federal programs but did not increase Federal grants-in-aid or defense spending by an amount sufficient to maintain constant real expenditures for these programs. However, Federal pay was held below the levels called for by the comparability rule in 1974, 1975, and 1978.

It is also noteworthy that the Senate Budget Committee, during its consideration of the concurrent budget resolution, uses a "current policy" budget prepared by the Congressional Budget Office. The legislation establishing the congressional budgetary process requires both the Congressional Budget Office and the Office of Management and Budget (OMB) to prepare a current services budget projecting:

"\* \* \*the estimated outlays and proposed budget authority which would be included in the Budget\* \* \* for the ensuing fiscal year if all programs and activities were carried on during such ensuing fiscal year at the same level as the fiscal year in progress and without policy changes in such programs and activities." 1/

Unlike OMB, the Congressional Budget Office, in its current services budget submission, interpreted this to mean that allowance should be made for inflation for all programs

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1/Congressional Budget and Impoundment Control Act of 1974, Section 605.

except where ceilings are imposed by law (such as in the revenue sharing program). 1/

Working on this basis, the Senate Budget Committee set targets which were increases or decreases from what would be necessary to maintain the real level of spending in all expenditure areas. This procedure eliminates some of the advantages indexed programs might otherwise possess in congressional budgetary development since the current policy budget includes inflation adjustments in budget estimates. However, the indexed programs are less subject to reduction to meet congressional budget targets.

Another important characteristic of most indexed Federal programs is that they are open-ended entitlement programs. In such cases, the enabling legislation specifies categories of people who are eligible for benefits and the amount for which they are eligible based upon certain economic and demographic characteristics. Funds are appropriated to provide benefits to all those who are eligible and who apply. Thus, outlays under these programs vary automatically with changes in the size of the participating population which, in turn, varies with general economic conditions. This happens without further change in the law and reduces the ability of the Congress to control the budget.

When a spending program is indexed, the Congress no longer needs to review it periodically to make adjustments for inflation. However, a periodic review of the other aspects of such programs is not necessarily less likely. One could even argue that indexing would provide more time for an examination of these other aspects since it removes the need to reach periodic agreement on generally accepted inflation adjustments.

#### CHOOSING AN INDEXING FORMULA

Whenever a Federal program is explicitly indexed for inflation, a specific formula is required to link the program's nominal benefits to a specific price index. There are inherent problems in selecting such a formula.

First, there is the problem of choosing a price index. It is impossible for any price index to perfectly mirror

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1/In the current services budget prepared by OMB, inflation adjustments were taken into account only when required by current law. See OMB's "Current Services Estimates for Fiscal Year 1977," 1975, p. 78.

changes in the cost of living. An approximate measurement is all that is possible. The most commonly used index both in the private and public sectors is the Bureau of Labor Statistics' Consumer Price Index (CPI). This index averages prices using a set of weights based on a survey of consumer behavior. New surveys are made infrequently, and in the interim the weights are fixed. Consequently, the CPI fails to reflect the substitutions people make of less expensive goods for those whose relative prices have risen since the date of the last survey; as a result, it overstates the increase in living costs. Moreover, the CPI is not adjusted for improvements in the quality of goods and services. Finally, the CPI is based on an average budget, and it may be a poor indicator of changes in the cost of living for groups with unusual spending patterns.

As a result of these shortcomings, an indexing formula incorporating the CPI is as likely to add to the distortions of real incomes resulting from inflation as it is to reduce them when the rate of inflation is low. Only as inflation approaches the levels which it has attained in this decade can one be certain that indexing based on the CPI truly compensates, if only approximately, for inflation.

Although the CPI or a similar broadly based index of consumer prices is probably the appropriate index for programs such as Social Security, which provide general income support, it is not clear that this is the best index to use for programs like Food Stamps, which subsidize a particular type of good or service. In fact, the Food Stamps Program is indexed by linking its value to the cost of the Department of Agriculture's thrifty food plan. Medicare is not explicitly indexed, but the Government finances a fixed level of goods and services for those who qualify for treatment under it; as a result, nominal benefits are closely related to changes in the medical care component of the CPI. In these cases, the Government compensates for changes in relative prices as well as changes in the overall cost of living.

It is important to distinguish between the two kinds of price change. The change in relative prices is a real change reflecting not only a change in the value of money but a change in the sacrifice of other goods or leisure needed to obtain the good whose price has altered. An indexing formula based on an index of relative prices will adjust not only nominal benefits but real benefits. The adjustment may occur even if average prices are stable. Indexing in this case does more than compensate for inflation; it increases real expenditures when the relative price of the subsidized good or service increases.

Having selected an index, there remains the problem of relating changes in the index to changes in benefits. It is necessary to decide how often benefits should be raised when the index is increasing and by how much. The increased cost of more frequent revisions must be set against the benefits of more rapid compensation for the effects of inflation. A formula must be carefully chosen or it may end up generating changes in real benefits when there is a shift in the price level.

For example, when Social Security was indexed, the original formula chosen overcompensated for inflation. This oversight has been corrected, but it points up a problem which must be addressed whenever a program is indexed.

Finally, there may be occasions when a full adjustment to compensate for rising prices conflicts with other public policy goals. For example, indexation permits the continued purchase of a constant quantity of gasoline when its price rises without any sacrifice of other goods and services. This reduces the incentive to conserve which a rising price of fuel would provide.

## CONCLUSIONS

Current indexing by the Federal Government neither appears to threaten the Congress' ability to control the Federal budget in the long run nor necessarily reduces the accountability of the indexed programs. The main advantage of indexing is that it provides an automatic and rapid adjustment in nominal benefits to compensate for the effects of inflation. Participants in the indexed programs do not need to wait for congressional action before the adjustment can occur. The Congress does not need to devote time considering spending for these programs unless it wishes to change the real level of benefits.

However, there are problems associated with indexation. First, there is the problem of choosing an appropriate indexing formula. Although in principle indexing does not contribute to increased real expenditures for Federal programs, in practice it has done so. While greater care in devising a formula for indexation could have minimized some of these problems, it is impossible to avoid them entirely. Second, indexation can affect the composition and size of the Federal budget in the short run. It can make it more difficult to reduce the Federal budget deficit. Such a reduction is probably essential to the successful control of inflation. Accordingly, when bringing inflation under

control is a matter of high national priority, such as the present, altering indexation provisions to permit less than full adjustment for inflation may be one option. The beneficiaries of indexed Federal programs would thus share the burden of controlling inflation when that is an overriding national policy objective.

## CHAPTER 4

### INDEXED FEDERAL EXPENDITURES

In this chapter, most of the major Federal expenditures which are automatically adjusted for increases in the general price level are identified. This adjustment may be explicit, where expenditures are increased automatically by a formula incorporating a price index, or implicit, as with Federal employees whose wages are loosely tied to private sector wages.

### INDEXED FEDERAL PROGRAMS

Indexed Federal expenditures may be grouped into three categories: (1) retirement and disability programs, (2) other transfer programs, and (3) wages and salaries. Table 1 shows which programs fall into each category.

Table 1

<u>Retirement and disability</u>	<u>Other transfer programs</u>	<u>Federal wages and salaries</u>
Old Age, Survivors, and Disability Insurance	Hospital and Supplemental Medical Insurance	Civilian pay
Railroad Retirement		Military pay
Supplemental Security Income	Medical Assistance	
Special Benefits for Disabled Coal Miners	Food Stamps	
Civil Service Retirement	School Lunch	
Military Retirement		

Expenditures for all of the programs listed in table 1 will increase automatically when the cost of living rises unless action to prevent the increase is taken. The level of benefits for the retirement and disability programs listed in the first column are directly linked to a general price index. The other transfer programs subsidize a constant level of goods or services. Expenditures increase automatically



when the cost of these goods and services rises. The wages and salaries of Federal workers are not explicitly indexed, but if the comparability formula is followed, they will increase in step with pay in the private sector. Since wages and salaries in the private sector tend to increase with the rate of inflation, comparability can be thought of as an implicit form of indexing.

This is not an exhaustive list of all Federal expenditures which increase when the price level rises. It includes only programs which involve expenditures of over \$1 billion. It excludes military and civilian procurement programs which often provide an adjustment for inflation. Finally, it does not include interest on the national debt. There is ample evidence that current rates of interest include a substantial inflation premium. Increases in the expected rate of inflation raise this premium and consequently increase the Federal Government's interest payments.

The following sections of this chapter describe outlays by program since 1969, their purpose, and their current method of adjustment for inflation. Where the data are available, estimates are presented of the fraction of total growth in the programs which can be attributed to inflation.

#### INFLATION'S EFFECT ON EXPENDITURES 1/

Total expenditures for an indexed program can be thought of as the product of real expenditures in constant dollars and a price index. An increase in either will result in an increase in total expenditures. As an example, consider a mythical program for which total spending grows from \$1 billion to \$2 billion over 5 years. If average prices rise by 50 percent during this period, it would seem natural to attribute one-half the growth in total spending for this program to inflation, since spending expands by 100 percent while the rate of inflation is 50 percent. (If real expenditures are held constant, spending must increase by \$500 million to compensate for inflation. This is one-half the actual change in total spending.) However, when inflation has been occurring over a period as long as 5 years, such an approach can result in underestimating the effect of inflation and, consequently, the effect of indexing on total spending. The reason for this is that inflation and the indexing formula will apply not only to the initial level of real expenditures but to any changes in real expenditures during the interval as well.

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1/A formula for calculating this effect is in appendix III.

For instance, in the example above, if expenditures increase to \$1.333 billion in the first year and if all of the inflation occurs in the remaining 4 years, a full adjustment in actual spending to compensate for inflation would add \$667 million to total spending, and two-thirds of the increase in total spending would be the result of inflation. Alternatively, if all the inflation occurs in the first 4 years and if no change in real expenditures occurs until the fifth year when total spending rises by \$500 million, inflation is responsible for only half the growth in total spending.

The actual effect of inflation and indexing on increases in total spending over any interval longer than a year or two will depend not only on the change in the price index and the change in real expenditure but also on the sequence and timing of these changes. When these factors are taken into account, the formula used in this chapter to approximate the effect of inflation on total spending is obtained. (See app. III.)

#### RETIREMENT AND DISABILITY PROGRAMS

Federal expenditures for indexed retirement and disability programs exceeded \$111 billion in fiscal year 1977. Included in this category are Old Age, Survivors, and Disability Insurance; Federal Employees Retirement and Disability; Military Retired Pay; Railroad Retirement; Special Benefits for Disabled Coal Miners; and Supplemental Security Income. Table 2 shows the outlays for these programs since 1969.

#### Social Security

Old Age, Survivors, and Disability Insurance benefits replace part of the earnings lost by those covered for one of three reasons--retirement, death, or physical or mental disability preventing one from working. Benefits range from about \$100 to about \$1,000 monthly. Unless there is a legislated increase, these benefits are adjusted for inflation whenever the CPI in the first quarter of the calendar year exceeds the CPI in the first quarter of the previous calendar year by at least 3 percent. The percentage increase in the benefit equals the percentage increase in the CPI over this period. For example, if the CPI increased 5 percent, benefits would increase 5 percent. The increase is effective June 1 and payable July 1 of the same year. If the Congress enacts a general increase in benefits, the effective date of the legislated increase replaces the first calendar quarter as the quarter used to adjust the benefits.

Table 2

Federal Outlays for Fiscal Years 1969-1980  
Retirement and Disability Programs

	<u>Federal</u> <u>budget</u> <u>outlays</u>	<u>Old Age</u> <u>Survivors</u> <u>and</u> <u>Disability</u> <u>Ins.</u>	<u>Civil</u> <u>Service</u> <u>Retire-</u> <u>ment</u>	<u>Mili-</u> <u>tary</u> <u>Retire-</u> <u>ment</u>	<u>Rail-</u> <u>road</u> <u>Retire-</u> <u>ment</u>	<u>Special</u> <u>Benefit</u> <u>for</u> <u>Disabled</u> <u>Coal</u> <u>Miners</u>	<u>Supple-</u> <u>mentary</u> <u>Security</u> <u>Income</u>
	----- (000,000 omitted) -----						
1969 (note a)	\$184,548	\$ 26,791	\$ 1,812	\$ 2,444	\$1,498	-	-
1970	196,588	29,685	2,591	2,849	1,601	\$ 10	-
1971	211,425	34,482	3,024	3,886	1,884	320	-
1972	232,021	39,409	3,686	3,885	2,128	418	-
1973	247,074	48,288	4,514	4,390	2,440	952	\$ 41
1974	269,620	54,935	5,645	5,128	2,675	1,000	2,257
1975	326,092	63,649	6,980	6,242	3,077	976	4,779
1976	365,643	72,664	8,174	7,296	3,475	1,012	5,060
1977	401,902	83,861	9,288	8,216	3,800	978	5,297
1978	450,836	92,242	10,491	9,171	3,983	1,027	5,855
1979 (note b)	493,368	102,319	12,140	10,102	4,267	1,307	5,558
1980 (note b)	531,566	115,846	13,802	11,435	4,581	1,463	6,340

a/ Data for 1969 through 1978 are actual values found in the Budget of the United States and Special Analyses Budget of the United States Government, 1971-80.

b/ Estimates based on data in the 1980 Budget of the United States and Special Analyses Budget of the United States Government.

Table 3 shows fiscal years 1970 and 1977 benefit outlays and the number of recipients for the Old Age, Survivors, and Disability Insurance Program.

Table 3

<u>Old Age, Survivors, and Disability Insurance Program Benefit Outlays and Recipients Fiscal Years 1970 and 1977 (note a)</u>			
<u>FY 1970</u>		<u>FY 1977</u>	
<u>Outlays</u>	<u>Recipients</u>	<u>Outlays</u>	<u>Recipients</u>
(billions)	(millions)	(billions)	(millions)
\$29.1	25.4	\$82.4	33.2

a/Benefit outlays as shown in this table differ slightly from outlays as shown in Table 2 due primarily to the omission of certain administrative costs.

Source: Budget Appendix 1972 and 1979.

Table 4 shows the effect of inflation on Social Security expenditures. The Old Age, Survivors, and Disability Insurance programs grew by 183 percent from 1970 to 1977. Almost one-half of this growth was the result of inflation. The remainder was the result of changes in real benefits and increases in the number of people participating in the programs.

Table 4

The Impact of Inflation on Social Security  
Expenditures: 1970-1977

Total change in expenditures	\$53.3 billion
Change in expenditures due to inflation	\$26.4 billion
Change in expenditures due to inflation as a percentage of the total change in expenditures	49.5 percent

## Railroad Retirement

The Railroad Retirement Program provides partial protection against income loss for railroad workers and their families when retirement, death, or disability occurs. Essentially, this is the railroad workers social security program. A private pension financed by the employer is also included in the total annuity. Maximum benefits are about \$775 per month.

Two different sets of automatic cost of living adjustments have been established for the Railroad Retirement Program. One applies to the annuity that substitutes for Social Security benefits; the second applies to the private pension. Several minor components of the annuity are not subject to cost of living adjustments.

The portion of the annuity which substitutes for Social Security benefits is about 50 percent of the total Railroad Retirement benefit. It is increased at the same time and by the same percentage as Social Security benefits. The indexing formula for the private pension portion is more complicated and, generally, is less generous than the Social Security adjustment. Table 5 shows the number of recipients and Federal expenditures in fiscal years 1970 and 1977.

Table 5

Benefit Outlays and Recipients for the Railroad Retirement Program for Fiscal Years 1970 and 1977 (note a)

<u>FY 1970</u>		<u>FY 1977</u>	
<u>Outlays</u>	<u>Recipients</u>	<u>Outlays</u>	<u>Recipients</u>
(billions)	(millions)	(billions)	(millions)
\$1.59	0.97	\$3.83	1.03

a/Benefit outlays as shown in this table differ slightly from outlays as shown in Table 2 due primarily to the omission of certain administrative costs.

Source: Budget Appendix 1972 and 1979.

Table 6 shows the effect of inflation on expenditures for the Railroad Retirement Program from 1970 to 1977.

Table 6

The Impact of Inflation on Railroad Retirement  
Expenditures: 1970-1977

Total change in expenditures	\$2.2 billion
Change in expenditures due to inflation	\$1.3 billion
Change in expenditures due to inflation as a percentage of the total change in expenditures	57 percent

Supplemental Security Income

Supplemental Security Income is available to eligible individuals who are blind, disabled, or over 65 and whose incomes fall below a certain level (a means-tested program). The maximum benefits go to those with no countable income. The amounts received monthly range from \$1 to about \$250. These benefits are adjusted for inflation at the same time and by the same percentage as Old Age, Survivors, and Disability Insurance.

The program began in 1973 with annual expenditures of \$41 million. Expenditures rose to \$2.3 billion in 1974 and continued to increase over the next 3 years reaching \$5.3 billion in fiscal year 1977. We estimate that approximately 45 percent of this \$3 billion increase was due to inflation.

Special Benefits for  
Disabled Coal Miners

Miners who have become totally disabled by black lung disease receive special benefits to replace their lost income, and if they die from the disease, their dependents receive benefits. The initial level of the annuity for new participants in the program is equal to a portion of the GS-2, disability income, depending on family size. The annuity automatically rises with increases in Federal disability payments. In 1977, the average benefit was about \$300 per month. About \$1 billion per year has been spent on this program since 1973.

Civil Service Retirement  
and Military Retired Pay

Civil Service Retirement and Military Retired Pay have been indexed for a number of years. Until 1977, the programs were adjusted whenever the CPI had reached and maintained for 3 months a level at least 3 percent higher than at the time of the previous adjustment. The adjustment was equal to the percentage increase in the CPI for the 3-month period plus 1 percent. As a result, the indexing formula contributed to a steady rise in real benefits, and overcompensated for inflation. Currently, benefits are adjusted twice each year on March 1 and September 1 by a percentage equal to the percentage increase in the CPI during the 6-month period ending December 31 and June 30, respectively. Table 7 shows the number of recipients and total expenditures for fiscal years 1970 and 1977.

Table 7

Benefit Outlays and Recipients for Fiscal  
Years 1970 and 1977 (note a)

<u>Program</u>	<u>FY 1970</u>		<u>FY 1977</u>	
	<u>Outlays</u>	<u>Recipients</u>	<u>Outlays</u>	<u>Recipients</u>
	(billions)	(millions)	(billions)	(millions)
Civil Service Retirement	\$2.55	0.96	\$9.38	1.52
Military Retired Pay	\$2.85	0.75	\$8.22	1.18

a/Benefit outlays as shown in this table differ slightly from outlays as shown in table 2 due primarily to the omission of certain administrative costs.

Source: Budget Appendix for 1972 and 1979.

Table 8 shows the effect of inflation on expenditures for Civil Service Retirement and Military Retired Pay.

Table 8

The Impact of Inflation on Civil Service Retirement  
and Military Retired Pay: 1970-1977

	<u>Civil Service Retirement</u>	<u>Military Retired Pay</u>
Total change in expenditures	\$6.8 billion	\$5.4 billion
Change in expenditures due to inflation	\$2.8 billion	\$2.6 billion
Change in expenditures due to inflation as a percentage of the total change in expenditures	41 percent	48 percent

Indexed retirement and disability programs have grown rapidly in recent years. Their rate of growth has exceeded that of the total Federal budget in each year from 1970 to 1977 except one. (See table 9.) The results of the analysis indicate that indexing was an important source of growth in spending for these programs, but it was not the only source. Increases in real expenditures resulting from higher levels of real benefits and increased participation accounted for an equal or greater increase in spending in most cases. Had prices been stable over the period, Federal spending for these programs would still be considerably higher in 1977 than it was in 1970.

In recent years, we have issued a number of reports expressing our concern about the inequities, illogical and inconsistent benefits, and the affordability of Federal staff retirement systems. Some of these reports have addressed the issue of cost-of-living adjustments. In July 1976, we reported ("Cost-of-Living Adjustment Processes for Federal Annuities Needed to be Changed," FPCD-76-80) that the Federal annuity adjustment processes were far more generous than the processes used by most non-Federal employers to adjust pensions. We recommended that the law be changed to provide for annual adjustments based on the percentage rise in the CPI during the preceding year. The Congressional Budget Office has estimated that such a change would save an estimated \$3.2 billion within a 5-year period. We also recommended that the Congress repeal



the provisions which permit retiring employees to receive higher starting annuities because of changes in the CPI before their retirement and provide that new retirees' initial cost-of-living adjustments be prorated to reflect only CPI increases after their effective dates of retirement.

Table 9  
Percent Change in Federal Outlays and CPI  
1969 to 1980

<u>Period</u>	<u>Total budget</u>	<u>Indexed Retirement and Disability Programs</u>	<u>CPI</u>
1969-70 (note a)	6.5	12.9	6.1
1970-71	7.5	18.7	5.5
1971-72	9.7	13.6	3.4
1972-73	6.5	22.4	3.4
1973-74	9.1	18.2	8.8
1974-75	20.9	19.6	12.2
1975-76	12.1	14.0	7.0
1976-77	9.9	14.1	4.8
1977-78	12.2	10.2	6.8
1978-79 (note b)	9.4	10.5	7.6
1979-80 (note b)	7.7	13.1	-

a/Data for 1969 through 1978 are based on actual values found in the Budget of the United States and Special Analyses Budget of the United States Government, 1971-80.

b/Estimates based on data in the 1980 Budget of the United States and Special Analyses Budget of the United States Government.

We issued another report in November 1977 ("Cost-of-Living Adjustments for New Federal Retirees: More Rational and Less Costly Processes are Needed, "FPCD-78-2), which provided further information in support of our recommendation on new retirees' initial adjustments. We pointed out that the processes overcompensate retiring employees since, by law, they can receive a higher starting annuity which reflects the preceding cost-of-living adjustment granted while they were still employed and, depending on the timing of their retirement, may be eligible for an additional adjustment immediately upon retirement. Such increases escalate the already high costs of Federal retirement by inflating the basic annuity upon which succeeding adjustments are applied and can encourage valuable, experienced employees to retire. We estimated that a change in law to provide that new retirees adjustments be prorated to include only the cost-of-living increases that occur after retirement would save over \$800 million in annuity payments over the remaining life-spans of civil service employees retiring in 1978 alone.

If the changes that we have recommended are adopted, the Federal cost-of-living adjustment processes would still be more generous than those of non-Federal pension plans and more consistent with those provided by the social security program. Federal retirees are the only group we are aware of who receive unlimited cost-of-living adjustments automatically twice a year.

#### OTHER TRANSFER PROGRAMS

In fiscal year 1977 approximately \$40 billion was spent by the Federal Government on health and nutrition programs. These programs include both explicit and implicit adjustments for inflation. Table 10 shows the Federal outlays for these programs since 1969 and estimated outlays through 1980.

#### Medicare and Medicaid

Medicare and Medicaid are not formally linked to a general price index. <sup>1/</sup> They do not include a formula which adjusts their nominal expenditures when there is an increase in the cost of living. However, since they subsidize a fixed level of goods and services for those who qualify, spending for them is linked to health care prices.

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<sup>1/</sup>Some parts of the Medicare and Medicaid programs, for example physicians' payments, are explicitly indexed but not to a general price index.

Table 10

Federal Outlays For Fiscal Years 1969-1980

	<u>Medical programs</u>		<u>Nutrition programs</u>	
	<u>Hospital and Supplemental Insurance: (Medicare)</u>	<u>Medical Assistance programs: (Medicaid)</u>	<u>Food Stamps</u>	<u>School Lunch and other</u>
	------(000,000 omitted)-----			
1969 (note a)	\$ 6,598	\$ 2,285	\$ 248	\$ 339
1970	7,149	2,727	577	466
1971	7,875	3,362	1,568	752
1972	8,819	4,601	1,909	716
1973	9,479	4,600	2,208	693
1974	11,348	5,818	2,845	1,588
1975	14,781	6,840	4,599	3,107
1976	17,779	8,568	5,632	2,327
1977	21,549	9,876	5,399	3,129
1978	25,209	10,723	5,499	3,427
1979 (note b)	29,499	11,897	6,321	3,831
1980 (note b)	33,823	12,471	6,877	4,257

a/Data for 1969 through 1978 are actual values found in the Budget of the United States Government and Special Analyses Budget of the United States Government, 1971-80.

b/Estimates in the 1980 Budget of the United States Government and Special Analyses Budget of the United States Government.

Medicare is composed of two programs--Federal Hospital Insurance and Supplemental Medical Insurance. The Federal Hospital Insurance benefits cover the reasonable cost of services provided by participating hospitals, skilled nursing

facilities, and related providers of health care to those entitled under the program. Supplemental Medical Insurance provides protection against most of the other costs of health care for those over 65. It is available to those who pay a monthly premium, which was \$7.70 in July 1977.

Table 11 shows the number of people eligible for benefits, the number who received benefits, and the total amount they received in fiscal year 1970 and 1977.

Table 11

Benefits and Recipients, Fiscal  
Years 1970 and 1977 (note a)

<u>Program</u>	<u>Amount</u>		<u>Recipients</u>		
	<u>FY 1970</u>	<u>FY 1977</u>	<u>FY 1970</u>	<u>FY 1977</u>	<u>Increase</u>
	---(billions)----		----- (millions) -----		
Federal Hospital Insurance:					
Eligible			20.0	25.4	27.0%
Received	\$4.8	\$14.9	4.4	5.9	34.1%
Percent of those eligible who used benefit			22.0%	23.2%	5.5%
Supplemental Medical Insurance:					
Eligible			19.2	25.0	30.2%
Received	\$2.0	\$5.9	9.2	14.4	56.5%
Percent of those eligible who used benefit			47.9%	57.6%	20.3%

a/Benefit outlays as shown in this table differ slightly from outlays as shown in Table 10 due primarily to the omission of certain administrative costs.

Source: Budget Appendix 1972 and 1979.

An increase in the price of medical care and, consequently, an increase in expenditures for Medicare can be divided into two components. One component is the change in the average price level; the other is the change in the relative price of medical care. This distinction is especially significant because economic theory suggests that movements in these two components will be largely independent of one another. The first component reflects the rate of inflation. It shows how much the price of medical care must rise if it is to keep pace with the average increase in prices throughout the economy. This component will respond to shifts in total demand for goods and services in the economy and to the monetary and fiscal policies which shape that demand. The typical indexing formula is designed to offset changes in this component only.

The second component reflects a real change in the cost of medical care. When there is an increase in the relative price of health services, it not only costs more dollars to obtain medical care, but it also requires a greater sacrifice of other goods and services. Consumers must give up a greater quantity of other commodities or work more hours to obtain the same amount of health services.

This component is related most closely to conditions in the medical care industry and only indirectly to general economic conditions. It responds to shifts in the demand or supply of health services. Even if the CPI had not increased from 1970 to 1977--that is, if there had been no inflation--the price of medical care may still have risen because its relative price was also increasing during this period. (Offsetting reductions in other components of the index would have been necessary to maintain the constant average.)

In calculating the effect of inflation on the Federal Government's expenditures for Medicare, the two components of the price of medical care are analyzed separately. Table 12 shows that the average increase in prices from fiscal years 1970 to 1977 caused 42 percent of the increase in these expenditures.

Using the medical care component of the CPI to calculate the relative price of medical care reveals that the increase in this relative price caused 9 percent of the increase in expenditures for Medicare during this period. Because the relative price of medical care was rising, it was impossible to maintain a constant real expenditure level while at the same time providing a constant level of health services to the participants in the program. Even if participation

and the CPI had remained constant at its 1970 levels, some increase in real expenditures would have been necessary. 1/

Table 12

The Impact of Inflation and Changes in Relative Prices  
on Medicare Expenditures: 1970-1977

Total change in expenditures	\$14.4 billion
Change in expenditures due to inflation	\$ 6.1 billion
Change in expenditures due to inflation as a percentage of the total change in expenditures	42 percent
Change in expenditures due to the increased relative price of medical care	\$ 1.3 billion
Change in expenditures due to the increased relative price of medical care as a percentage of the total change in expenditure	9 percent

The Medical Assistance Program (Medicaid) provides financial aid to States for medical assistance payments on behalf of needy people for:

- in- and out-patient hospital services;
- other laboratory and x-ray services;
- skilled nursing homes services;
- home health services for persons over 21;
- family planning services;

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1/It should be noted that had participation been constant, it is likely that the upward pressure on the relative price would have been relieved to some extent.

--physicians' services; and

--early periodic screening, diagnosis, and treatment for individuals under 21.

States are required to provide any seven of the services for which Federal financial participation is available.

Eligibility is determined by the States in accordance with Federal regulations. Generally those eligible are needy persons who are one of the following: (1) over 65, (2) blind, (3) disabled, (4) members of families with dependent children, or (5) under 21, in some States. Federal funds are available to match State expenditures for medical care provided under the State's plan. The Federal share ranges from 50 to 83 percent according to a formula based upon the relation of State per capita income to national per capita income.

Without a detailed examination of the Medicaid program, there is no way to assess the impact inflation has had on it. This is because the program pays for so many types of health care and the fraction of the total cost paid by the Federal Government varies by State. However, between fiscal years 1970 and 1977, the Federal expenditures grew 2.15 times, from \$4.6 to \$9.9 billion.

#### Nutrition programs

The Food Stamp Program is the largest nutrition program sponsored by the Federal Government, and the School Lunch Program is the second largest program. Table 10 shows the Federal outlays for these and related programs since 1969 and the estimated outlays through 1980. The School Lunch Program provides assistance to States in the form of cash grants and food donations to help them supply lunches to all school children. <sup>1/</sup> The price of the lunches varies depending on family income. The price can range from a free lunch to the regular cost of the meal.

Food Stamps help low-income households improve their diet by subsidizing their purchase of food. The value of the food stamp allotment is indexed to the Department of Agriculture's market basket cost of a thrifty food plan for a family

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<sup>1/</sup>See our report, "The National School Lunch Program--Is It Working?" (PAD-77-6, July 26, 1977).

of four. Adjustments are made twice a year each January and July. The January adjustment equals the change in the market basket cost from April to September; the July adjustment equals the change in the market basket cost from October to March. Between 1970 and 1977, this cost rose 59.7 percent. Table 13 shows the number of participants and the value of the bonus stamps in 1970 and 1977.

In summary, the transfer programs discussed in this section have grown rapidly in the last 8 years. When the actual growth is combined with the expected growth between now and 1980, the programs will have expanded during the decade at a rate 80 percent greater than that for Federal expenditures as a whole. (See table 14.) The growth has not been steady, and it has been particularly erratic in the School Lunch and related nutrition programs. The growth can be attributed in part to inflation; to an even greater extent, it reflects real changes in the numbers of people participating in the programs, the relative prices of the goods subsidized, and the quantities of goods and services provided to the participants.

Table 13

Food Stamp Benefits and Recipients, Fiscal Years  
1970 and 1977 (note a)

<u>FY 1970</u>		<u>FY 1977</u>	
<u>Outlays</u>	<u>Recipients</u>	<u>Outlays</u>	<u>Recipients</u>
(billions)	(millions)	(billions)	(millions)
\$0.55	6.5	\$5.04	17.1

a/Benefit outlays as shown in this table differ slightly from outlays as shown in Table 10 due primarily to the omission of certain administrative costs.

Source: Budget Appendix 1972 and 1979.

FEDERAL WAGES AND SALARIES

Civilian salaries in the Federal Government do not include an explicit cost of living adjustment, but they are adjusted annually on the basis of comparability with salaries in private industry. Military pay is linked to the general schedule pay increase. Since salaries in the private sector



Table 14

Percent Changes in Federal Outlays, 1969 to 1980

	<u>Total Federal budget</u>	<u>Combined health and nutrition programs</u>	<u>Combined Medicare &amp; Medicaid</u>	<u>Combined Food Stamps and School Lunch and others</u>
	----- (percent) -----			
1969-70 (note a)	6.5	15.3	11.2	77.7
1970-71	7.5	24.2	13.8	122.4
1971-72	9.7	18.4	19.4	13.1
1972-73	6.5	5.8	4.9	10.5
1973-74	9.1	27.2	21.9	52.8
1974-75	20.9	35.8	26.0	73.8
3 1975-76	12.1	17.0	21.9	3.3
1976-77	9.9	16.5	19.3	7.1
1977-78	12.2	12.3	14.3	4.7
1978-79 (note b)	9.3	14.9	15.2	13.7
1979-80 (note b)	7.7	11.4	11.8	9.7

a/Data for 1969 through 1978 are based on actual values found in the Budget of the United States and Special Analyses Budget of the United States Government, 1971-1980.

b/Estimates based on data in 1980 Budget of the United States and Special Analyses Budget of the United States Government.

tend to increase during periods of inflation, adjustments to maintain comparability resemble the inflation adjustments for indexed Federal programs.

General schedule pay increases are not automatic. The President each year reports to the Congress the adjustments necessary to ensure that Federal pay is comparable to salaries in private industry for similar work. The President may submit an alternative pay proposal if he determines the pay adjustments required for comparability are inappropriate. The alternative plan becomes effective unless either House of the Congress vetoes it. Military pay is adjusted proportionately at the same time but differently. The pay for blue-collar workers is based on prevailing local wages. Table 15 presents the Federal outlays for civilian and military pay since 1969 and estimated outlays through 1980.

Table 15

Federal Outlays for  
Direct Personnel Compensation (note a)

	<u>Civilian</u>	<u>Military</u>
	----- (000,000 omitted) -----	
1969 (note b)	\$ 19,240	\$ 16,690
1970	21,288	18,638
1971	22,481	18,676
1972	24,247	19,762
1973	25,356	20,494
1974	26,974	21,016
1975	29,008	21,302
1976	32,063	21,022
1977	34,965	22,489
1978	38,154	23,854
1979 (note c)	40,833	25,041
1980 (note c)	43,327	26,568

a/Postal compensation excluded.

b/Data for 1969 through 1980 are actual values found in the Budget of the United States Government and Special Analyses Budget of the United States Government, 1971-1980.

c/Estimates in 1980 Budget of the United States Government and Special Analyses Budget of the United States Government.

Federal pay adjustments differ from the automatic adjustments in the explicitly indexed Federal programs. First, private salaries go up both as a result of inflation and as a consequence of increased productivity. Thus, comparability increases reflect more than just increases in the cost of living. Second, the President can propose an alternative plan. The President does not have similar discretion under any of the explicitly indexed Federal programs. Third, a comparability increase of, say, 5 percent does not automatically increase Federal outlays for personnel costs by 5 percent. OMB and the Congress can force agencies to absorb part of the increase by reducing employment levels. It cannot reduce the number of beneficiaries of indexed entitlement programs.

The military pay base is adjusted at the same time as general schedule salaries. The military pay base is composed of three components--base pay, quarters, and subsistence allowances, known collectively as regular military compensation. Each of these three components may be increased in proportion to the increase in general schedule pay, or up to 25 percent of the base pay increase may be shifted into subsistence or quarters allowances.

Table 16 shows the Federal outlays for military and civilian pay and the numbers of employees in fiscal years 1970 and 1977.

Table 16

Civilian and Military Employees  
Direct Pay: Fiscal Years 1970 and 1977

<u>Program</u>	<u>FY 1970</u>		<u>FY 1977</u>	
	<u>Outlays</u>	<u>Employees</u>	<u>Outlays</u>	<u>Employees</u>
	(billions)	(millions)	(billions)	(millions)
Civilian	\$21.3	2.0	\$35.0	1.9
Military	\$18.6	3.3	\$22.5	2.1

Source: Budget Appendix for 1972 and 1979.

From 1970 to 1977 there was a large drop, nearly 37 percent, in military employment. Civilian employment also declined, but only by 5 percent. These changes would have reduced Federal outlays for military and civilian pay, but they were offset by inflation and rising real expenditures.

The large rise in the price index and the more moderate gains in real payroll costs combined to increase Federal personnel costs. Almost all of the increase in total civilian pay and most of the increase in total military pay can be attributed to inflation. 1/

#### CONCLUSIONS

Inflation has contributed substantially to the growth in expenditures for indexed Federal programs, but the very rapid growth in these programs cannot be traced entirely to inflation. If average prices had been stable from 1970 to 1977, total spending would still have increased substantially for all the programs considered above except civilian and military pay. Where an estimate of the impact of inflation on spending was possible, the estimates range between 40 and 60 percent. Thus, real changes in participation in the programs, benefits, or relative prices accounted for a roughly equal increase in spending during this period.

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1/A more precise estimate of the effects of inflation on these programs is difficult because the comparability formula is not based on a price index and because the formula itself was not used to adjust pay levels in every year of this period.

## CHAPTER 5

### TRENDS AND CONCLUSIONS

This chapter reviews trends in Federal expenditures for indexed programs. It also addresses two questions. First, has congressional control of the budget been reduced by the indexing of Federal expenditures? Second, has this indexing contributed to a less stable economy, and, in particular, has it contributed to inflation?

#### TRENDS IN INDEXED FEDERAL EXPENDITURES

Federal expenditures have grown rapidly in the last 8 years, more rapidly than inflation, and the expenditures for indexed Federal programs have grown more rapidly than the budget as a whole. From fiscal years 1970 to 1977, total Federal outlays rose 104 percent, while the CPI was increasing by 56 percent. During this same period, outlays for the indexed Federal programs examined in chapter 4 rose by 132 percent, and if military and civilian pay are excluded, the remaining programs grew by 205 percent. This is twice the rate of growth for total Federal outlays. Federal outlays were also increasing as a fraction of the gross national product during this period, rising from 18.8 percent in 1970 to 21.3 percent in 1977.

In fiscal year 1969, Retirement and Disability programs--Old Age, Survivors, and Disability Insurance; Civil Service Retirement; Military Retirement Pay; Railroad Retirement; Special Benefits for Disabled Coal Miners; and Supplemental Security Income--accounted for 17.6 percent of all budget outlays. By fiscal year 1977, this had grown to a 27.7 percent share of the budget, an increase of 57 percent.

Medicare and Medicaid increased 63 percent during this 9-year period, from 4.81 percent of the budget to 7.82 percent. Nutrition programs increased dramatically during this period from 0.32 percent to 2.1 percent of the budget. Military and Civilian Direct Pay were the only programs to decline as a percent of the budget from 19.5 percent to 14.3 percent--a reduction of over 25 percent.

The result of this rapid growth is that not only is more money being spent for these programs, but their share in the Federal budget is also increasing. In fiscal year 1969 the share of the indexed programs in total Federal outlays was 42 percent. By fiscal year 1980, it is estimated that their share will be 53 percent.

This rapid growth explains why some observers are concerned about the consequences of indexing. If indexing has been responsible for the growth just described, then perhaps it has threatened Congress' ability to control the budget. Moreover, the last 5 years have witnessed the greatest peacetime inflation in American history. If the rapid growth in Federal Government spending is in part responsible for this inflation, and if that growth in Federal spending was induced by indexing, then perhaps the indexing of Federal expenditures has been a contributor to this inflation.

#### CONGRESSIONAL CONTROL OF THE BUDGET

As mentioned in chapter 3, indexing is not likely to affect either the size or the composition of the Federal budget in the long run. In the short run, indexing does have some potential for shifting the composition of total Federal outlays in favor of the indexed programs. Recent changes in the congressional budgeting process may have reduced this advantage, but they are unlikely to have eliminated it (see chapter 3). <sup>1/</sup>

The major problem of controlling expenditures in most of the programs described in this report is not directly related to indexing. Instead, the problem stems from the open-ended nature of these entitlement programs. The Congress sets the standards of eligibility for the programs but does not directly control the rate of participation in them. Thus, total spending can vary dramatically without any congressional action after the programs have been established, even in the absence of inflation and indexing. Where adjustments are linked to an index of relative prices, as with Food Stamps, or when a constant quantity of service is subsidized, as with Medicare and Medicaid, indexing compensates not only for inflation but also for changes in the price of the subsidized good or service relative to other prices. The latter adjustment requires an increase in real expenditures and poses similar problems for control as does a varying participation rate for entitlement programs.

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<sup>1/</sup>There is a sense in which indexing increases congressional control of these programs. Indexing maintains a constant real benefit level for the participants in the indexed programs. Without indexing, or some alternative method of adjustment, this real benefit level would decline each time the price level rises. Indexing increases congressional control over real benefits.

None of the indexed programs is adjusted in quite the same way for inflation. Some, like Social Security, are adjusted annually, while others, like Food Stamps and Civil Service Retirement, are adjusted semi-annually. Congressional control and oversight may be weaker as a result of this lack of uniformity. At no point are all of the inflation adjustments consolidated into one account and presented for examination. It may be that the total size of the adjustment has escaped attention because of this lack of uniformity.

In conclusion, the current indexing of Federal expenditures has probably reduced congressional control of the budget to some extent.

#### INDEXING AND ECONOMIC STABILITY

If every long-term contract in both the private and public sectors included a cost of living clause insulating the terms of the contract from the effects of inflation, increased economic instability might result. Under these circumstances, real incomes would be more resistant to the redistributive consequences of inflation. If total claims on real income exceed the total output of goods and services, then rising prices may be necessary to reconcile the discrepancy. Indexing would impede this necessary adjustment, and the economy would be less stable as a result. (See ch. 2.)

Since current indexing is far from complete, its effect on economic stability is difficult to detect. In 1977, indexed Federal expenditures amounted to less than 11 percent of the gross national product. The redistributive effects of inflation have been reduced by this indexing but not eliminated. Most incomes in the United States are still vulnerable to inflationary redistribution. The ability of inflation to bring total claims in line with total output does not appear to have been significantly impaired.

It does not seem that the indexation of Federal expenditures contributed significantly to the high rates of inflation experienced since the mid-1960s. Even if one takes the bleak view that this inflation is primarily the consequence of competing claims for real income, indexing could have exacerbated the problem only if the beneficiaries of these programs would have been losers in the struggle in its absence. Our review of these programs suggests the opposite. If they had not been indexed, it is likely that the Congress would have adjusted their benefit levels to compensate for inflation in other ways. Indexing was simply the method chosen for making the adjustments.

This does not mean that these programs have not contributed to inflation. Our review also shows that real expenditures for them have grown rapidly in this decade. This growth is not the result of indexing, but the consequence of increased participation and rising real benefit levels. Actual expenditures have far exceeded the amounts necessary to keep pace with inflation. This growth in real expenditures may have contributed to inflation, and it also has complicated the task of bringing inflation under control.

The Federal Government must take the lead if the rate of inflation is to be reduced. The current anti-inflation program is an effort to do this. To succeed, the program must demonstrate that Federal workers and beneficiaries of Federal transfer programs are sharing the burden of controlling inflation. Success will also require a reduction in the rate of growth of Federal expenditures and Federal budget deficits. Achieving these goals may require modifying current indexing practices.

#### CONCLUSIONS

It is generally recognized that braking the growth of Federal expenditures and reducing the size of the Federal budget deficit can help in the fight against inflation. This report demonstrates that certain Federal programs, by their very nature, grow in response to inflationary pressure.

When the rate of inflation is 10 percent, expenditures for indexed Federal programs increase automatically by \$15 to \$25 billion annually. Each additional percentage point of inflation adds another \$1.5 to \$2.5 billion in expenditures for these programs. Such large increases pose a problem. On the one hand, there are compelling reasons to hold down the overall Federal budget. On the other hand, automatic increases in the indexed programs reduce the opportunities for making reductions. A uniform reduction in Federal expenditures is not possible with current indexing procedures. This means that a disproportionate share of any reduction which does occur must fall on those programs which are not indexed.

It is possible to maintain existing relationships in the Federal budget only by (1) reducing the real value of the benefits going to many needy Americans or (2) allowing expenditures for other Federal programs and, consequently, the total budget to rise at approximately the rate of inflation. This means a continuing deficit unless taxes are permitted to rise to close it.



Inflation automatically increases Federal taxes primarily because of the progressive nature of the Federal income tax. 1/ If taxes are not cut they will rise to close the deficit. However, over the past decade the Congress has periodically reduced taxes, thus not permitting the deficit to decline in response to the increased taxes.

Failure to address this dilemma head on could hinder Federal efforts to eliminate inflation. There is no easy solution. While it may appear to be simple enough to cap the growth of the indexed programs, the effects of such a move on needy recipients must be carefully weighed. It must also be recognized that accepting the rapid growth of these programs at a time of rapid and accelerating inflation has implications for the budget deficit and the Government's efforts to combat inflation.

A decision, by itself, to cut \$5 to \$7 billion by capping inflation indexed programs would have little impact on the current inflation rate in the United States, but would have some effect, and a greater long run effect. As part of an overall anti-inflationary strategy, such a cap could help the Federal Government's effort to purge the economy of inflationary pressures and those pressures feeding upon themselves.

All available options and their probable consequences need to be identified. We believe that a piecemeal approach to solving the current inflation problem is not likely to succeed. A number of steps must be taken concurrently if inflation is to be brought under control. Among them is a commitment by the Federal Reserve to prevent excessive growth in the Nation's supply of money and credit. Without this commitment, success in the fight against inflation is highly unlikely or impossible. The Congress will also need to address the issue of inflation in all matters pertaining to the budget and the size of the Federal deficit.

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1/See appendix I for additional information on this subject.

THE ECONOMIC EFFECTS OF INFLATION

Before discussing the effect of "inflation" on the allocation of resources in the U.S. economy and the distribution of the Nation's income and wealth, it is necessary to define this often misunderstood word.

A DEFINITION OF INFLATION

Economists define inflation as "a sustained rise in the general level of prices for a broad selection of goods and services." There are several noteworthy elements of this definition. First, inflation involves movement in the general level of prices and reflects price increases for a broad selection of goods and services produced in the economy. Inflation is not concerned with changes in relative prices (for example, lumber becoming more expensive and calculators being available at lower prices). Even when the general level of prices is stable, it is common for these relative prices to change. Supply and demand in particular markets change frequently; when they do, so will individual prices. In a dynamic economy, the relative prices of goods and services are changing continuously. 1/

The second element of the definition concerns the movement in the price level: it must be both "substantial" and "sustained." It is not possible to state precisely how large the change must be to meet this requirement, but an estimate of the required magnitudes can be provided. Since most price

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1/The method of reporting the monthly change in the several price indexes in the United States tends to confuse the public concerning the nature of inflation. The overall rise is reported and then attributed to a rise in one or more components of the index, for example food, fuel, housing, and hospital care. Such a reporting procedure is the natural outcome of the method of constructing most price indexes in which the level of prices is made to depend upon a suitable weighted sum of the prices of individual goods and services. However, this procedure has the unfortunate consequence of suggesting that it is the changes in the individual prices which push up the average rather than the average which is pulling up, to various degrees, all of the individual prices. Observers overlook the pervasive influence of aggregate demand on all prices in concentrating on the changes in particular prices and identify changes in relative prices as the source of inflation.

indexes are not adjusted to reflect changes in quality of the product, price increases in the range of 2 to 4 percent per year may merely reflect this lack of adjustment. However, a rise in a U.S. price index at greater than 5 percent per year would surely be judged "substantial." By "sustained," economists usually mean that the rise in the price level must be longer than a 3-month period; and some would require the time period to be longer than 1 or 2 years. The reason for selecting a longer period is to avoid identifying a temporary rise in prices due to a decrease in output resulting from a strike, bad weather, or a crop failure with inflation.

In short, inflation occurs when almost all individual prices of goods and services in the U.S. economy are rising.

#### THE DIFFERENT COSTS OF INFLATION

A basic distinction should be made when the costs of inflation are discussed. The cost to society as a whole must be distinguished from the cost to the individuals who make up the society. The costs of inflation fall on everyone to some degree, yet some segments of society have offsetting gains from inflation.

For example, inflation may make it more expensive to maintain a house, but the homeowner's investment is worth more also. When viewed from the perspective of the individual, the main effect of inflation is one of redistribution. While redistribution may be viewed as a cost to the individual, it is not a cost to society; nothing is lost to the group as a whole when inflation redistributes income. Yet, the redistributive effects of inflation may warrant Government action if some segments of society are seriously disadvantaged.

The social costs and the redistributive consequences of inflation are each discussed below.

#### The social cost of inflation

The social cost of inflation is the reduction of real income which it causes. Inflation does this by creating inefficiencies in the use of economic resources. The most important of these inefficiencies is a reduction in the usefulness of money as a medium of exchange and as an asset during inflationary periods.

For a thousand years people have found it more convenient to conduct their exchanges using money rather than barter. Monetary exchange permits people to conserve on time and effort and to increase their consumption of other goods

and services. For this reason, individuals and businesses are willing to hold money--an asset which pays little or no interest. In addition, when money is widely and readily used in exchange, it offers more security against the economic hazards of an uncertain future than other assets. These services of money have a real value to society.

Inflation reduces the purchasing power of any asset whose nominal value is fixed. Money is the prime example of such an asset. To reduce this loss of value, money holders reduce their money balances. Because of this, exchange in the economy must be arranged less efficiently and the security provided by holding money is diminished. Thus, inflation reduces the value of money to society.

Variations in the rate of inflation also have a social cost. Changes in relative prices (including wages) are vital to the smooth functioning of a market economy because they register changes in preferences and in the relative scarcities of goods, services, and jobs. As such, these changes provide incentives for the increased production of some commodities or services and the reduced production of others. Moreover, they serve to induce changes in consumption, production, job choice, and investment behavior. Whenever the general level of prices is stable (that is either constant or changing at a constant rate) changes in relative prices are easy to isolate and respond to. But when the rate of inflation is variable, such changes are far more difficult to identify.

As a result, mistaken estimates of changes in relative prices may be made. When these occur, they lead to overproduction of some goods and services and the underproduction of others. They also cause individuals to make incorrect job choices and lead to poor investment decisions. Such errors impose a cost upon society for they decrease the ability of an economic system to efficiently transform resources into goods, services, and leisure.

How serious are these social costs of inflation and its variable rate? For the range of inflation rates experienced by the United States in the past decade, such costs are probably low. One way of reducing some of the social costs of inflation would be to stabilize fiscal and monetary policies and avoid stop-and-go policies that have appeared in the past decade. This would not necessarily eliminate inflation, but it would reduce the variations in its rate. As mentioned above, a constant rate of inflation is less socially costly and disruptive than an erratic rate.

Redistribution within the private sector caused by inflation

The social costs of inflation do not in themselves explain why inflation is of such great public concern. There are other aspects of inflation which provoke such interest, and these relate primarily to its effect on the distribution of the Nation's income and wealth. Inflation redistributes wealth and income both within the private sector and between the private sector and the public sector. The redistribution within the private sector is less the result of inflation as such than of the failure to correctly anticipate the rate of inflation. However, even when correctly foreseen, inflation can redistribute income and wealth between the private sector and the Government. This redistribution results from the effect inflation has upon taxes, transfer payments, and subsidies which can only be modified by Government action.

Inflation does not automatically redistribute income and wealth. If the public succeeds in predicting the rate of inflation, it can take some steps to protect its real incomes. Workers can push for higher wages in the later years of their contracts. Lenders can insist on higher interest rates to compensate for the declining purchasing power of their assets. <sup>1/</sup> However, if inflation is unexpected or if it occurs at a greater than anticipated rate, then some redistribution is very likely. It has been conventional wisdom that the groups most likely to lose as a result of unexpected inflation are workers and lenders, while those most likely to gain are employers, shareholders, and borrowers. The next two sections examine this opinion and show that it needs to be qualified.

Income redistribution

The principal form of income redistribution which economists believe occurs when there is unanticipated inflation is a shift from wages to profits. Many wages are

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<sup>1/</sup>This is not always possible. People who deposit small sums at financial institutions frequently are unable to escape the effects of inflation on their deposits even if they anticipate it correctly. The Government imposes legal ceilings on the rate of interest payable on these deposits (which have often been below the rate of inflation) and it is often impossible for these savers to shift into other financial assets whose yields more nearly keep pace with inflation.

fixed in the short run either by contract or convention, while profit is a residual claim on the revenue of the firm. If workers have not fully anticipated inflation, their real wages will be less than expected, and profits will be correspondingly higher.

The studies which have attempted to estimate the magnitude of the redistribution do not unanimously support this belief. Early empirical work by W. C. Mitchell, E. J. Hamilton, and A. H. Hansen did appear to support the conclusion stated above, which came to be known as the "wage lag hypothesis." <sup>1/</sup> However, more recent studies by Alchian, Kessel, and Felix have questioned the hypothesis. They show, for instance, that the earlier studies made insufficient allowance for the influence of factors other than inflation on the movement of wages over time.

### Wealth redistribution

The principal form of wealth redistribution resulting from inflation is a shift from creditors to debtors. Here too, if inflation is correctly foreseen, adjustments can be made to offset some of its effects. Therefore, the question becomes: how successfully have lenders predicted inflation? Experience with market interest rates in the United States since World War II indicates that they have not, on the average, adjusted fully to compensate for inflation.

Attempts have been made to measure the amount of wealth that has been transferred in this fashion. Such efforts have been greatly handicapped by the fact that Government is a major borrower in the United States. If the Government gains by paying a lower rate of interest than would have been necessary if lenders had correctly forecast the rate of inflation, then the taxpayer benefits. Tax rates can be lower because the amounts needed to service the Government's debt are lower. To the extent that the Government's creditors are also its taxpayers, they gain in one capacity what they lose in another, and the net redistribution may be small.

Although one must be cautious when describing the redistributive consequences of inflation in the private sector, some redistribution undoubtedly occurs whenever there is a substantial and unexpected increase in the average price

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<sup>1/</sup>Mitchell studied the period following the war between the States. Hamilton examined the influx of gold and silver from the New World to 16th and 17th century Europe, and Hansen studied the post-World War I period in the United States.

level. Such redistributions do not reduce the total income and wealth of society since losses in one part of the economy are offset by gains elsewhere.

However, these offsets may lead to a social problem that could require Government action. Although those who gain from inflationary redistribution would naturally attribute their success to superior wisdom, insight, or virtue, those who lose from the redistribution attribute it to inflation and oftentimes claim that something should be done to redress the balance. Measures which protect real incomes from the effects of inflation need serious attention. Indexing is one such measure.

#### REDISTRIBUTION FROM THE PRIVATE TO THE PUBLIC SECTOR CAUSED BY INFLATION

Inflation does not necessarily shift income and wealth between the private and public sectors. Whether it does so or not will depend on the success people have in predicting the rate of inflation and the Government's reaction to unanticipated inflation.

The main paths by which inflation can influence the distribution of income between the two sectors are the tax system and the complex of transfer payments and subsidies administered by Government; that is, inflation affects both Government revenues and expenditures. This report discusses how indexing provides a method for adjusting Government expenditures to correct for the effects of inflation. This section will explain how inflation affects Government revenues and the consequences of this for economic activity in the private sector.

Inflation and the Nation's tax system interact in many ways. The interaction can reduce the real income of the individual taxpayer, the real net worth of business, and the level of saving in the private sector. It can also raise the real value of total taxes. These interactions are explained more fully below.

#### Inflation and the progressive income tax

Federal income tax rates are progressive. As an individual's income increases, the additional income is taxed at a higher rate. In a period of inflation most individuals will experience some increase in their nominal incomes. As

measured in dollars, incomes will be rising, and, consequently, the fraction of income devoted to taxes will be rising. At the same time, real incomes measured in constant dollars are rising less rapidly, if at all. The result is that many taxpayers will find their real income after taxes declining. <sup>1</sup>/ Inflation has the same effect as a general increase in tax rates. This problem affects all taxpayers, and it is likely to be severe for individuals whose incomes would have been low enough to not pay income tax before the inflation occurred.

This form of redistribution can be prevented in a number of ways. One would be an automatic adjustment in rates and exemptions when there are changes in the cost of living. Alternatively, periodic income tax cuts would serve the same purpose.

### Inflation and the tax base

#### Individual incomes

The basic problem inflation poses for the individual taxpayer is that the tax system treats changes in nominal income as if they were changes in real income. The result is that adjustments in wages and prices which merely compensate for inflation and represent no real change in income lead to higher taxes. These changes in the tax base would be a problem even if the income tax were proportional. For example, some increase in interest rates occurs when inflation is eroding the purchasing power of assets whose nominal value is fixed. This results in an increase in the dollar value of interest income, but no change in the real value. In fact, as explained above, interest rates frequently fail to increase sufficiently to fully compensate for this lost purchasing power. The inadequate increases in interest

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<sup>1</sup>/Consider an individual whose income rises from \$10,000 to \$11,000 in a period when the price level is increasing by 10 percent. Thus, the individual's real income before taxes is constant. Now suppose she pays an income tax of 20 percent on the first \$10,000 of income and 40 percent on the next \$1,000. Her real income after taxes is initially \$8,000 and in nominal terms it rises to \$8,600 but in real terms the \$8,600 is worth only \$7,818; thus, in effect, she experiences a decline in income as a result of the tax increase caused by inflation.



income which do occur are further eroded by the taxes which must be paid on these purely nominal gains. 1/

This is true not only for the income tax but for the capital gains tax as well. When inflation has occurred a portion of every capital gain is merely an adjustment for the changing price level. If this portion of the gain is taxed at the same rate as the remainder of the gain, then the real tax rate on capital gains will rise with inflation.

It should be noted that these effects do not run entirely in one direction. To the extent that individuals are permitted to deduct interest payments from their taxable income, the real value of these exemptions will rise with inflation. 2/ In effect, inflation lowers the cost of borrowing since a constant real rate of interest generates a large tax deduction when inflation and nominal interest rates are high.

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1/This is obvious for the interest paid on savings accounts. When inflation rises above 5.25 percent, the legal maximum on interest payments at commercial banks prevents a complete adjustment for inflation, and the partial adjustment is further eroded by the taxes which must be paid on the interest income. In effect, small savers are charged for saving when inflation exceeds about 4 percent a year.

2/Consider an individual with a \$50,000 mortgage on his home who would be charged 5 percent interest if prices were expected to be stable over the length of the mortgage. If his marginal tax rate is 20 percent and if he deducts the \$2,500 interest payment from his income, he pays \$500 less in taxes and his effective borrowing rate is 4 percent. Now suppose inflation is expected and consequently, the interest rate he pays rises to 10 percent. He now deducts \$5,000 and pays \$1,000 less taxes. His effective borrowing rate is 8 percent less the rate at which the value of his home is increasing. If this rate equals the expected rate of inflation reflected in the higher interest rate, it will equal about 5 percent a year, and, therefore, the real cost of borrowing for this individual is about 3 percent a year. His effective borrowing rate declines as a result of inflation's interaction with the tax system.

Business net worth

The effects of inflation on corporation income taxes are similar to those just discussed in terms of the individual taxpayer. Here too the problem is that taxes must be paid on nominal profits, and inflation can raise nominal profits without a corresponding change in real profitability. Current accounting practices require that depreciation on a corporation's assets be measured at historical cost. This makes it difficult to accurately estimate corporate net income even when average prices are stable. The difficulty is compounded when the price level is rising. Inflation will increase the prices a typical corporation charges for its products. It will also increase the corporation's expenses. In particular, it will increase the cost of replacing the assets of the company as they wear out. If depreciation is evaluated based on historic cost, these latter expenses will be underestimated on the corporate income statement. Income will be overstated, and corporate taxes will rise in real terms. A similar problem occurs when inventory costs are calculated using the first-in first-out rather than the last-in first-out method.

However, here too the effects of inflation do not run only in one direction. Most corporations are debtors, and the interest they pay on their debt is deductible from their taxable income. An increase in the rate of inflation will increase their interest charges and, consequently, the size of this deduction. If the increase in interest is purely the result of higher expectations of inflation, the real rate of interest does not change; yet, the real cost of borrowing declines because of the tax deduction for nominal interest expenses. This serves to increase real corporate wealth. Whether it will dominate the negative effect resulting from the current accounting practices discussed above depends on the extent to which the firm is leveraged and whether inflation is accelerating or proceeding at a constant rate.

Inflation as a tax on money

While inflation was defined as a sustained rise in the general price level, it could equally well be defined as a sustained fall in the purchasing power of money. This definition emphasizes that it is wealth held in the form of money which is reduced by inflation. However, this reduction in the purchasing power of money is not a net loss to society because it is transferred to those who issue money--the Federal Government and the banks.

To more easily understand the nature of this transfer, imagine a situation in which the Government is the sole supplier of money. Either there are no banks or they lack the power to add to the stock of money. If the Government uses the money it supplies to finance the portion of its expenditures which are not financed by taxes and the economy is near full employment, then the increases in the supply of money used to finance Government spending will result in proportional increases in the price level.

Under these conditions if the money supply stands today at \$500 billion, and if the Government adds \$50 billion to that total over the course of the coming year to finance its deficit, prices will rise by 10 percent. The real value of the expanded money supply will be unchanged, but the real value of today's stock of money will be 10 percent less, a decline of exactly \$50 billion. It is almost as if tax collectors had taken 10 cents out of every dollar in the initial stock of money to finance the operations of Government.

The analysis is slightly more complicated when banks can also add to the supply of money. The transfer of purchasing power is then shared by the owners of the banks and their borrowers, whenever market interest rates do not reflect the ongoing inflation.

As long as inflation continues, there is no easy way to prevent this transfer of wealth to the Government and the banks from people holding money. The transfer would only be prevented if interest equal to the depreciation in the value of money could be paid on currency and other forms of money.

#### INFLATION AND PRIVATE SAVINGS

The effect of inflation on private savings is difficult to trace; this is not because inflation has little effect on saving, but because it affects saving in many ways, and some of these effects are offsetting. For example, if the inflation of the last decade has come as a surprise to wage earners, then inflation will have increased the share of profits in national income. If a larger share of profits is saved relative to wages, then inflation will have promoted saving.

Similarly, if savers are slower to adjust their expectations of inflation to changing conditions than are investors, then capital formation could be stimulated by increases in the rate of inflation. However, if the interaction of

taxes and inflation shifts income from the private sector to the Government, then saving out of private incomes may well have declined as a result of inflation. An attempt to measure the many influences and to follow their ramifications throughout the capital markets would go far beyond the limits of this report. However, increases in the protection of real incomes from inflation will almost certainly affect saving and capital formation.

### CONCLUSION

Inflation has been shown to cause the inefficient use of resources and to redistribute income and wealth. These redistributions are as much the result of a failure to predict the rate of inflation accurately as they are of inflation itself.

While inflation is undoubtedly one of the most serious economic problems facing the United States today, it is not the only economic problem this country confronts. In the course of the past decade, many Americans have seen their standard of living decline. Many more have been forced to adjust to preserve a roughly constant standard. All have had to economize on fuel and food.

Inflation is usually blamed for these hardships and inconveniences, but such a judgment is open to question. Suppose the Federal Government had succeeded in holding the price level constant during the past decade. Would such a successful anti-inflation policy have also held down the prices of oil, beef, or coffee when compared to American wages and salaries? We believe the answer is no. These changes in relative prices were caused by foreign monopoly, bad weather, and other factors unrelated to aggregate demand in the U.S. economy. They could not have been avoided simply by better fiscal and monetary policies. Eliminating inflation would not have lowered the cost of these products, oil, beef, and coffee, in terms that really matter to consumers: the sacrifice of time, effort, and other goods. Even if inflation is brought under control, or if its worst side effects were eliminated by indexing, the problems posed by changing relative prices will remain. They can only be dealt with on a case-by-case basis.

TWO VIEWS OF THE WAGE PRICE SPIRAL

Inflation is characterized by rising prices for goods and services. It is also characterized by rising money wages. However, economists disagree over which of these characteristics is more fundamental for understanding recent inflation in the United States and elsewhere in the industrialized world. At the heart of the disagreement is whether rising money wages are the cause or the consequence of inflation; and if they are merely the effect of a rising price level, what then is the source of inflation? The disagreement is reflected in two broad alternative interpretations which economists have offered to explain this and other episodes of inflation.

According to one of these interpretations, inflation is always and everywhere a monetary phenomenon. It can only be the result of a rate of increase in the quantity of money in excess of the rate of growth in total output. Whenever such a discrepancy is maintained for any length of time, the result will be an increase in the rate of growth in money wages; however, the increase will only be sufficient to maintain the rate of change in real wages which would have otherwise occurred. In the absence of excessive growth in the quantity of money, there would be no independent upward pressure on prices from rising wages.

The other interpretation does envisage such an independent influence of money wages on prices. According to this view, inflation results when the total demand for wages exceeds the value of output less profit at constant prices. Prices must rise to reconcile the wage demands with the available output. Most economists who share this point of view acknowledge that this process will result in sustained inflation only if there is an accommodating increase in the quantity of money. However, an expanding money supply is, in this view, of secondary importance in explaining the repeated increases in the level of prices. Two other interpretations of inflation should also be noted. The first is, in a sense, a generalization of the monetary interpretation. It relates increases in the price level to changes in the aggregate demand for goods and services. One such increase in aggregate demand results from an increase in the rate of monetary expansion, but others are possible. For example, a change in consumer demand due to a change in taste for future consumption will change aggregate demand and the price level. What distinguishes such changes from monetary expansion is that their effect on the price level is self-limiting in the absence of monetary accommodation. They may account for an occasional increase in prices but not for repeated increases. The second interpretation can be viewed as a generalization of the wage push interpretation. Wages are not the only claim on income; profits

also have a share. A widespread upward shift in profit margins would affect the price level in the same way as an independent increase in money wages. However, wages are singled out in this appendix for two reasons. First, the cost of labor is far and away the largest component of total cost in an industrialized economy. In the United States, wages and salaries account for 70 percent of national income. A much larger proportional increase in profits would be needed to have the same effect on prices as a small increase in money wages. Second, a general increase in profit margins is highly unlikely, and there is no evidence that such a change has occurred during the recent period.

The difference between the two interpretations is important because their implications for public policy are dissimilar. The monetary interpretation implies that a reduction in the rate of growth in the quantity of money is alone sufficient to reduce the rate of inflation. The wage push interpretation implies, on the contrary, that such a policy would result in a prolonged recession unless accompanied by wage guidelines or some other incomes policy.

To analyze these interpretations it is necessary to introduce a frame of reference within which they can be compared. Such a frame of reference is provided by the Equation of Exchange.

Let  $M$  represent the average stock of money held in the United States over the course of a year, and let  $V$  represent the rate at which this stock turns over during the year in exchange for the goods and services which constitute gross national product.  $V$  can thus be called the "income velocity of money," and the product  $MV$  can be thought of as the "aggregate demand for national product." Let  $Y$  stand for real gross national product in constant prices, and let  $P$  represent an index of prices for the goods and services included in that measure of output. The product  $PY$  equals the dollar value of national product, or, equivalently, the market value of aggregate supply. Since every purchase is also a sale,  $MV$  necessarily equals  $PY$ , that is,  $MV=PY$ . <sup>1/</sup>

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<sup>1/</sup>The differential version of the equation of exchange is  $(\dot{M}/M) + (\dot{V}/V) = (\dot{P}/P) + (\dot{Y}/Y)$ . A "dot" over a variable indicates differentiation with respect to time. Thus,  $\dot{P}/P$  is the proportional rate of change in the price level or the rate of inflation. In this form the equation states that the rate of inflation plus the rate of growth in real gross national product equals the rate of monetary expansion plus the proportionate rate of change in velocity.

The monetary interpretation of inflation can now be presented in terms of this equation. On this view, inflation is always the result of a more rapid increase in M, the quantity of money, than in Y, real gross national product. Proponents of this view believe that over the long run, changes in Y are independent of changes in M, V, and P. They also believe that changes in V bear a predictable relationship to changes in the other variables and, in any event, are likely to be small relative to current rates of monetary expansion and inflation. Consequently, over the long run the price level must adjust to accommodate discrepancies in the rates of growth for M, V, and Y.

However, proponents of this view stress that in the short run, following an unexpected change in the rate of monetary expansion, changes in velocity and real output will obscure the close, long-run relationship between the growth in the quantity of money and inflation. For example, the first reaction of firms to an unexpected increase in demand, the result of the unexpected increase in the growth of the quantity of money, is likely to be expanding the rate of output and employment. Consequently, the initial effect of the change in the rate of monetary expansion is likely to be a change in the rate of growth of real output. Only as they perceive a permanent change in demand will prices rise and output return to its normal rate of growth. 1/

Velocity may also be affected by the change in the rate of growth of money. As the more rapid expansion in the money supply begins to be reflected in a high rate of inflation, money becomes a less attractive asset, and people will try to hold less of it. They will then need to turn over their smaller balances more rapidly, and velocity will increase. However, this source of upward pressure on the price level is normally self-limiting. Unless the rate of growth in the money supply continues to accelerate, there will be no permanent effect on the rate of inflation following from the change in velocity. 2/

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1/Milton Friedman believes that the lag between a change in the rate of growth in M and the consequent change in the rate of inflation may be as long as 2 years, while within 6 to 9 months he expects there will be some effect on real output.

2/Another way of stating this is to say that inflation affects velocity but, in the long run, has no effect on the rate of change in velocity.

Once inflation occurs it will be reflected in rising money wages. The reason for this, according to the monetary interpretation, is that just as in the case of real gross national product, real wages and their rate of change are, in the long run, independent of changes in money and the absolute price level. The rate of change in real wages on this interpretation ultimately depends on improvements in technology, the accumulation of capital, the growth of population, and the composition of the labor force. A change in the rate of inflation following an increase in the rate of monetary expansion may result in a temporary departure of real wages from their long-run trend. Ultimately, though, money wages will adapt to the higher rate of inflation in such a way as to reestablish the rate of growth in real wages dictated by the underlying factors listed above.

In no sense then can money wages be said to be pushing up prices even if money wages are growing more rapidly than the productivity of labor. Rather, when the rate of growth in the quantity of money has increased, it would be more accurate to say that prices are pulling up wages.

The only circumstance under which something like a wage push on prices emerges from this interpretation occurs when there is an unexpected reduction in the rate of growth of money. Since money wages will reflect earlier anticipations of inflation based on the earlier rate of monetary expansion, such a change will place firms in an uncomfortable dilemma. If they attempt to raise prices to cover the expanding labor costs called for by the existing contracts, they will be doing so in a buyers market. Sales are likely to decline which will lead to layoffs and reduced output. If they do not raise prices, profits will be squeezed by the rising cost of labor. In terms of the Equation of Exchange, the initial effect of a decline in the rate of growth of  $M$  is likely to be reflected in a reduction in the rate of growth in  $Y$ , real gross national product.

However, this is necessarily a short-run phenomenon. It cannot persist, according to the monetary interpretation, beyond the point when workers perceive a decline in the rate of inflation and have time to renegotiate their contracts. With lower inflation, a lower rate of increase in money wages is inevitable; this is necessary to restore the long-run trend of real wages.

Those who propose the wage push or competing claims interpretation of inflation believe that the source of inflation, at least in recent years, has been in the labor markets. They also agree that any policy which requires a



decline in money wages (even when this does not entail a decline in real wages) is very impractical.

However, they do not agree on precisely which aspect of labor market behavior is responsible for the upward pressure on money wages. One frequently cited cause is the insistence by workers on a rigid structure of relative wages for different groups of workers. The structure is determined by tradition and notions of fairness more than by conditions of demand or supply. Any increase in demand for a particular type of labor which raises the wage for this group is then translated by the rigid structure of relative wages into a general increase in money wages. An alternative to this explanation asserts that rising money wages result from an exercise in union monopoly power coupled with a rigidity in money wages for nonunion workers. 1/ Another theory links the increased demand for money wages to an increasingly bitter class war, 2/ and still others refer to broader but more vague sociological factors.

Regardless of the exact reason for the increase in money wages, the consequences are clear. If firms accede to the wage demands and simultaneously attempt to protect their profit margins, prices must rise. This will erode the real value of workers' nominal gains, setting the stage for new and larger demands.

If the money supply is not permitted to increase, or if its rate of increase falls short of that needed to equal the autonomous increase in the price level emerging out of the labor markets, then an adjustment must occur elsewhere. This is clear from the Equation of Exchange. In fact, under these circumstances, real output will decline. Firms which

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1/Nonunion wages must be rigid because otherwise the reduction in union membership following the increase in union wages would result in an increased supply of nonunion labor and a decline in the wages of people in this group. Those who make this argument must also contend with the fact that less than a quarter of the U.S. labor force currently belongs to a union, and that union wages have not increased more rapidly, on the whole, than nonunion wages during the recent inflation.

2/This theory is more popular in Europe than in the United States.

raise prices will not be able to sell as much as they anticipate. Falling sales will result in layoffs and reduced production. The economy will be thrown into a recession.

Continued monetary restraint may ultimately check inflation as the threat of unemployment comes to dominate behavior on the labor markets, but until that time the country will experience a painful recession. The pressure to accommodate the inflationary wage demands will grow as the recession persists. If no other policy than monetary restraint is pursued, then the restrictive monetary policy will very likely be abandoned as the pressure to "do something" about the recession increases. Monetary policy will prove insufficient to control inflation.

The policy implication of this interpretation is that unless monetary restraint is accompanied by some form of incomes policy, no permanent reduction in inflation is likely. The recession which restrictive monetary policy creates cannot be tolerated long enough for the policy to work.

On either interpretation of inflation, restrictive monetary policy is necessary to control inflation. On both interpretations such a policy is likely to create a recession. However, the monetary interpretation suggests that this recession will be temporary, while the wage push interpretation suggests it will not. If money wages are rising independently of expected inflation, the recession resulting from restrictive monetary policy is likely to be long and painful. Until this independent source of upward pressure on wages is eliminated, no permanent reduction in inflation is possible.

A FORMULA FOR CALCULATING THE EFFECT  
OF INFLATION ON PROGRAM EXPENDITURES

The current dollar value of expenditures for a given program in a given year  $t$  ( $E_t$ ), can be thought of as the product of total real spending measured in constant prices in year  $t$  ( $Y_t$ ), and a price index for the year ( $I_t$ ).

$$(1) \quad E_t = Y_t I_t$$

The annual change in expenditures from year  $t-1$  to year  $t$  ( $\Delta E_t = E_t - E_{t-1}$ ) is then equal to change in this product.

$$(2) \quad \Delta E_t = Y_{t-1} \Delta I_t + I_{t-1} \Delta Y_t + \Delta I_t \Delta Y_t$$

Equation (2) can be rewritten as follows:

$$(3) \quad \Delta E_t = Y_t \Delta I_t + I_{t-1} \Delta Y_t$$

The first term on the right hand side of this equation gives the contribution of inflation (the change in the price index  $I_t$ ) to the total change in expenditures.

Alternatively, equation (2) may be rewritten in the following way:

$$(3a) \quad \Delta E_t = Y_{t-1} \Delta I_t + I_t \Delta Y_t$$

Here too, the first term on the right hand side may be thought of as measuring the contribution of inflation to the total change in expenditures.

These two alternative measurements differ only by the change in real expenditures over the year. The first overestimates and the second underestimates the effect of inflation. A precise measurement would require precise dating of the changes in real expenditures and the changes in the price index throughout the year.

The total change in expenditures from 1970 to 1977, or any other period of several years, equals the sum of the annual changes which occur during this interval. Let  $E$  represent this change:

$$(4) \quad \Delta E = \sum_{1971}^{1977} \Delta E_t = \sum_{1971}^{1977} Y_t \Delta I_t + \sum_{1971}^{1977} I_{t-1} \Delta Y_t$$

$$(4a) \quad \Delta E = \sum_{1971}^{1977} \Delta E_t = \sum_{1971}^{1977} Y_{t-1} \Delta I_t + \sum_{1971}^{1977} I_t \Delta Y_t$$

The first term on the right hand side of equation (4),  $\sum Y_t \Delta I_t$  gives the formula for the effect of inflation used in the text. It is an upper estimate, as explained above, but in no case considered in this paper does it differ from the lower estimate obtained from equation (4a) by more than 5 percent of the change in total expenditures.

The formula is constructed so that where there is doubt, the change in spending is attributed to inflation and indexing. Where an estimate of the fraction of the change in total spending due to inflation is given, this is the maximum effect which indexing could have had. It will not have cost more than this number suggests. Moreover, one can be confident that any fraction of the increased spending attributed to changes in real factors, like participation, truly arises from these factors. Therefore, the conclusion drawn in the text of the paper that such real changes accounted for a substantial fraction of increased spending in most indexed programs is likely to be a robust one.

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