the first two and one-half years after enactment of ERTA, the rates assumed in Part 2 can be changed at the same time that the predicted distribution of the tax base is changing.

Analyzing the Revenue Impact of Indexation. All tax brackets, the zero bracket amount (standard deduction), and the personal exemption are scheduled to be indexed to the price level (CPI-U) effective January 1, 1985. These developments are incorporated in revenue forecasts by the CBO model in a straightforward way. The personal exemption, zero bracket amount, and all remaining bracket boundaries appear as explicit variables in Parts 1 and 2. In order to account for indexation while carrying out a revenue forecast, it is necessary only to increase the levels assumed for these provisions by the percentage by which they are expected to be indexed in each year. This amount is given by projected increases in the CPI-U taken from CBO's macroeconomic forecast.

The process of taking account of indexation is perhaps most confusing in connection with the representation in Part 2 of the process by which incomes move upward through the bracket structure. In that section, a mathematical distribution function is used to predict how much of the tax base will appear at each taxable income level on tax returns. Then the amount that is predicted to fall into each different bracket is calculated.

When the brackets are assumed to be unchanged, as they will be prior to the introduction of indexation, increases in incomes imply that the predicted distribution of the tax base pictured in Figure 2 moves relative to the fixed brackets. Under indexation, the distribution and the brackets both move (assuming that there is some inflation). Once these movements are determined and both the distribution and the bracket structure are fixed in new positions, the computation of the weighted-average tax rate is carried out as it is for the unindexed tax--that is, the amount of taxable income that is predicted to fall into each bracket is computed and combined with the corresponding tax rate.

Further Research

The model that has been described here has proved to be a valuable revenue-forecasting tool, as the results presented in the next chapters will show. Still, the procedure can be improved in several areas, and CBO is continuing work on the development of this model.

The model's representation of the behavior of the tax base (Z, in the notation used elsewhere in this chapter) has the greatest scope for improvement. The tax statutes that helped determine the behavior of the

base have been more complicated at times during the past than is accounted for in the model. (For example, the standard deduction, now called the zero bracket amount, has at various times been comprised of several different parts. An illustration is the 1964-1977 period when the deduction was a given percentage of income subject to given minimum and maximum dollar amounts.) Taking account of the more detailed information available in the data by making the relevant parts of the model more complicated might improve the procedure's forecasting accuracy.

A second way in which the model might be made more precise is by making more extensive use of the income distribution device that is now used only in connection with the tax rate forecast. In principle, the behavior of the frequency distribution of incomes is relevant to the determination of the tax base, and it also underlies the behavior of the related (but different) income distribution that helps determine the tax rate. Preliminary CBO research suggests that incorporating a representation of the frequency distribution might improve the precision of the overall model.

CHAPTER III. FORECASTING ACCURACY OF THE CBO INDIVIDUAL INCOME TAX MODEL

This chapter presents evidence on the accuracy of revenue forecasts by both the CBO and the Treasury Department individual income tax models. On the basis of these results, the CBO model is shown to compare favorably with the Treasury procedure.

CAUSES OF FORECASTING ERRORS

Several sources can cause errors in forecasting revenues. In particular, a revenue projection can be wrong because the economic forecast (including gross income, unemployment, etc.) on which it is based is wrong; because the wrong assumptions are made about future tax policy provisions; or because the tax model itself is inaccurate in technical ways.

This chapter focuses only on the third source of error--the technical accuracy of the model itself. The first source--inaccuracy in economic forecasts--is a separate topic that should be given a full discussion of its own. The problem of inaccurate assumptions about what tax policy will be in effect during a future period, similarly, is a separate subject. Legislative and executive decisions are inherently difficult to predict, and it seems best to separate the consequences of such prediction errors from more correctable technical errors.

THREE FORECASTS WITH THE CBO MODEL

A forecast is a prediction of the future. Evaluating its accuracy usually implies waiting until actual figures for the forecast period become available, and then comparing these figures with the forecast. Since the CBO tax model is quite new, it has only a short forecasting record.

CBO developed additional information on the model's forecasting accuracy by generating three "forecasts" of past years for which data were already available. Care was taken to base these forecasts only on information that was available before the forecast period began.[1]

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1 In particular, the statistical equations that are described in Chapter II are reestimated using only data for the shorter period. In this way,

In the first forecast, a version of the tax model was developed based only on data through 1977, even though actual revenue figures were available through 1980. This version was then used to predict tax revenues for 1978, 1979, and 1980. In the second forecast, the model estimates used data through 1978, while the forecast covered 1979 and 1980. Finally, the third version of the model was developed using data through 1979 to forecast revenues in 1980. In each case, the projection was made using the actual values of economic variables, such as gross income and employment, for the forecast period. Similarly, actual values were used for tax policy provisions, such as tax rates and bracket structures. This ensured that the accuracy or inaccuracy of the resulting forecasts reflected only technical properties of the tax model.

The forecast results are shown in Table 1. The average error for forecasts one year into the "future" is $3.6 billion, or 1.5 percent of actual revenues. For forecasts two years out, the average error is also 1.5 percent of actual revenues, while for three years into the future the error is 1.7 percent.

Is this degree of precision satisfactory? How does it compare with the accuracy of Treasury Department forecasts? This second question is hard to answer because the Treasury does not publish information on the structure of its revenue-estimating models or their accuracy. Lacking such information, CBO has done its own analysis of the accuracy of past Treasury forecasts. An effort has been made to break the overall forecasting errors into the components described above, namely, errors in economic forecasts, errors in assumptions about tax policy, and technical errors. This breakdown was done using Treasury figures on revenue effects of tax law changes. The results of the analysis of Treasury forecasts of individual income tax revenues during 1978-1981 are shown in Table 2.[2] A detailed description of the calculations underlying these figures is given in the appendix.

The results of this error analysis suggest that Treasury forecasts were not significantly better than CBO's ex post forecasts for this period. Treasury's average technical error for forecasts one year into the future

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Footnote Continued

the model is prevented from taking statistical account of information contained in actual data for the forecast period before it makes its forecast.

2 For an earlier and more detailed analysis of the accuracy of past Treasury revenue forecasts, using the same procedures that are used in this chapter, see Congressional Budget Office, A Review of the Accuracy of Treasury Revenue Forecasts, 1963-1978 (February 1981).

was 2.0 percent of actual revenues, slightly higher than CBO's error of 1.1 percent. The average error in Treasury forecasts two years into the future was 2.3 percent, larger than the corresponding CBO figure, 0.7 percent, while Treasury's error three years forward, 1.2 percent, is larger than CBO's 0.5 percent.

The Treasury Department's revenue estimates set a high standard of quality. While further analysis might be useful, the figures developed in this section suggest that CBO's model is at least as accurate as the Treasury's.

TABLE 1. THREE SIMULATED FORECASTS OF LIABILITIES FROM INDIVIDUAL INCOME TAX USING CBO TAX MODEL (By calendar year)

CBO Forecast Period	Last year of Actual Data Used by Model (1)	Actual Tax Liabilities (In billions of dollars) (2)	Forecast Tax Liabilities (In billions of dollars) (3)	Error (In percents)
1978-1980	1977	1978: 203.8	207.8	2.0
		1979: 220.1	220.3	0.1
		1980: 256.3	255.0	-0.5
1979-1980	1978	1979: 220.1	218.8	-0.6
		1980: 256.3	253.1	-1.2
1980	1979	1980: 256.3	254.2	-0.8

SOURCES: Column 2: Internal Revenue Service, Statistics of Income: Individual Income Tax Returns (annual issues). Column 3: calculations using CBO tax model estimated using data for period ending in year shown in Column 1. Forecast is based on actual values of taxable personal income and employment, and of all tax provisions such as tax brackets and rates.

TABLE 2. ANALYSIS OF ERRORS IN TREASURY DEPARTMENT FORECASTS OF INDIVIDUAL INCOME TAX REVENUES FOR FISCAL YEARS 1977-1981

Year In Which Forecast Was Made	Actual Revenues (In billions of dollars) (1)		Forecasted Revenues (In billions of dollars) (2)	Error (In percents) (3)	Technical Error (In percents) (4)	Memorandum: Error from Inaccurate Economic Forecast (Percents) (5)	Memorandum: Error from Inaccurate Legislative Assumptions (Percents) (6)
1977	1978	181.0	171.2	5.4	-1.1	4.2	2.3
	1979	217.8	205.3	5.7	2.9	5.5	-2.7
	1980	244.1	234.1	4.1	-0.5	5.9	-1.3
1978	1979	217.8	190.1	12.7	1.9	4.5	6.3
	1980	244.1	223.9	8.3	-0.1	4.5	3.8
	1981	285.9	262.9	7.9	-1.4	6.2	3.1
1979	1980	244.1	227.3	6.9	0.3	5.7	0.9
	1981	285.9	269.1	5.8	-1.4	7.8	-0.7
	1982	297.7	311.2	-4.5	1.7	3.9	-10.1
1980	1981	285.9	274.4	3.9	-1.8	6.3	-0.5
	1982	297.7	318.7	-7.1	4.6	-1.2	-10.5
1981	1982	297.7	331.7	-11.4	5.1	-7.7	-8.9

SOURCES: Columns (1) and (2): The Budget of the United States Government, issues for various fiscal years. Columns (4)-(6): calculations described in the appendix.

CHAPTER IV. ISSUES IN INDIVIDUAL INCOME TAX REVENUES

The effects of inflation on federal revenues have recently focused attention on several important questions. What has been the revenue impact of the recent slowdown in inflation? How will revenues--and the deficit--behave when indexation of the individual income tax takes effect in 1985 as currently scheduled? This chapter discusses these and other problems using estimates from the CBO individual income tax model.

THE RESPONSE OF TAX LIABILITIES TO INCREASES IN INCOME CAUSED BY INFLATION

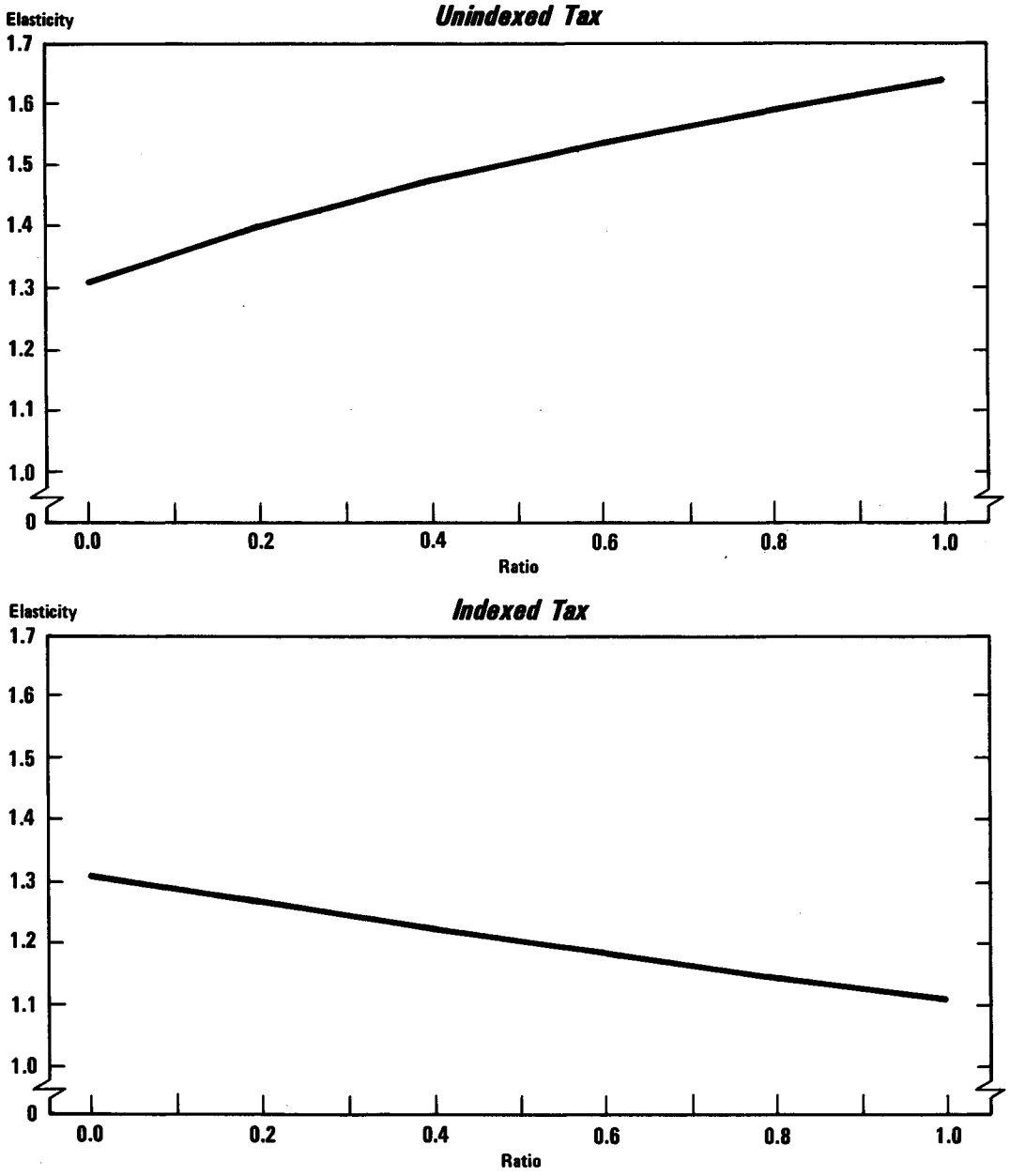
With an unindexed individual income tax, inflation causes revenues to increase relatively fast because of bracket creep. Increases in aggregate nominal income from inflation result in proportionally larger increases in income tax liabilities than those reflecting real economic growth.

This difference in tax response arises from variations in the pattern by which different changes in income are distributed. Increases reflecting inflation accrue primarily to existing taxpayers and are added to these individuals' previous incomes. Because the personal exemption and (in the cases of many taxpayers) the fixed zero bracket amount have already been applied to existing income, they are no longer available to protect inflation-induced increases in income. In addition, such increases are likely to be taxed at higher rates than previous income because they fall into higher brackets. In contrast, when aggregate income expands because of real GNP growth, some of the increase generally accrues to existing taxpayers through increases in productivity, but some of it also accrues to new taxpayers. This is because increases in real output generally increase employment, and many of these new workers are also new taxpayers. Their incomes are relatively well-protected by deductions and exemptions, and are taxed at relatively low rates.

The differences in the response of tax liabilities to different changes in aggregate income are illustrated in the top panel of Figure 4. This figure shows estimates from the CBO individual income tax model of the elasticity of the unindexed tax with respect to income for different combinations of real growth and inflation. This "income elasticity" is defined as the ratio of the percentage change in tax liabilities occurring because of a change in income to the percentage by which income changes. The calculations are based on the assumption that all tax rate reductions

Figure 4.

Implicit Elasticity of Tax Liabilities with Respect to Taxable Personal Income Under Indexed and Unindexed Taxes, Assuming Different Ratios of Growth in the GNP Deflator to Total Nominal GNP Growth.



mandated by the Economic Recovery Tax Act of 1981 (ERTA) have taken effect, but not the indexing provisions. Different points on the graph, moving from left to right, represent different degrees to which the growth of nominal GNP is assumed to represent real economic growth as opposed to inflation. For example, at the extreme lefthand side of the graph, GNP growth is assumed to be entirely "real"; halfway from left to right, the nominal GNP growth rate is assumed to reflect real and inflationary growth in equal proportions; and so on.

The difference between the elasticity value shown in Figure 4 and 1.0 shows how much faster tax revenues grow than income. For example, the figures for increases in GNP that primarily reflect inflation (at the right-hand side of the graph) approach values of 1.7; this suggests that, under those economic conditions, individual income tax revenues may grow nearly 70 percent faster than income. At the other extreme, when increases in GNP stem entirely from real economic growth, the elasticity is 1.3, suggesting that income tax liabilities grow more slowly--30 percent faster than GNP.[1]

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[1] These measures of elasticity show more variability than those presented in most other sources (see those cited in footnote 2 of Chapter I.) This is because this study, unlike others, takes into account the fact that changes in the business cycle affect the distribution of taxable income and, with it, the behavior of the tax. The general proposition that income distribution changes over the cycle has been demonstrated in several previous studies (cited in footnote 4 of Chapter 2), but only one other study has taken the tax implications into account. See Frank deLeeuw, Thomas H. Holloway, Darwin Johnson, David S. McClain, and Charles A. Waite, "The High-Employment Budget: New Estimates, 1955-80," Survey of Current Business (November 1981).

The estimates in Figure 4 were computed as follows. Using a current CBO projection of economic conditions in 1985 as a basis, and assuming that nominal GNP grows at 8 percent between 1985 and 1986, each of the different hypothetical combinations of growth rates for real GNP and the GNP deflator was analyzed in turn. On the basis of each, it was possible to predict consistent levels of aggregate employment and taxable personal income using separate econometric equations. These predicted levels were used in the full tax model to generate corresponding predictions of 1986 tax liabilities. The implicit elasticity of tax liabilities with respect to income was given in each case by the ratio of the predicted percentage growth in tax liabilities to predicted percentage growth in taxable personal income. The calculations are described in detail in Congressional Budget Office,

It is important to realize that it is only the individual income tax among federal revenue sources that exhibits these relatively high levels of (and variations in) responsiveness to changes in income. This tax accounts for about half of federal revenues. Other important revenue sources, principally the social insurance payroll taxes and, to a lesser extent, the corporate income tax, respond less strongly to changes in income. Their responsiveness, moreover, varies less with changes in the composition of income.

REVENUE IMPLICATIONS OF THE RECENT SLOWDOWN IN INFLATION

Because individual income tax revenues under the unindexed tax are so sensitive to inflation, the unexpectedly sharp slowdown in inflation that took place during 1981 and 1982 has been singled out in some analyses as a major factor in increasing the budget deficit. Slower-than-expected price increases, it is argued, have reduced the rate of bracket creep and the associated growth in revenues, leading to bigger-than-expected deficits.[2]

The importance of this factor in the recent growth of the federal deficit can be investigated using the CBO income tax model. Table 3 shows CBO's projection of inflation for 1982-1986 as of midyear 1981 and early 1983. As the figures show, inflation actually experienced in 1982 was significantly less than projected. As a result, the early 1983 projection of future price growth was revised downward. The revenue implications of this revision can be isolated by comparing estimates of revenues generated by bracket creep based on the two different inflation forecasts.[3]

The results are shown in Table 3. The inflation rate, as measured by the CPI, was over two percentage points lower during 1982 than had been forecast in early 1981. Similarly, CBO's more recent forecast of inflation during the 1983-1986 period is below the 1981 forecast for the same period by more than two full percentage points over the four years. These reductions in inflation alone--apart from all other unforeseen economic and

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Footnote Continued

Simulated Individual Income Tax Elasticities, unpublished technical paper (1983).

2 See, for example, Budget of the United States Government, Fiscal Year 1984, pp. 3-19.

3 Using each inflation forecast, revenues were estimated by calculating the difference between the income tax revenues that would be collected in the absence of the Economic Recovery Tax Act, and those that would be collected if the income tax were indexed for inflation.

TABLE 3. CHANGE IN PREDICTED INDIVIDUAL INCOME TAX REVENUES FROM REVISION IN CBO INFLATION FORECAST FOR 1983-1986

Forecast	1982	1983	1984	1985	1986
CBO Forecast of Rate of Increase in Consumer Price Index (Calendar years, in percents)a					
September 1981	8.3	6.2	5.5	4.7	4.2
February 1983	6.2b	4.5	5.0	4.7	4.1
Change, 1981 to 1983	-2.1	-1.7	-0.5	---	-0.1
Estimated Reduction in Individual Income Tax Revenues (Fiscal years, in billions of dollars)	20	24	35	42	52

SOURCE: Congressional Budget Office.

a. Year over year.
b. Actual.

legislative developments--are estimated to reduce individual income tax revenues by $24 billion in fiscal 1983, and successively greater amounts in later years. This item represents 17 percent of the amount by which CBO's baseline deficit forecast for fiscal 1983 increased between mid-1981 and early 1983. The remainder of the increase was a consequence of the fact that the economy was weaker during 1982 than had been predicted earlier, and of the changes in tax and spending policy that were not assumed in the 1981 projections.

THE REVENUE IMPACT OF TAX INDEXATION IN 1985

ERTA includes provisions to protect taxpayers from bracket creep by indexing various tax provisions to the Consumer Price Index for All Urban Consumers (CPI-U) beginning January 1, 1985. The personal exemption, zero bracket amount, and all other bracket boundaries will be adjusted each year by the percentage by which the CPI-U has increased during the

preceding fiscal year.[4] These provisions are designed to protect taxpayers from increases in effective individual income tax rates caused by inflation. Without indexation, inflation reduces the effectiveness of exemptions and the zero bracket amount in shielding income from the tax, and pushes incomes into higher and higher brackets. This will no longer occur under indexation.[5]

For federal budget trends, indexation implies that, for the first time, increases in individual income tax revenue may react more strongly to real economic growth than inflation. This shift will take place because any bracket creep under the indexed tax will result from increases in productivity rather than inflation. Income increases from this source would not be prevented from moving individuals into higher tax rate brackets by compensating changes in tax provisions under indexation.

The degree of importance of this productivity-induced bracket creep in quantitative terms can be investigated using the CBO income tax model. The bottom panel of Figure 4 shows model estimates of the income elasticity of aggregate income tax liabilities under the indexed tax. Like the data for the unindexed tax shown in the top panel, these estimates are given for different combinations of inflation and real economic growth.[6]

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4 The formal provision calls for adjustment on January 1 of each year by the proportion by which the CPI-U grew on average during the preceding fiscal year relative to its average level during fiscal year 1983.

5 The accuracy of this generalization is affected by certain complications regarding the indexing scheme. The tax provisions are indexed with respect to consumer prices rather than wages or other measures of incomes. As a result, in periods when consumer prices rise faster than incomes, taxpayers will be overprotected by indexation: their real tax burden may fall as a percentage of their incomes since indexed tax provisions will rise faster than incomes. In periods in which wages rise faster than consumer prices, on the other hand, the reverse will occur, and real tax rates may rise slightly. Even if wages and consumer prices change at the same rate, real tax burdens may fluctuate because incomes are determined by current inflation while the tax provisions are indexed with respect to inflation that occurred several months previously. If inflation increases from year to year, real tax burdens will rise, while if inflation falls, tax rates will fall too.

6 These data were computed as described in footnote 1 of this chapter, but with one additional provision. To take account of indexation, the

Figure 4 shows that, when aggregate income growth is entirely due to inflation, indexation protects taxpayers in the aggregate from any increase in their tax rate--any bracket creep, that is; revenues rise only as fast as real income does. When income increases are assumed to be entirely due to real economic growth, and to reflect productivity growth to the extent that they generally have in the past, however, some bracket creep will occur. As a result, income tax revenues will grow about 30 percent faster than income. This is substantially less than the proportion by which tax growth outruns income growth under the unindexed tax.

ECONOMIC IMPLICATIONS OF INDEXATION

Taxpayers will approve of the effects of indexation in eliminating the significant "unlegislated tax increases" that are caused by inflation and bracket creep under the unindexed tax. Certain gains in economic efficiency, too, may result over time from the introduction of indexation, since it will prevent marginal tax rates from drifting upward.

On the other hand, indexation could also have some adverse effects from the point of view of economic policy. The significantly slower growth in federal revenues that it implies will contribute to the tendency of federal budget deficits to increase over time (in the absence of legislation to control them). The persistent expectation of large and rising deficits, in turn, may be one explanation for the persistently high levels of interest rates, which threaten long-run productivity growth by reducing investment. Indexation may also reduce the automatic stabilization that the unindexed

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Footnote Continued

personal exemption and zero bracket amount in Part I of the model and all bracket boundaries in Part II were increased in each simulation by the percentage by which the GNP deflator was assumed to increase.

This procedure necessarily abstracts from the way the indexed tax will work in practice. As has already been pointed out, the tax is actually tied to lagged changes in the CPI, not to contemporaneous changes in the GNP deflator, as was assumed in the sumulations. The simpler assumptions underlying these calculations were chosen because no satisfactory quantitative generalizations are possible regarding differences between current and lagged inflation or between inflation reflected in the CPI and that reflected in the GNP deflator. The actual indexed tax will behave as is shown in the simulations to the extent that inflation does not change from one year to the next and to the extent of differences between the CPI and the GNP deflator.

tax contributes to the economy under some circumstances by automatically reducing incomes and spending when they grow too fast and become inflationary in themselves. Overall, then, the significant changes in the behavior of the income tax that are reflected in the estimates in this chapter have both positive and negative implications for the performance of the economy.

APPENDIX

APPENDIX. ANALYSIS OF ERRORS IN TREASURY REVENUE FORECASTS

This appendix explains the calculations underlying the analysis shown in Table 2 in Chapter III of errors in Treasury forecasts of individual income tax revenues. The discussion deals explicitly only with the errors in the forecast made in 1977 (the first three lines of the table). The procedure underlying the remaining entries in the table is identical.

All data, except actual values of personal income, are drawn from issues of The Budget of the United States Government for various fiscal years. This document will hereafter be called the "Budget." The following data were required to analyze the 1977 Treasury forecast (all dollar amounts are in billions; all years are fiscal unless otherwise noted):

1. Forecast individual income tax revenues (from the 1978 Budget, p. 46); see Table 2, column 2.

2. Actual individual income tax revenues (from the Budgets for 1980 (p. 61), 1981 (p. 61), and 1982 (p. 65)); see Table 2, column 1.

3. Estimated revenue impact of proposed legislation (from the 1978 Budget, p. 46):

   a. 1978: -19.2
   b. 1979: -22.5
   c. 1980: -31.8 .

4. Estimated revenue impact of enacted legislation

   a. 1978: -15.3 (1979 Budget, p. 51)
   b. 1979: -18.5 (1979 Budget, p. 51)
   c. plus: -10.2 (1980 Budget, p. 67)
   d. 1980: -18.4 (1979 Budget, p. 51)
   e. plus: -16.9 (1980 Budget, p. 67) .

5. Forecast of personal income on which initial revenue forecast was based (by calendar years):

   a. 1978: 1,684 (1978 Budget, pp. 41-42)
   b. 1979: 1,879 (1978 Budget, pp. 41-42)

c. 1980: 2,075 (1978 Budget, pp. 41-42) .

6. Forecasts of personal income on which estimates of revenue impacts of enacted legislation were based (by calendar years):

   a. 1978: 1,704 (1979 Budget, pp. 31-33)
   b. 1979: 1,892 (1979 Budget, pp. 31-33)
   c. 1980: 2,095 (1979 Budget, pp. 31-33)
   d. 1978: 1,707 (1980 Budget, pp. 35-36)
   e. 1979: 1,894 (1980 Budget, pp. 35-36)
   f. 1980: 2,078 (1980 Budget, pp. 35-36) .

7. Actual personal income (by calendar years; from National Income and Product Accounts, 1983):

   a. 1978: 1,733
   b. 1979: 1,951
   c. 1980: 2,160 .

The first computation was made for the error introduced into each revenue forecast by an inaccurate assumption about the level of personal income in the year being forecast. The appropriate adjustment involved multiplying actual revenues for a given year (item 2) by the ratio of assumed personal income (item 5) to actual personal income (item 7) after this ratio is raised to the power of the elasticity of tax revenues with respect to income. This elasticity was assumed to be 1.5. The result of this calculation was subtracted from actual revenues (item 2). Expressed as a percentage of actual revenues in each year, this difference appears in column (5) of Table 2.

The second computation was the error in each year's revenue forecast that was caused by inaccurate assumptions about the tax provisions that would be in effect in a given year. This was taken to be the difference in the Treasury's assumption regarding the revenue impact of tax legislation that the Administration was proposing at the time the revenue forecast was made (item 3) and its later estimate of the revenue impact of tax legislation that had actually been enacted (item 4). Before item 4 was subtracted from item 3, item 4 was adjusted for differences in the level of personal income that was assumed for a given year in estimating item 4 from the level that had been assumed for the same year in estimating item 3. A revenue impact estimate based on one income assumption can be adjusted to another assumption by multiplying it by the ratio of the two income levels raised to the power of the income elasticity of tax receipts, which was assumed here to be 1.5.

Before being subtracted from item 3a, for example, item 4a was multiplied by the ratio of item 5a to item 6a raised to the power 1.5. Similarly, the legislation adjustment for the 1979 revenue forecast was carried out by multipying item 4b by the ratio of 5b to 6b raised to 1.5, multiplying 4c by the ratio of 5b to 6e raised to 1.5, adding these two products together, and subtracting the result from 3b. The result of subtracting adjusted figures in item 4 from the corresponding element of item 3, taken as a percentage of actual revenues in the given year, is the estimated error introduced by inaccurate legislative assumptions. It is shown as a percent of actual revenues in column (6) of Table 2.

The estimated technical error is the residual--the component of the total error in each year's revenue forecast (column (1) in Table 2 minus column (2)) that remains after subtracting the errors due to inaccurate assumptions regarding personal income and tax legislation. It is shown, expressed as a percentage of actual revenues, in column (4) of Table 2.