

**EXPLANATION
OF
METHODOLOGY USED
TO
ESTIMATE PROPOSALS
AFFECTING THE TAXATION
OF INCOME FROM CAPITAL GAINS**

**PREPARED BY THE STAFF
OF THE
JOINT COMMITTEE ON TAXATION**



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INTRODUCTION

This pamphlet¹ discusses the methodology and principal assumptions² used by the Joint Committee staff to estimate the revenue effects of proposals to alter the taxation of income from capital gains.

Part I of the pamphlet is an overview. Subsequent Parts discuss the revenue estimating process (Part II), the Joint Committee staff methodology used for estimating the Administration's capital gains proposal (Part III), differences between Joint Committee staff and Treasury revenue estimates (Part IV), prediction of a revenue-maximizing rate (Part V), and distributional impact of the Administration proposal (Part VI). The Appendices provide technical specifications of revenue estimating methodology (Appendix A), technical explanation of revenue-maximizing rates (Appendix B), and technical description of distributional analysis (Appendix C).

¹ This pamphlet may be cited as follows: Joint Committee on Taxation, *Explanation of Methodology Used to Estimate Proposals Affecting the Taxation of Income from Capital Gains* (JCS-12-90), March 27, 1990

² See also JCX-3-89, "Statement of Ronald A. Pearlman, Chief of Staff, Joint Committee on Taxation, Before the Senate Committee on Finance," March 14, 1989. JCX-3-89 discusses the revenue estimate made by the Joint Committee staff of a 1989 Administration proposal to alter the taxation of capital gains as described in Joint Committee on Taxation, *Tax Treatment of Capital Gains and Losses* (JCS-7-89), March 11, 1989.

I. OVERVIEW

A. Description of Administration Proposal

The Administration's fiscal year 1991 budget proposal would allow individuals to exclude from income a percentage of the gain realized upon the disposition of qualified capital assets.³ Qualified capital assets generally would be capital assets as defined under present law, excluding collectibles. The percentage exclusion would depend on the length of time an asset has been held: assets held 3 years or more would qualify for a 30-percent exclusion; assets held at least 2 years but less than 3 years would qualify for a 20-percent exclusion; and assets held at least one year but less than 2 years would qualify for a 10-percent exclusion.⁴

Under the Administration proposal, the capital gains exclusion would be a preference for purposes of the alternative minimum tax. In addition, all depreciation would be recaptured as ordinary income. And, the amount treated as investment income for purposes of the investment interest limitation would be reduced by the capital gains exclusion attributable to investment assets. The Administration proposal would apply to dispositions (and installment payments received) after March 15, 1990.⁵

B. Revenue Estimates of Administration Proposal

The staff of the Joint Committee on Taxation estimates that the Administration proposal will reduce budget receipts by \$11.4 billion for fiscal years 1990-1995. The Treasury Department estimates the Administration proposal will increase budget receipts in each fiscal year for a total revenue gain of \$12.5 billion for 1990-1995. Table 1 shows a comparison of the year-by-year estimates of the Administration proposal made by the Joint Committee staff and by the Office of Tax Analysis of the Department of the Treasury.

³ *Budget of the United States Government, Fiscal Year 1991*; Department of the Treasury, *General Explanations of the President's Budget Proposals Affecting Receipts*, January 1990.

⁴ This staggered holding period regime is made applicable on a phased-in basis during 1990 and 1991, as follows: For the portion of 1990 to which the proposal applies, the 30-percent exclusion would apply to all assets held one year or more; for 1991, the exclusion would be 20 percent for assets held between one and 2 years and 30 percent for assets held at least 2 years.

⁵ As transmitted to Congress, the Administration proposal would be effective on date of enactment. The staff of the Joint Committee on Taxation has been advised that the Treasury Department revenue estimates of the proposal assumed the date of enactment would be March 15, 1990. In addition, S. 2071, introduced February 6, 1990, by Senator Packwood (and others) and H.R. 3792, introduced February 7, 1990, by Mr. Archer (and others), expressly provide for an effective date of March 15, 1990. Thus, the Joint Committee staff assumed a March 15, 1990, effective date in making its revenue estimate of the Administration proposal.

**Table 1.—Estimated Revenue Effects of Administration's 1990
Capital Gains Tax Rate Reduction**

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 0.7 | 3.2 | -4.3 | -3.6 | -4.3 | -3.1 | -11.4 |
| Treasury..... | 0.5 | 4.9 | 2.8 | 1.2 | 1.7 | 1.4 | 12.5 |
| Difference..... | 0.2 | -1.7 | -7.1 | -4.8 | -6.0 | -4.5 | -23.9 |

C. Differences Between Joint Committee Staff and Treasury Revenue Estimates

In its recent testimony,⁶ Treasury stated that two principal factors account for the difference between the Joint Committee staff and Treasury revenue estimates of the Administration proposal: (a) the estimates start from different projections of baseline gains realizations; and (b) the two offices disagree as to the magnitude of expected taxpayer response to the proposed rate reduction. The Joint Committee staff believes the second factor (*i.e.*, the magnitude of expected taxpayer response) accounts for substantially all of the difference in the estimates. In addition, other factors contribute to the difference to a lesser extent.

1. Baseline Realizations

One source of difference between the Joint Committee staff and the Treasury estimates is the different baselines of capital gain realizations that are used as the starting point for the two estimates. Treasury has identified these baseline differences as a principal source of difference in the estimates. The baseline reflects a prediction of the capital gains that will be realized under present law. One component of each estimate is the static revenue loss that would result from taxing baseline gains at the lower rates of the Administration proposal rather than at the higher rates of present law.⁷

The Joint Committee staff relies on baseline assumptions provided by the Congressional Budget Office (CBO), whereas the Treasury uses a baseline developed by the Office of Management and Budget (OMB).⁸ As shown in detail on Table 3 (Part IV.A), the CBO baseline prediction of gain realizations is higher than the OMB baseline by an average of 10.1 percent per year (\$26.3 billion) and a total of 10.1 percent (\$158 billion) over the 1990-1995 period. Primarily because of its reliance on the CBO baseline, the Joint Committee

⁶ Statement of Kenneth W. Gideon, Assistant Secretary (Tax Policy), Department of the Treasury, before the Committee on Finance, United States Senate, March 6, 1990 (hereinafter sometimes referred to as "Treasury March 6 Testimony"), page 8.

⁷ In general, the static revenue effect of a proposal is the effect that would occur in the absence of changes in taxpayer behavior in response to the proposal.

⁸ Technically, the OMB baseline reflects an economic forecast developed by a committee consisting of representatives of OMB, the Council of Economic Advisers (CEA), and the Treasury.

staff estimate includes a static revenue loss component that is \$15.7 billion larger (over the 1990–1995 period), than the static revenue loss projected by the Treasury estimate.

The difference, however, in net revenue resulting from the variance in the two baseline assumptions is approximately \$2 billion over the 1990–1995 period, and \$0.5 billion per year after 1993. It should be noted, moreover, that the higher CBO baseline tends to reduce the difference between the two estimates in the early years (when the Joint Committee staff elasticity assumption is high enough to produce net revenue increases). Thus, the Joint Committee staff believes that the differences in baseline realization do not contribute significantly to the overall difference between the Joint Committee staff and Treasury estimates.

2. Taxpayer Behavioral Response

The Joint Committee staff believes the principal reason for the difference in the two revenue estimates is the different predictions of how taxpayers will respond to a reduction in capital gains tax rates. In other words, the Joint Committee staff and Treasury differ in their judgments of the “elasticity” of taxpayer behavior. Both offices predict that the proposed rate reduction would result in an increased volume of sales of capital assets and, therefore, a substantial increase in the level of gain realizations. However, the Joint Committee staff does not believe this increase will be as large, in percentage terms, as does the Treasury. Specifically:

—The Joint Committee staff uses a revenue elasticity assumption of 1.10 (short run) and 0.66 (long run). By contrast, Treasury relies upon elasticity assumptions of 1.20 (short run) and 0.80 (long run). For this purpose, the Joint Committee staff assumes long run is reached after 2 years, and Treasury assumes the long run is reached after 3 years.^{8a}

The Joint Committee staff decided upon its elasticity assumption following its independent analysis of the historical pattern of capital gains realizations in the United States since 1954, and after careful review of the economic literature and consultation with experts both in and out of government. While the choice of an elasticity is ultimately a judgment call, the Joint Committee staff believes its elasticity assumption is more consistent with past history, and more likely to be an accurate predictor for the future than the assumption used by Treasury.

3. Other Differences

The difference in the estimates of the two offices also reflects in a number of less important factors, including different assumptions about (a) present and future average marginal rates (in the absence of a proposed rate reduction); (b) the number of taxpayers subject to the alternative minimum tax; (c) the effect of excluding collectibles; (d) the effect of staggered holding periods; (e) the effect of the effective date and phase-in rules of the proposal; and (f) other technical issues. However, the Joint Committee staff does not believe these differences, either individually or in the aggregate, account

^{8a} Both Treasury and the Joint Committee staff assume elasticity declines gradually during the transition from the short run to the long run.

for more than a minor portion of the difference in the two revenue estimates.

D. Revenue-Maximizing Rate

In its March 6 testimony, Treasury announced it had estimated the "revenue maximizing rate" of tax on capital gains to be 23 percent. This rate was defined as the rate which would maximize revenues from the capital gains tax. Treasury's March 6 testimony further stated that its analysis of the Joint Committee staff's revenue estimate led Treasury to conclude that the Joint Committee staff would predict the revenue maximizing rate to be 35 percent.

Contrary to Treasury's March 6 testimony, the Joint Committee staff estimate implies a revenue maximizing tax rate of 28.5 percent—not 35 percent. Moreover, the Joint Committee staff does not believe that the prediction of a revenue maximizing rate provides useful information about the responsiveness of taxpayers to changes in the rate of tax on capital gains. Not only is the calculation of a revenue maximizing rate extremely sensitive to the specifications of the particular revenue estimating equations used, but in addition, predictions of such rates generally do not account for other factors relevant to revenue estimates.

E. Distributional Effects

Table 13 (Part VI) presents the Joint Committee staff analysis of the distribution of the tax benefit of the Administration proposal. As Table 13 shows, the Joint Committee staff projects that approximately 83 percent of the benefit of the proposed reduction in capital gains tax rates will accrue to taxpayers with incomes in excess of \$100,000 per year. For taxpayers with any given level of income, this analysis compares the taxes that would be paid in the absence of the rate reduction with the taxes that would be imposed if the proposal were enacted. Although Treasury's March 6 testimony expressed disagreement with certain elements of the methodology used by the Joint Committee staff, Treasury presented a comparable analysis which shows that approximately 73 percent of the tax reduction resulting from the proposal would benefit taxpayers in the over \$100,000 income category.

Treasury's March 6 testimony also introduced the concept described as "dynamic distribution analysis" as an alternative approach to examine the distributional consequences of the Administration proposal. This analysis is based on the fact that, if the proposal results in a net revenue increase, more total taxes will be paid by those taxpayers who have realized more gains (and therefore increased their incomes). While perhaps providing some insight into which taxpayers will provide the additional revenue collected by the government in 1990 (or other years when the proposal is projected to result in a net revenue increase), this analysis is not consistent with the approaches that have historically been applied to provide a distribution analysis of proposed changes in tax law. The Joint Committee staff does not believe this so-called dynamic analysis presents a theoretically correct measure of the relative tax benefits of the Administration proposal to taxpayers at different income levels.

II. THE REVENUE ESTIMATING PROCESS

A. Computer Models and Data Sources

The Joint Committee staff is charged with providing estimates of the revenue effects of proposed legislation to the Congress.⁹ For most income tax revenue estimates, the Joint Committee staff relies on large computerized microsimulation models of the U.S. tax system. Each computer model essentially is a sophisticated tax calculator. Such models permit the Joint Committee staff to calculate the income tax paid under present law and compare that tax with the hypothetical tax which would be paid if the law were changed. This hypothetical tax is computed by making appropriate adjustments to account for changes in taxpayer behavior expected to result from the proposed change in law. In addition, the Joint Committee staff uses these models to examine the distributional effects that would result from a proposed change in law.

The computer models use as their primary input the confidential tax returns of individuals, corporations, and fiduciaries, drawn from a sample of actual tax returns filed by taxpayers. The current Individual Model is based on a sample of over 200,000 tax returns filed in 1985. The data reported on these returns are "aged" both to bring the data up to present levels based on actual changes in the economy to date, and also to reflect macroeconomic forecasts of the economy relevant to the budget period. In addition to this tax return information, the Joint Committee staff relies on a number of other data sources, including corporate financial statements; census surveys; data compiled by the Federal Reserve Board, the Social Security Administration, and the Commerce Department's Bureau of Economic Analysis; and the macroeconomic forecasts and industry analyses of various private firms.

B. CBO Baseline

The reference point for a revenue estimate prepared by the Joint Committee staff is the five-year projection of Federal receipts and outlays provided by the Congressional Budget Office (CBO), referred to as the baseline. The baseline assumes that present law remains unchanged during the five-year budget period. Thus, the baseline serves as the benchmark for measuring the effects of proposed tax law changes. The size of the baseline is determined by CBO forecasts of macroeconomic variables such as the annual rate of growth of nominal GNP, inflation rates, interest rates, and employment levels.

⁹ Pub. L. 99-177, sec. 273 (1985); 2 U.S.C. section 921.

C. Macroeconomic Effects

A revenue estimate predicts how Federal receipts will increase or decrease relative to the baseline projections if a proposed change in the tax law is enacted. However, although a revenue estimate may incorporate anticipated behavioral responses to a proposed change in the tax law, the estimate does not take into account the potential effect the proposal may have on aggregate economic growth, interest rates, or other macroeconomic variables. Thus, a revenue estimate does not predict the positive or negative effects a proposal might have on the overall economy.

It has been suggested that in making revenue estimates of a tax proposal the Joint Committee staff should take into account the projected macroeconomic effects that would result from that particular tax proposal. For the following reasons, the Joint Committee staff believes it would be inappropriate to introduce macroeconomic consequences into the revenue estimating process by varying the baseline assumptions provided by CBO:

(1) The performance of the economy is influenced by of the Federal Government's overall monetary and fiscal policy, as well as of many factors largely outside the control of government. These factors are incorporated into baseline receipts estimates. It would be difficult, if not impossible, to isolate and quantify the macroeconomic effects resulting from proposed changes in the tax law. Despite extensive theoretical and empirical research, there is still a great deal of uncertainty and controversy as to the effects of taxation on economic growth, investment, savings, productivity and interest rates.

(2) Given this lack of consensus, and given the wide range of available empirical estimates from respected business and academic economists, any estimate of macroeconomic consequences would inevitably become unduly subject to influences reflecting partisan, political debate concerning overall government policy.¹⁰

¹⁰ Over optimistic assumptions about macroeconomic "offsets" to proposed changes in the tax law have resulted in unrealistic expectations of tax receipts in the past. This is evident in President Reagan's first budget message to Congress, which states in relevant part: "The President's tax reduction program . . . lowers overall Federal tax burdens to levels more compatible with vigorous private sector growth and renewed economic incentives . . . despite substantial rate reductions assumed in the Administration economic scenario, Federal receipts would grow by nearly 10 percent annually . . . the expected \$342 billion rise in Federal receipts over the 1981-1986 period is more than adequate to fund planned outlay levels and to eliminate future budget deficits." *America's New Beginning: A Program for Economic Recovery*, The White House, February 18, 1981, p. III-6. The expected \$342 billion rise in Federal receipts over the 1981-86 period never materialized. Despite the revenue increases embodied in the 1982 and 1984 tax Acts, total receipts only rose by \$170 billion. The cumulative shortfall over the 1981-86 period was \$539 billion, as shown in the following table:

Comparison of Estimated and Actual Tax Receipts, Fiscal Years 1981-1986

(Billions of dollar)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1981-86 |
|-----------------------------|------|------|------|------|------|------|---------|
| Estimated tax receipts..... | 600 | 651 | 710 | 772 | 851 | 942 | 4,526 |
| Actual tax receipts..... | 599 | 618 | 601 | 667 | 734 | 769 | 3,987 |
| Shortfall..... | 1 | 33 | 110 | 106 | 117 | 173 | 539 |

Line 1 of the table is from *America's New Beginning: A Program for Economic Recovery*, The White House, February 18, 1981, Table 3, p. III-7. Line 2 of table is from Executive Office of the President, Office of Management and Budget, *Historical Tables, Budget of the United States Government, Fiscal Year 1988*, Table 2.1.

With respect to estimates of the macroeconomic effects of taxes, well-intended professional judgments by economists are easily perceived as politically motivated, while biased views can be readily disguised as professional judgment. Given their importance in the Congressional budget process, it is essential that revenue estimates be determined on a nonpartisan, apolitical basis. Moreover, if macroeconomic factors were to be taken into account with respect to revenue estimates, it would seem that similar factors ought to be considered in connection with outlay estimates.

(3) Analysis of the potential macroeconomic effects of even a fraction of tax proposals would require a considerable investment of staff resources. This could only come from a substantial increase in resources allocated to the revenue estimating function.

The foregoing discussion is not intended to suggest that Congress should ignore potential macroeconomic effects in its consideration of proposals to reduce the capital gains tax rate (or in the consideration of any other revenue proposal). It is only meant to suggest that such effects should be considered cautiously and separately, rather than as part of the revenue estimating process.

III. JOINT COMMITTEE STAFF METHODOLOGY USED FOR ESTIMATING THE ADMINISTRATION'S CAPITAL GAINS PROPOSAL

In publishing its estimate of the Administration's capital gains tax proposal on February 14, 1990, the Joint Committee staff identified the separate revenue effects of the six major components used to derive the overall estimate.¹¹ Treasury subsequently provided a comparable breakdown of its estimate as part of its March 6, 1990, testimony before the Senate Committee on Finance.¹² Table 2 presents the Joint Committee staff estimates of the separate revenue effects of each of these six major components for each fiscal year of the budget period. The remainder of Part III describes in general terms the Joint Committee staff's derivation of each of the line items in Table 2¹³ and shows the Treasury Department estimate for the corresponding line item.^{13a}

¹¹ "Estimate of Administration Proposal for a Reduction in Taxes on Capital Gains of Individuals" (JCX-5-90), February 14, 1990.

¹² The documents by which the Administration's proposal was transmitted to Congress on January 29, 1990, presented only the net estimate. *Budget of the United States Government, Fiscal Year 1991*; Department of the Treasury, *General Explanations of the President's Budget Proposals Affecting Receipts*, January 1990.

¹³ A more technical description of the Joint Committee staff methodology is contained in Appendix A. The mathematical formulas used to calculate the line items on Table 2 take account of interactions between the six components. For purposes of the following discussion, however, these interactions have been ignored.

^{13a} Treasury figures presented in Part III are taken from Table 7 of Treasury's March 6 Testimony. Table 2 of Treasury's March 6 Testimony presents different figures.

Table 2.—Joint Committee Staff Estimate of the Revenue Effect of the Administration's Capital Gains Proposal

[Fiscal years; billions of dollars]

| Item ¹ | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|--|------------|------------|-------------|-------------|-------------|-------------|--------------|
| A. Static effect of the 30% exclusion ² | -2.6 | -17.7 | -18.7 | -19.9 | -20.4 | -20.9 | -100.2 |
| B. Effect of induced realizations ³ | 3.0 | 18.9 | 14.4 | 14.9 | 13.4 | 13.8 | 78.4 |
| C. Effect of full depreciation recapture..... | 0.3 | 1.8 | 1.9 | 2.1 | 2.1 | 2.2 | 10.3 |
| D. Effect of the 3-year holding period..... | | -0.3 | -2.0 | -0.9 | 0.4 | 1.6 | -1.2 |
| E. Effect of treating excluded portion of gain as a preference item for AMT purposes..... | | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.8 |
| F. Effective date of the proposal ⁴ | 0.1 | 0.6 | | | | | 0.7 |
| Total | 0.7 | 3.2 | -4.3 | -3.6 | -4.3 | -3.1 | -11.4 |

NOTE: Details may not add to totals due to rounding.

¹ All estimates in this table are done incrementally; that is, assuming provisions described on preceding lines of the table have been enacted.

² This line reflects an estimate of the proposed exclusion, assuming no change in taxpayer behavior.

³ This line reflects an estimate of the increase in budget receipts attributable to taxpayer decisions to realize more capital gains as a result of the lower tax rate.

⁴ Lines A-E, above, reflect a January 1, 1990, effective date; line F represents an adjustment to these lines to reflect an assumed effective date of March 15, 1990.

A. Static Revenue Effect

Line A of Table 2 presents the Joint Committee staff estimate of the "static" revenue effect of the Administration's capital gains proposal. This static revenue effect represents the decrease in tax liability that would result from lowering the tax rate for baseline gains (*i.e.*, those that would be realized even in the absence of a change in rates), measured without taking taxpayer behavior into account. Under the Administration proposal, qualifying gains would be taxed at a rate that is 30 percent lower than under present law.¹⁴ This line assumes that the full 30-percent exclusion is applicable to all eligible assets held for at least one year and sold after January 1, 1990.

Table 2A.—Estimated Static Revenue Effect

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-------------------------|------|-------|-------|-------|-------|-------|---------|
| Joint Committee Staff.. | -2.6 | -17.7 | -18.7 | -19.9 | -20.4 | -20.9 | -100.2 |
| Treasury..... | -2.1 | -14.3 | -15.6 | -16.6 | -17.5 | -18.4 | -84.5 |
| Difference..... | -0.5 | -3.4 | -3.1 | -3.3 | -2.9 | -2.5 | -15.7 |

The Joint Committee staff estimate of this static revenue effect is calculated directly from the Individual Model. In this calculation, the Joint Committee staff relies upon the prediction of gains incorporated in the CBO baseline (*see* Table 3, Part IV. A.). Further, the Individual Model reflects average effective tax rates of 23.6 percent and average marginal tax rates of 25.5 percent for taxpayers realizing capital gains.

B. Induced Realizations

Induced realization reflect the additional gains taxpayers are expected to realize as a result of the proposed lower tax rates on capital gains. The Joint Committee staff estimates the Administration proposal would result in taxpayers realizing nearly \$557 billion more capital gains during 1990-1995 than would be realized in the absence of a rate reduction. These "induced realizations" are calculated by combining two factors: the Joint Committee staff estimate of taxpayers' behavioral response to the proposed rate reduction (*i.e.*, the assumed elasticity), and (b) the gain realizations reflected

¹⁴ For a taxpayer in the 28-percent tax bracket, with gains qualifying for the 30-percent exclusion, this translates into a 19.6 percent marginal tax rate. For convenience, this pamphlet generally refers to 19.6 percent as the rate that would apply to capital gains under the Administration proposal, rather than specifying in each instance the multiplicity of possible rates that could apply to a taxpayer. These rate possibilities would be determined through a combination of (a) the taxpayer's regular tax bracket (15-28-33 percent) or the alternative minimum tax (21 percent), and (b) the exclusion percentage applicable to the asset (10-20-30 percent, depending on holding period). The actual revenue estimate, takes these different rate possibilities into account.

in the CBO baseline. The estimated revenue effects of these induced realizations are presented in Table 2B.^{14a}

Table 2B.—Estimated Revenue Effect of Induced Realizations

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 3.0 | 18.9 | 14.4 | 14.9 | 13.4 | 13.8 | 78.4 |
| Treasury..... | 2.8 | 19.3 | 18.4 | 17.0 | 16.6 | 17.0 | 91.1 |
| Difference..... | 0.2 | -0.4 | -4.0 | -2.1 | -3.2 | -3.2 | -12.7 |

The Joint Committee staff estimates that, for fiscal years 1990 and 1991, these induced realizations will be more than sufficient to offset the static revenue loss resulting from lower rates, so that net Federal tax revenues will be increased. However, the Joint Committee staff also believes this initial surge in realizations is a temporary phenomenon. Thus, the Joint Committee staff estimates that after an adjustment period, taxpayers will settle into a more permanent level of realizations which will be lower than the initial surge, but higher than would be expected in the absence of a rate reduction. However, the Joint Committee staff does not believe this permanent level of realizations will be sufficient to offset fully the static revenue loss in years after 1991.

C. Full Depreciation Recapture

Under the Administration proposal, all depreciation deductions previously taken by a taxpayer would be recaptured as ordinary income upon the sale of a capital asset. The effect of this element of the proposal appears in Table 2C.

Table 2C.—Estimated Revenue Effect of Full Depreciation Recapture

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 0.3 | 1.8 | 1.9 | 2.1 | 2.1 | 2.2 | 10.3 |
| Treasury..... | -0.0 | -0.3 | 0.5 | 1.1 | 1.6 | 1.7 | 4.6 |
| Difference..... | 0.3 | 2.1 | 1.4 | 1.0 | 0.5 | 0.5 | 5.7 |

^{14a} The Joint Committee staff figures shown in Table 2B are calculated after portfolio effects (discussed in Part IV.B.3.c.).

To compute this adjustment, data from the 1985 Sales of Capital Asset (SOCA) File (prepared by the IRS) was used to obtain information on the amount and composition of depreciable assets not held by corporations for which full recapture is not provided under present law (essentially real estate subject to recapture under sec. 1250 of the Internal Revenue Code). These amounts were then adjusted to reflect overall economic growth consistent with the CBO macroeconomic forecast.

The Joint Committee staff estimate of the effect of depreciation recapture under the Administration proposal is designed to reflect a combination of two factors. The first factor is a net revenue increase (relative to the effects of lines A and B of Table 2). This increase arises because (a) a portion of total realizations will consist of gain from depreciable property, and (b) such gains will be taxed as ordinary income (rather than at the lower rate applied to capital gains) due to this particular feature of the Administration proposal. The second factor reduces the revenue increase attributable to the first factor; this offset is required to reflect a reduction in the level of induced realizations that should be expected because the full recapture rule serves to reduce slightly the benefit of a preferential tax rate on capital gains.¹⁵

D. Effect of 3-Year Holding Period

Table 2D presents the estimate of the effect of the 3-year holding period specified in the Administration proposal. This effect has several components and reflects a number of complex interactions. In particular:

Table 2D reflects the assumption that some taxpayers will delay realization of gains in order to take advantage of an exclusion that increases from 10 percent to 30 percent as the holding period of an asset increases from one to three years. This delay tends to shift revenues from earlier to later years (relative to the effects shown in previous lines of the estimate).

At the same time, however, this adjustment is mitigated because the 3-year holding period is made applicable on a phased-in basis during 1990-1992.

Finally, Table 2D reflects a revenue increase attributable to the assumption that some taxpayers will not defer realizations, but will instead sell assets held between one and three years and so will be eligible for only a 10- or 20-percent exclusion. This adjustment is required because previous lines of the estimate assumed the full 30-percent exclusion would apply to sales of all assets held more than one year.

¹⁵ As explained in Part IV.C.1, the difference between the Joint Committee staff and Treasury estimates of this item, while significant in dollar amount, is believed to result directly from the baseline and elasticity assumptions used by the two offices; this difference is not believed to reflect an independent source of disagreement.

Table 2D.—Estimated Revenue Effect of 3-Year Holding Period

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | -0.3 | -2.0 | -0.9 | 0.4 | 1.6 | | -1.2 |
| Treasury..... | -0.1 | -1.0 | -1.0 | 0.2 | 0.2 | | -1.7 |
| Difference..... | -0.2 | -1.0 | 0.1 | 0.2 | 1.4 | | 0.5 |

E. Treating Excluded Gain as an AMT Preference Item

The Administration proposal treats the excluded portion of capital gains as an item of tax preference for purposes of the alternative minimum tax applicable to individuals. Gains realized by a taxpayer subject to the minimum tax will be subject to a tax rate of 21 percent (rather than 19.6 percent). The effect of including the excluded portion of gains as a preference item is calculated directly from the Individual Model and is shown on Table 2E.

Table 2E.—Estimated Revenue Effect of Treating Excluded Portion of Capital Gain as a Tax Preference Under the AMT

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.8 |
| Treasury..... | | -0.2 | 0.5 | 0.6 | 0.8 | 0.8 | 2.5 |
| Difference..... | | 0.3 | -0.4 | -0.4 | -0.6 | -0.6 | -1.7 |

F. Effective Date of the Proposal

The first five components of the estimate were prepared with an assumed January 1, 1990, effective date. In order to adjust these estimates to reflect the actual proposed effective date of March 15, 1990, certain assumptions were made about realized gains (both baseline and induced) occurring between January 1 and March 15, 1990. In particular, certain of the baseline gains would be ineligible for the exclusion because they were realized before the effective date, while induced gains by definition would not be realized until the lower rate is in effect. The combination of these two effects is reflected in Table 2F.

Table 2F.—Estimated Revenue Effect of March 15, 1990
Effective Date

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 0.1 | 0.6 | | | | | 0.7 |
| Treasury..... | -0.2 | 0.4 | | | | | 0.2 |
| Difference..... | 0.3 | 0.2 | | | | | 0.5 |

G. Long-Run Revenue Effects

The Joint Committee staff revenue estimate of the Administration's capital gain proposal does not include projections for fiscal years after 1995. The Joint Committee staff has concluded that it is inappropriate to include such long-range estimates for the following reasons.

The CBO baseline projections do not extend beyond fiscal year 1995. In order to estimate the year-by-year receipts effects of the Administration proposal beyond 1995, the Joint Committee staff would have to extrapolate the baseline beyond fiscal year 1995 either by adopting a purely mechanical approach (*e.g.*, an assumption that economic trends would continue unchanged in the future) or by attempting independently to forecast such trends. Either approach would be arbitrary and could result in the use of economic assumptions inconsistent with those underlying the CBO five-year forecast. In addition, the Joint Committee staff traditionally has avoided making out-year assumptions about macroeconomic growth. (See discussion of macroeconomic assumptions in Part I.I.C.)

Even if these technical problems of assuring consistency were overcome, the uncertainties inherent in long-range macroeconomic forecasting have led the Joint Committee staff to conclude that it would be inappropriate to provide a specific revenue estimate for fiscal years beyond 1995. Two issues that arise in the process of estimating capital gains proposals illustrate this point.

First, there is evidence that the elderly realize proportionately more capital gains than the nonelderly. This evidence might suggest that, as the United States enters the next century and the population ages, gain realizations as a percentage of GNP will be greater than they are today. On the other hand, if the age of retirement increases in future years (so that the elderly increase their wage income), this increase could reduce the observed propensity of the elderly to realize gains.

Second, the effect of possible changes in the personal savings rate creates similar long-range estimating problems. Since capital gain realizations result from past savings by individuals, it is reasonable to expect changes in future realizations as the personal savings rate either increases or decreases. Unfortunately, existing

data provide no acceptably reliable basis for predicting future changes in this critical variable.

Despite these and other uncertainties as to future macroeconomic trends, the Joint Committee staff believes that the analysis of the 1990-1995 period provides information which may be useful in assessing the general trend and magnitude of the post-1995 revenue effects of the Administration's capital gains proposal. Two points in particular emerge from this analysis.

First, changes in the tax rate on capital gain income are expected to produce a substantial taxpayer behavioral response. However, as indicated previously, the Joint Committee staff believes that this response is likely to be larger in the short run than in the long run. It is the Joint Committee staff's best judgment that a revenue elasticity measure of 0.66 characterizes the long-run behavioral response. Such a behavioral response is insufficient to produce a long-run positive revenue effect. Accordingly, the estimate projects revenue losses for each fiscal year 1992 through 1995. These losses are likely to continue for years beyond 1995.

Second, the historic economic data suggest that capital gain realizations grow as the overall economy grows. Consequently, if the economy continues to grow in years beyond 1995, the Joint Committee staff expects the revenue losses in those years would exceed the revenue loss for 1995, and would grow in magnitude each year thereafter.

IV. DIFFERENCES BETWEEN JOINT COMMITTEE STAFF AND TREASURY REVENUE ESTIMATES

This Part of the pamphlet describes in more detail the reasons for the differences between the Joint Committee staff and Treasury estimates of the Administration proposal and explains why the Joint Committee staff believes its estimate is more likely to be correct. The discussion focuses on two reasons for the difference: (a) the estimates are calculated from different baselines (Treasury uses the OMB baseline while the Joint Committee staff uses the CBO baseline); and (b) the Joint Committee staff and Treasury disagree on the level of taxpayer responsiveness (*i.e.*, elasticity) to the proposal, with Treasury predicting a higher degree of responsiveness. There are, in addition, a number of other factors that account for difference between the two estimates.

A. Baseline Gain Realizations

One reason for the difference between the Joint Committee staff and Treasury estimates is the different baselines of gains realizations used as a starting point for the two calculations. Table 3 shows the difference between the OMB and CBO baselines of capital gains realizations:

Table 3.—Estimated Baseline Capital Gains Realizations

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|--|------|------|------|------|------|------|---------|
| Congressional Budget Office..... | 254 | 268 | 287 | 295 | 301 | 315 | 1,720 |
| Office of Management and Budget..... | 214 | 236 | 256 | 270 | 286 | 300 | 1,562 |
| Difference..... | 40 | 32 | 31 | 25 | 15 | 15 | 158 |

Table 3 presents aggregate individual gain realizations, including gains from assets held less than 12 months and gains from collectibles. Table 4 presents baseline realizations, adjusted to exclude short-term gains and collectibles because they are not eligible for a preferential tax rate under the Administration proposal.¹⁶

¹⁶ Table 8 also excludes short-term gains.

**Table 4.—Estimated Baseline Capital Gains Realizations—
Adjusted**

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-------------------------------|------|------|------|------|------|------|---------|
| Joint Committee staff..... | 237 | 250 | 268 | 275 | 280 | 294 | 1,604 |
| Treasury..... | 204 | 225 | 239 | 253 | 267 | 278 | 1,466 |
| Difference..... | 33 | 25 | 29 | 22 | 13 | 16 | 138 |

1. Evidence in Support of CBO Baseline ¹⁷

The CBO baseline forecasts capital gains realizations will be \$254 billion in 1990, about 50 percent higher than 1988 realizations. While Treasury's March 6 testimony questioned the accuracy of such a forecast,¹⁸ it is in fact based to a large extent on economic events that have already occurred. More specifically:

—Based on the latest economic data, CBO estimates that about two-thirds of the increase in realizations in fact occurred in 1989 (although it will not be possible to confirm this until this year's tax filing season is complete).

—The large increase in CBO's realization forecast also reflects the substantial growth in the stock market in 1989 and the expectation of some additional growth in 1990. Historically, capital gains realizations and the stock market have tended to move together.

—Another factor that led CBO to predict rapid growth in realizations between 1988 and 1990 is the decreasing effect of the acceleration of realizations into 1986 that occurred because of the Tax Reform Act of 1986. CBO estimates that the large jump in realizations in 1986 drew from realizations that would otherwise have occurred in 1987 and 1988, but that potential 1990 realizations were much less affected.

Finally, a 50-percent increase in gains over a two-year period would not be extraordinary. In four of the 12 years between 1977 and 1988, gains were at least 50 percent higher than they were two years earlier. In two additional years, gains rose by 45 percent. While two of these increases coincided with tax changes, the others were caused by economic factors like those experienced in 1989.¹⁹

2. Revenue Effect of Baseline Differences

As was explained in detail earlier, the level of baseline gains (together with the 30-percent exclusion specified in the Administration proposal) determines the static revenue loss component of both revenue estimates. Because the CBO baseline is higher than the

¹⁷ The material in the following text is based on information provided by the Congressional Budget Office (CBO).

¹⁸ Treasury's March 6 testimony referred to such a forecast of realizations as "extraordinary" and "highly improbable."

¹⁹ The increases described in this paragraph are not directly observable in Table 8 because this table presents only long-term capital gains.

OMB baseline, the static revenue loss component of the Joint Committee staff estimate is higher than the corresponding element of the Treasury estimate by approximately \$15.7 billion over the budget period (see Table 2A). However, the net revenue effect of the different baselines is approximately \$0.5 billion per year after 1993 and \$2 billion over the 1990-1995 period.

This net revenue effect is so much lower than the static loss effect precisely because of the large increase in realizations projected for 1990 and 1991. Because the Joint Committee staff assumes a high level of taxpayer response in the short-run (using an elasticity greater than 1.0), there is a net revenue increase from realizations during those years. Also, the size of the revenue increase is greater because the CBO baseline is higher than the OMB baseline. Stated differently, if the Joint Committee staff elasticity assumption were applied to the OMB (rather than the CBO) baseline for 1990 and 1991, the revenue increase estimates for those years would be lower and the total difference between the two estimates would be greater.

Because these net revenue differences are relatively small, the Joint Committee staff does not consider the difference between the CBO and OMB baselines to be material in explaining the difference between the Joint Committee staff and Treasury revenue estimates.

B. Taxpayer Behavioral Response

The Joint Committee staff has long recognized that a change in the rate of tax on capital gains will affect the level of capital gains realizations by taxpayers.²⁰ Economists use the term "elasticity" to describe the relative change in taxpayers' decisions to realize capital gains that can be expected in response to changes in the capital gains tax rate. Mathematically, the realization elasticity is the percentage change in realizations divided by the percentage change in tax rates.

The central element of the disagreement between the Joint Committee staff and Treasury in this matter is the differing views of the elasticity of taxpayer response. The Joint Committee staff does not believe that the response to the rate reduction proposed by the Administration will be large enough to produce a long-run revenue increase; Treasury believes there will be such a long-run revenue increase. The following section of this pamphlet explains in detail the rationale of the Joint Committee staff elasticity assumption.

1. Elasticities Used by the Joint Committee Staff and Treasury

The Joint Committee staff estimate of the Administration proposal uses a short-run elasticity of 1.10 and a long-run elasticity of 0.66 to measure taxpayer behavioral response. Treasury estimates reflect a short-run elasticity of 1.20 and a long-run elasticity of 0.80.

In addition, while both Treasury and the Joint Committee staff believe that taxpayers' response to lower rates will be greater in

²⁰ For example, in the *General Explanation of the Revenue Act of 1978* (P.L. 95-600), on page 23 of the revenue table, a separate line item was included to represent "Tax increase from induced capital gains realizations. . . ."

the short-run than in the long-run,²¹ the two offices differ on the point at which the change in response occurs (*i.e.*, at what point will the initial surge in realizations recede to the new permanent level). Treasury believes the high short-run level of responsiveness continues for 3 years; the Joint Committee staff believes the initial period will end after only 2 years.

In addition to the historical data and empirical literature discussed in later sections of this pamphlet, the Joint Committee staff believes that its estimate of the extent to which taxpayers will respond to the lower rates proposed by the Administration is also supported by the following analysis:

A permanent increase in capital gains realizations can only come from two sources:²²

(1) One source is gains that would have been realized eventually, but that are realized earlier (*e.g.* because lower tax rates induce taxpayers to accelerate the sale of appreciated assets). To the extent that the predicted net increase in realizations during 1990–1995 is attributable to this source of gains, it reflects merely an acceleration of gains from a future period into the budget period. If this were the only source of increased realizations, the reduction in rates would indisputably lose revenue in the long run.²³

(2) The balance of any increase in permanent realizations must reflect gains that never would have been realized absent a reduction in rates, because taxpayers would have held the assets until their death (at which point the potential gain would be made non-taxable by sec. 1014 of the Internal Revenue Code). To the extent that lower rates induce taxpayers to sell such assets, there has been a true net permanent increase in realizations. While the Joint Committee staff believes there will be some unlocking of these gains, for the reasons discussed below, it does not believe this source alone would be substantial enough to produce a permanent revenue gain.

Although the Administration proposal would reduce the maximum tax rate for capital gains from 28 percent under present law to 19.6 percent, this new rate is still significantly greater than the zero income tax rate that is attained by holding an appreciated asset until death. Moreover, even for those taxpayers who must take into account the interaction of the estate tax and the income tax, the net additional tax cost of selling an asset before death will be at least 10.5 percent of the gain under the Administration proposal (as compared to 15.4 percent under current law).²⁴ Thus, the

²¹ The distinction between short-run and long-run taxpayer response and the use of an elasticity which is substantially higher in the short-run than in the long-run is consistent with recent economic analysis. *Cf.*, Joel Slemrod and William Shobe, "The Tax Elasticity of Capital Gains Realizations: Evidence From a Panel of Taxpayers," NBER Working Paper No. 3237, January 1990.

²² As noted previously (part II. C.), possible increases in GNP which may result from the proposal are outside the scope of the revenue estimating process.

²³ Stated more technically, the long-run elasticity of the proposal would approach zero.

²⁴ While section 1014 of the Code generally forgives the income tax on accrued capital gains at death, the estate tax is assessed on that part of gain which otherwise would have been paid as an income tax. For taxpayers in the 55-percent estate tax bracket, this interaction, in effect, reduces the capital gains tax on an accrued gains realized immediately prior to death from 28 percent to 15.4 percent (because the estate tax is increased by 55 percent of the 28 percent of the gain that has remained in the estate instead of having been paid out as an income tax); in other words, not selling the asset before death reduces the total tax imposed by only 12.6 percent

Joint Committee staff believes even under the Administration proposal, the significantly lower effective tax burden on assets held until death leaves in place a strong incentive for accrued gains to remain unrealized.

This is not to say that the Joint Committee staff discounts entirely either the temporary unlocking effect or the permanent increase in realizations that can be expected from those taxpayers who otherwise would have held assets until death. The issue is not whether there will be such a response, but rather the size (magnitude) of the response. And, as reflected in its elasticity assumption, the Joint Committee staff has concluded that the response is unlikely to be sufficient in the long-run to produce a net revenue increase. That the debate is about the magnitude (rather than the existence) of a taxpayer response is perhaps best illustrated by Tables 5, 6, and 7 presented below.

As indicated in Table 5, the Joint Committee staff estimate predicts a larger absolute increase in capital gains realizations than does Treasury: \$557 billion compared to \$418 billion. These figures are derived by applying the two office's respective elasticity assumptions to the relevant baseline (CBO or OMB) of capital gains realizations.

Table 5.—Estimated Increase in Capital Gains Realizations

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|------------------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 124 | 89 | 82 | 85 | 86 | 91 | 557 |
| Treasury..... | 74 | 72 | 59 | 68 | 72 | 73 | 418 |
| Difference..... | 50 | 17 | 23 | 17 | 14 | 18 | 139 |

Although larger in absolute dollars, the increase in realizations projected by the Joint Committee staff is smaller in percentage terms than is the increase predicted by Treasury. Because it is starting from the larger CBO baseline, the \$557 billion increase in realizations projected by the Joint Committee staff is sufficient to offset only about 78 percent of the \$100.2 billion static revenue loss. By contrast, the \$418 billion increase in realizations projected by Treasury is sufficient to offset 107 percent of the \$74.7 billion static revenue loss determined under the OMB baseline.

(rather than 28 percent) of the gain. In comparison, under the Administration proposal, a similar taxpayer who holds an asset until death reduces the effective capital gains tax burden from 19.6 percent to 10.5 percent (55 percent of 19.6 percent).

This interaction may be relevant to a significant number of taxpayers holding capital assets. The Federal Reserve's Flow of Funds data indicate that for 1982 the market value of corporate equities was \$1.24 trillion. Of this amount, 83 percent, or \$1.03 trillion, was owned by individuals. Joint Committee on Taxation, *Federal Income Tax Aspects of Corporate Financial Structures*, (JCS-1-89), January 18, 1989, p. 14. Of that amount, \$738 billion, or 71.6 percent, was owned by individuals with gross assets in excess of \$500,000, who appear potentially liable for the estate tax. Schwartz, "Estimates of Personal Wealth, 1982: A Second Look," *SOI Bulletin*, Vol. 7, Spring 1988.

Second, Table 6 presents a view in isolation of the two components of the revenue estimates that are most directly tied to taxpayer behavior: the static revenue loss and the revenue effect of induced realizations.²⁵ As shown on this table, when these components of the estimate are considered on their own, both the Joint Committee staff and Treasury project continuing annual revenue losses once the initial surge in realizations is past. Stated another way—the Treasury estimate of the Administration proposal appears to predict revenue increases for the budget period only because of the depreciation recapture, AMT preference, and effective date elements of its proposal. Thus, even Treasury would not appear to project long-run induced realizations sufficient to offset the static revenue loss.^{25a}

Table 6.—Revenue Effect of Combining Only Static Revenue Loss With Gain From Induced Realizations

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 0.4 | 1.2 | -4.3 | -5.0 | -7.0 | -7.1 | -21.8 |
| Treasury | 0.7 | 5.0 | 2.8 | 0.4 | -0.9 | -1.4 | 6.9 |

Table 7 presents a somewhat different comparison, with an arguably similar conclusion. It shows estimates of the revenue effects of the Administration proposal, modified to make it applicable only to assets acquired after the effective date. Once again, both offices project continuing revenue losses from such a proposal.

²⁵ The figures in Table 6 are simply the arithmetic sum of the first two lines of the Joint Committee staff estimate previously set forth in Table 2 and the comparable figures from the Treasury estimate as reported in Treasury Table 7. Treasury Table 2 presents somewhat different figures, which result in losses beginning in 1993.

^{25a} This analysis is based on the assumption that Treasury has presented the breakdown of its revenue estimate in a manner comparable to the Joint Committee staff presentation.

**Table 7.—Revenue Effect of Administration Proposal Made
Applicable Only to Newly Acquired Assets**

[Fiscal years; billions of dollars]

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|-----------------------------|------|------|------|------|------|------|---------|
| Joint Committee | | | | | | | |
| Staff | 0.3 | 1.6 | -0.2 | -1.0 | -1.4 | -1.9 | -2.6 |
| Treasury ¹ | 0.3 | 2.3 | -0.3 | -1.4 | -1.2 | -1.0 | -1.3 |

¹ Provided to Senator Bumpers, by letter dated March 6, 1990; released, with permission of Senator Bumpers.

The Joint Committee staff believes that Tables 5 and 6 demonstrate beyond question that its judgment about elasticity is plausible. They demonstrate, moreover, that the Joint Committee staff elasticity assumption provides consistent results for a range of possible scenarios.²⁶ Treasury's elasticity produces a pattern of post-1992 revenue losses in the two variations shown in Tables 6 and 7, but continuing revenue increases for the basic Administration proposal. By contrast, the Joint Committee staff estimates continuing revenue losses in all three cases.

2. Evidence from the Historical Record

In addition to evaluating the available empirical and theoretical literature, the Joint Committee staff relies heavily on its own evaluation of the historical data. The staff believes these data support two key elements of its prediction of how taxpayers will respond to a lower rate of tax on capital gains: first, that taxpayer response will be greater in the short run than in the long run; and second, that gain realizations are more affected by growth in GNP and stock market performance than by changes in tax rates. When evaluated in light of the economic literature, the Joint Committee staff does not believe the historical data support a conclusion that the reduction in capital gains tax rates proposed by the Administration will increase realizations on a permanent basis to the extent that would be necessary to offset the static revenue loss occasioned by the rate reduction.

a. The data

Table 8 and Figures 1, 2, and 3 show relationships between the level of gain realizations, GNP growth, and stock market performance that have continued to the present. Table 8 presents the historic relationship between GNP growth and gain realizations. Figure 1 depicts total capital gain realizations relative to GNP. Figure 2 reflects gains as a percentage of GNP. Figure 3 aligns gain realizations with stock market performance.

²⁶ Tables 6 and 7 could be viewed, in effect, as presenting two alternative capital gains tax reduction proposals. As noted in the text, Table 7 is an estimate of the Administration proposal, but made applicable only to newly acquired assets. Table 6 could be interpreted generally as presenting an estimate of the Administration proposal, made applicable as of January 1, 1990, with a full 30-percent exclusion for all capital assets held at least one year, and modified by eliminating the requirements for full depreciation recapture and alternative minimum tax treatment for the excluded gain.

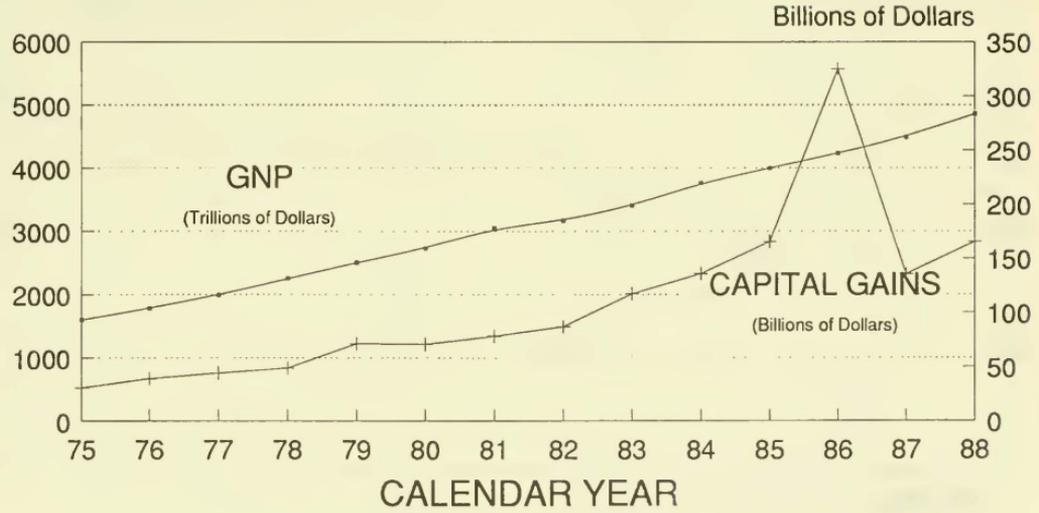
Table 8.—Calculation of Realization of Net Long-Term Gains and Nominal GNP, 1954-1988

| Year | Realization of net long-term gains (billions of dollars) | Year-to-year percentage change in realizations | GNP (billions of dollars) | Year-to-year percentage change in GNP |
|-----------|--|--|---------------------------|---------------------------------------|
| 1954..... | 7.0 | ..... | 372.5 | ..... |
| 1955..... | 9.7 | 38.6 | 405.9 | 9.0 |
| 1956..... | 9.6 | -1.0 | 428.1 | 5.5 |
| 1957..... | 8.2 | -14.6 | 451.0 | 5.3 |
| 1958..... | 9.3 | 8.1 | 456.8 | 1.3 |
| 1959..... | 12.9 | 38.7 | 495.8 | 8.5 |
| 1960..... | 11.7 | -9.3 | 515.3 | 3.9 |
| 1961..... | 15.7 | 34.2 | 533.8 | 3.6 |
| 1962..... | 13.6 | -13.4 | 574.6 | 7.6 |
| 1963..... | 14.5 | 6.6 | 606.9 | 5.6 |
| 1964..... | 17.0 | 17.2 | 649.8 | 7.1 |
| 1965..... | 20.8 | 22.4 | 705.1 | 8.5 |
| 1966..... | 21.8 | 4.8 | 772.0 | 9.5 |
| 1967..... | 27.3 | 25.2 | 816.4 | 5.8 |
| 1968..... | 35.8 | 31.1 | 892.7 | 9.3 |
| 1969..... | 32.6 | -8.1 | 963.9 | 8.0 |
| 1970..... | 21.3 | -34.7 | 1,015.5 | 5.4 |
| 1971..... | 28.2 | 32.4 | 1,102.7 | 8.6 |
| 1972..... | 36.1 | 28.0 | 1,212.8 | 10.0 |
| 1973..... | 35.8 | -0.8 | 1,359.3 | 12.1 |
| 1974..... | 30.0 | -16.2 | 1,472.8 | 8.3 |
| 1975..... | 30.7 | 2.3 | 1,598.4 | 8.5 |
| 1976..... | 39.2 | 27.7 | 1,782.8 | 11.5 |
| 1977..... | 44.4 | 13.3 | 1,990.5 | 11.7 |
| 1978..... | 48.9 | 10.1 | 2,249.7 | 13.0 |
| 1979..... | 71.3 | 45.8 | 2,508.2 | 11.5 |
| 1980..... | 70.8 | -0.7 | 2,732.0 | 8.9 |
| 1981..... | 78.3 | 10.6 | 3,052.6 | 11.7 |
| 1982..... | 87.1 | 11.2 | 3,166.0 | 3.7 |
| 1983..... | 117.3 | 34.7 | 3,405.7 | 7.6 |
| 1984..... | 135.9 | 15.9 | 3,772.2 | 10.8 |
| 1985..... | 165.5 | 21.8 | 4,014.9 | 6.4 |
| 1986..... | 321.2 | 94.1 | 4,231.6 | 5.4 |
| 1987..... | 123.6 | -61.5 | 4,524.3 | 6.9 |
| 1988..... | 162.3 | 31.3 | 4,880.6 | 7.9 |

Sources: Congressional Budget Office, *How Capital Gains Tax Rates Affect Revenues: The Historical Evidences*, March 1988.

Internal Revenue Service, SOI, and Council of Economic Advisers, *Economic Report of the President, 1990*.

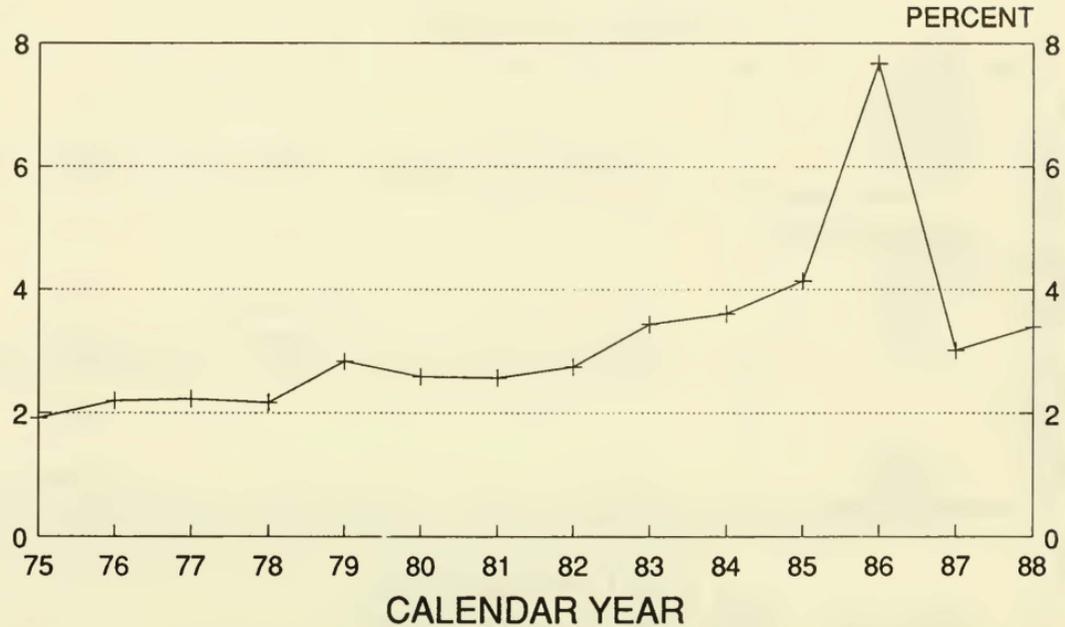
Figure 1.
CAPITAL GAINS AND GNP
HISTORICAL DATA 1/



25

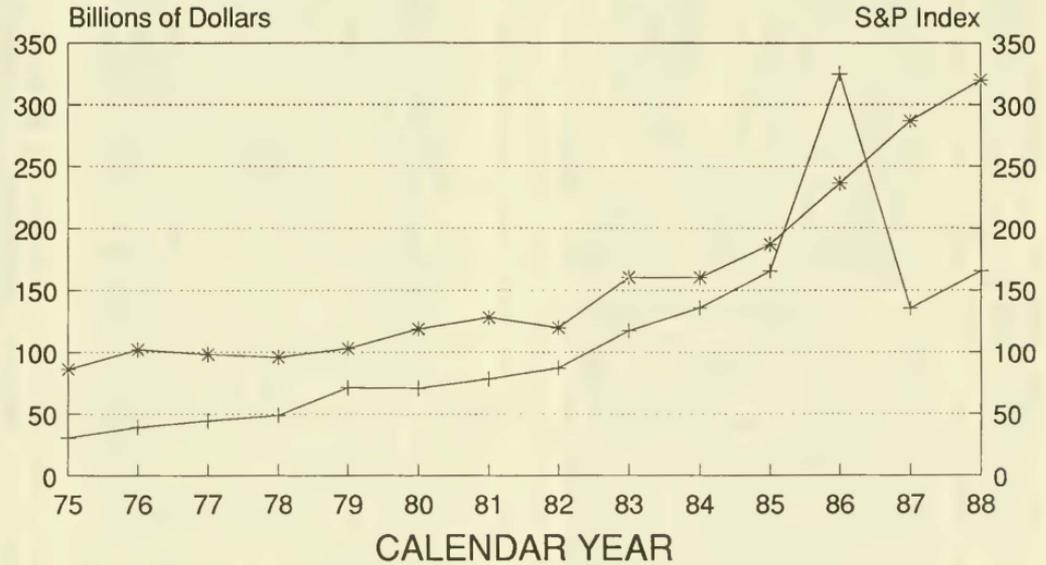
Source: Joint Committee on Taxation
1/ Preliminary 1988 data for capital gains

Figure 2.
CAPITAL GAINS AS A PERCENT OF
GNP 1/



Source: Joint Committee on Taxation
1/ Preliminary 1988 data for capital
gains.

Figure 3.
CAPITAL GAINS AND THE STOCK MARKET
1975 to PRESENT



—+— LONG TERM GAINS —*— S&P COMPOSITE INDEX
(ANNUAL AVERAGE)

Source: Joint Committee on Taxation

b. Gain realizations historically have been closely related to growth in GNP and to stock market performance

The experience from 1954 through 1988 indicates that over the long run, gain realizations have grown with the economy as a whole and with stock market performance. Although the level of gain realizations cannot be explained solely by GNP growth or stock market performance, the data presented above have led the Joint Committee staff to conclude that it is most important to account for these factors in estimating the magnitude of taxpayer behavioral response to a proposed change in capital gains rates.

The pre-1986 data reveals the following:

(1) Between 1954 and the early 1960s, gain realizations approximately doubled as nominal GNP grew by approximately 60 percent. This was a period when there were virtually no statutory changes affecting capital gains taxation.

(2) Between 1963 and 1973, GNP approximately doubled while gain realizations also approximately doubled, even though the effective tax rate on capital gains was increased as a result of the Tax Reform Act of 1969.

(3) Between 1973 and 1980 GNP approximately doubled again while gain realizations approximately doubled. This latter period includes the 1978 tax rate reduction on capital gain.

The experience following the Tax Reform Act of 1986 also tends to support this view. In 1985, net long-term realizations were \$165.5 billion. The Tax Reform Act of 1986 helped induce a near doubling of long-term gain realizations in 1986 (\$321.2 billion) as taxpayers accelerated their realizations in anticipation of a higher tax rate in the future. This was followed by a reduction of more than 50 percent in 1987 (\$123.6 billion). However, preliminary data for 1988 (provided by the IRS Statistics of Income Division) indicate net long-term gain realizations totaled \$162.3 billion, which is approximately equal to the 1985 level.²⁷

c. The historical data support a greater short-run than long-run taxpayer response to a reduction in capital gains tax rates

The Joint Committee staff believes the historical record presented above also supports the conclusion that the short-run elasticity of a reduction in capital gains tax rates is substantially greater than the long-run elasticity. There have been at least four instances in the past in which substantial changes to the capital gains tax rates have been made:

(1) The Tax Reform Act of 1969 increased the effective tax rate on capital gains (directly, by limiting the amount of capital gains eligible for the 25 percent alternative tax rate; indirectly, through the enactment of the individual minimum tax; and relative to most

²⁷ The 1988 level of realizations, moreover, is likely to be lower than the permanent level, because just as the large volume of realizations in 1986 came significantly at the expense of 1987 realizations, it may well also have come partially at the expense of 1988 realizations. This adjustment would be consistent both with the Treasury elasticity assumption for the Administration proposal that uses a 3-year short-run period, and with the Joint Committee staff elasticity assumption that defines the short run as 2 years for this purpose.

ordinary income, through the enactment of a 50 percent maximum tax on earned income).

(2) In 1978 the maximum tax rate on capital gains was reduced to 28 percent.

(3) The Economic Recovery Tax Act of 1981 reduced the top marginal tax rate for individuals from 70 percent to 50 percent, thereby reducing the top rate on capital gains to 20 percent.

(4) The Tax Reform Act of 1986 increased the tax rate on capital gains to 28 percent on a prospective basis, leaving a window of approximately three months during which taxpayers could take advantage of the 20-percent rate previously in effect.²⁸

In each instance, the data reflect a substantial short-term response, followed by a return in the level of realizations to a pattern of growth more consistent with the historical norm. A sustained change in realizations in comparison to GNP or stock market growth appears to be outside the historical record. (See Table 8 and Figure 2).^{28a}

d. Conclusion

As stated previously, the Joint Committee staff elasticity assumption reflects a judgment that the reduction in capital gains tax rates proposed by the Administration will not increase realizations on a permanent basis enough to produce a permanent net revenue increase. The Joint Committee staff believes the historical data presented above is consistent with this assumption and with the 1986 Joint Committee staff estimate that increasing the top marginal tax rate on capital gains from 20 percent to 28 percent would raise revenue in the long run. If the historical data are accurate, and if 1989 realizations continue this trend, then it will be reasonably clear that repeal of the capital gains preference in 1986 has, in fact, resulted in a long-run revenue increase. Given this conclusion, it seems unlikely that a reinstatement of the capital gains preference would also produce a revenue increase in the long run.

3. Evaluation of Econometric Studies

The Joint Committee staff estimate of the elasticity of taxpayer response to a preferential capital gains tax rate was developed after careful review of the major empirical and theoretical studies by experts in government and the academic community. The elasticities ultimately used, however, are not those reported in any single study; nor are they derived by a mechanical averaging of any group of studies. Rather, they reflect the staff's independent

²⁸ Because the rate of tax on capital gains was to be increased prospectively, two elements of taxpayer response had to be estimated: it was necessary in 1986 first to predict the extent that taxpayers would accelerate realizations into the 3-month window period, and then to predict future reductions in capital gain realizations due to the higher rates.

^{28a} In interpreting the surge of realizations in the early 1980s, one must be careful to remember that not only was the economy in the middle of one of the largest bull markets in our history, but that the Congress also enacted substantially improved reporting requirements on the disposition of capital assets. Such improved reporting requirements should lead to an increase in reported realizations.

evaluation of the results of the various studies, analyzed in the context of the historical record.²⁹

The following sections will explain why the Joint Committee staff relies more heavily on some studies than on others in arriving at its conclusion and why the Joint Committee staff does not believe it is appropriate to adopt the elasticities derived by any particular study or group of studies. It also will identify certain apparent discrepancies between the information presented in Table 1 of Treasury's March 6 testimony and the actual results of the studies summarized there.

a. The Joint Committee staff believes that predictions of elasticity derived from time series studies are most appropriate for revenue estimating purposes

In the economics literature, empirical studies of capital gains realizations are classified according to the types of data utilized. The studies generally are viewed as falling into one of three categories: (1) cross-sectional studies; (2) time-series studies; and (3) longitudinal or panel studies. A brief description of each type of study follows.

(1) *Cross-section studies*.—A cross-section study uses data on many taxpayers from one year. For example, the data may consist of a random selection of 10,000 tax returns filed for 1985. These returns will include taxpayers taxed at each marginal tax rate. Some of the taxpayers will realize many capital gains and some will realize few capital gains. These studies try to infer the elasticity of a change in capital gains tax rates by relying on differences in tax rates and realizations across the sample of taxpayers.³⁰

Some difficulties arise in connection with cross-section studies because they rely on data from only one year of observation. Because a taxpayer has the discretion to realize capital gains in a year when the taxpayer's marginal tax rate is low (perhaps deliberately low by successful tax sheltering), cross-section studies cannot distinguish between a permanent change in realization behavior and a response by taxpayers temporarily taxed at a low rate.³¹ The reliance on a single year's data also means that cross-section studies cannot attempt to measure the impact of macroeconomic variables (for example, GNP growth or inflation).

²⁹ The Administration proposal clearly differs in certain significant respects from the situations that were the subject of most published studies. For example, most of the studies do not attempt to assess the effect of holding period requirements on behavior. Two exceptions are: J. Erik Fredland, John A. Gray and Emil M. Sunley Jr., "The Six Month Holding Period For Capital Gains: An Empirical Analysis of Its Effect on the Timing of Gains," *National Tax Journal*, Vol. 21 (1968); Steven Kaplan, "The Holding Period Distinction of the Capital Gains Tax," NBER Working Paper No. 762, Sept. 1981. Nor do most studies distinguish between classes of assets; an exception is U.S. Department of Treasury, Office of Tax Analysis, *Report to the Congress on the Capital Gains Tax Reductions of 1978*, September 1985 (hereinafter sometimes referred to as "Treasury 1985").

³⁰ Examples of cross-section studies are: Martin Feldstein, Joel Slemrod and Shlomo Yitzhaki, "The Effects of Taxation on the Selling of Corporate Stock and the Realization of Capital Gains," *Quarterly Journal of Economics*, June 1980, p. 777; Joseph Minarik, "Capital Gains," in Henry Aaron and Joseph Pechman (eds.), *How Taxes Affect Economic Behavior* (Washington, Brookings) (1981); Treasury 1985.

³¹ Because realized gains affect a taxpayer's marginal tax rate, it is difficult for cross-section studies to have measures of capital gains and marginal rates which are independent of each other. Such independence, however, is necessary for statistical estimation.

(2) *Panel studies*.—A panel study also uses data on a cross-section of taxpayers but, in addition, follows these same taxpayers for two or more years. Thus, a panel study may, for example, look at the tax returns for the same 10,000 taxpayers for 1985, 1986, and 1987. While many researchers might prefer to work with panel data because they combine both individual information with changes that occur over time, there have been relatively few panel studies and these studies often have poor data with which to work.³²

(3) *Time-series studies*.—A time-series study uses data relating to many years, but typically for aggregates of taxpayers rather than specific individuals. A typical time-series study will employ some measure of realizations for each year studied (e.g., 1954 to the present) and will construct an average marginal tax rate on gains for each year.³³

As do cross-section and panel studies, time-series studies suffer from a number of problems. Most of the problems in time-series studies stem from the lack of data relating to specific individuals. For example: the tax rate variable will necessarily be some sort of average or hypothetical tax rate which need not apply to any specific taxpayer; the data cannot control for the amount of interest or dividend income an individual taxpayer receives or other individual-specific factors which may affect a decision to realize a capital gain (e.g., the taxpayer's age or employment status).

Nevertheless, while not ignoring the cross-sectional and panel results, or the problems inherent in time-series studies, the Joint Committee staff believes time-series analysis provides the most reliable methodology for deriving elasticities relevant to revenue estimation purposes. The following factors were regarded as persuasive in reaching this conclusion:

(1) Most time-series studies, while lacking individual specific data, do account for factors such as GNP growth and stock market fluctuation. By contrast, the paucity of yearly data in cross-section studies and the existing panel studies may not permit these studies to account adequately for the effects that such macroeconomic factors have on the pattern of gains realizations. As a result, time series analysis appears to produce results that are most consistent with the historical record of capital gains realizations.

³² For example, the first capital gains panel study undertaken utilized a sample of approximately 1,000 taxpayers; when the analysis was restricted to high-income taxpayers, the sample of taxpayers was approximately 250. Moreover, the data utilized in this study tracked these taxpayers only for a period of five years. Gerald E. Auten and Charles T. Clotfelter, "Permanent versus Transitory Tax Effects and the Realization of Capital Gains," *Quarterly Journal of Economics*, November 1982.

Likewise, Treasury's 1985 study, while benefiting from a panel of approximately 17,000 taxpayers, only had data from five years in the early 1970s and used a statistical form that limited the analysis of realizations to three years. Moreover, there were no significant changes in the taxation of capital gains during the entire period covered by the panel. Treasury 1985.

While, a more recent Treasury panel study covers a period with significant tax changes, 1979 through 1983, the period may be too short to evaluate fully the long-run responsiveness of taxpayers to capital gains rate changes. Gerald E. Auten, Leonard E. Burman, and William C. Randolph, "Estimation and Interpretation of Capital Gains Realization Behavior: Evidence from Panel Data," U.S. Department of Treasury, Office of Tax Analysis Paper 67, May 1989.

³³ Examples of time series studies are: Treasury 1985; Congressional Budget Office, *How Capital Gains Tax Rates Affect Revenues: The Historical Evidence*, March 1988 (hereinafter sometimes referred to as "CBO 1988"); Jonathan Jones, "An Analysis of Aggregate Time Series Capital Gains Equations," U.S. Department of Treasury, Office of Tax Analysis Paper 65, May 1989; Alan J. Auerbach, "Capital Gains Taxation and Tax Reform," *National Tax Journal*, September 1989, p. 391; Alan J. Auerbach, "Capital Gains Taxation in the United States: Realizations, Revenue and Rhetoric," *Brookings Papers on Economic Activity* (1988).

(2) The results of time-series studies are uniformly more stable across different mathematical formulations. In other words, when time-series data is analyzed with different mathematical equations, the elasticities derived from these analyses tend to be relatively more consistent with each other than is the case when cross-section or panel data is analyzed with different equations.³⁴

(3) Both CBO and Treasury use time-series methodology to estimate baseline realizations. The Joint Committee staff views this fact as evidence of acceptance of the superior predictive power of time-series studies among the empirical investigations that have been done to date. In addition, the Joint Committee staff believes that, to the extent practicable, it is desirable to predict changes in capital gains realizations by using the same methodology as is used to predict the baseline realizations from which those changes are measured.

b. The elasticities derived by many of the studies have predicted increased realizations that are higher than the subsequent historical record

The Joint Committee staff does not consider the listing of studies presented in Table 1 of Treasury's March 6 testimony to be particularly informative because a number of the studies have derived elasticities which predicted increased realizations in response to subsequent rate reductions that are dramatically higher than the increase which actually occurred. Specifically:

The Feldstein, Slemrod, and Yitzhaki study (listed in Treasury's Table 1 with an elasticity of 3.75), estimated an elasticity that implied that capital gain realizations would have immediately and permanently *tripled* after the 1978 cut in the capital gains tax rate.³⁵ In sharp contrast to this prediction, the historical data presented in Table 8 shows that, following the 1978 legislation, realizations increased by 46 percent in 1979, dropped back by about 1 percent the next year, and then increased by approximately 11 percent in each of the next two years. The Joint Committee staff believes these data demonstrate that the elasticity derived from this study should not be considered reliable for revenue estimating purposes.

A simulation based on the analysis of the Auten and Clotfelter panel study (listed on Treasury's Table 1 with an elasticity of 0.91) predicted that the increase in capital gains tax rates by the Tax Reform Act of 1986 would produce capital gains realizations of \$98 billion in 1987 and \$102 billion in 1988.³⁶ In fact, the Internal Revenue Service reports that actual 1987 realizations were \$123.6 billion (26 percent higher than the simulation predicted), and 1988 realizations (preliminary) were \$162.3 billion (59 percent higher than predicted).³⁷

³⁴ Economists refer to results which vary significantly as a result of changes in the form of the analysis as "unstable" and "not robust."

³⁵ Feldstein, Slemrod, and Yitzhaki, "The Effects of Taxation on the Selling of Corporate Stock and the Realization of Capital Gains," 1980.

³⁶ Lawrence B. Lindsey, "Capital Gains Taxes Under the Tax Reform Act of 1986: Revenue Estimates Under Various Assumptions," *National Tax Journal*, Vol. 60, September 1987.

³⁷ One possible explanation for this discrepancy is that in performing this simulation Lindsey constructed his own series of baseline realizations to describe realizations in the absence of tax reform. If his baseline realizations were low, that (rather than the assumed elasticity) might account for the difference between projected and actual realizations.

A final illustration can be taken from a study by Lindsey (listed in Treasury's Table 1 with an elasticity of 1.37) which also estimated the revenue effects of the Tax Reform Act of 1986.³⁸ Based on this study, Lindsey predicted that 1987 capital gain realizations would be \$83.6 billion and 1988 realizations would be \$86.3 billion. Actual realizations for 1987 and 1988 were \$123.6 billion and \$162.3 billion, respectively—48 percent and 88 percent higher than predicted.³⁹

c. The "realization" elasticities reported in the studies do not take the "portfolio effect" into account — and so are inherently higher than the "revenue" elasticities relied upon by both the Joint Committee staff and Treasury

In contrast to most of the published academic studies to date, the elasticities used in the Joint Committee staff estimates take into account a "portfolio effect."⁴⁰ This effect attempts to account for the ability of taxpayers to convert ordinary income to capital gain. The Joint Committee staff recognizes at least four forms in which this conversion may occur:

(1) Investors may select one type of asset rather than another, based on the type of income it is expected to produce. For example, investors may redirect their investment portfolios to replace "yield" assets (intended to produce interest and dividends) with "growth" assets (intended to produce capital gain). As a consequence, dividend and interest income would decline just as capital gains would be expected to increase.

(2) Corporations may decide to pay out a lesser portion of their available earnings as dividends in the belief that greater retained earnings will translate into higher stock prices, generating more capital gain and less ordinary income for their shareholders.

(3) Employees may choose to replace salary income with capital gain income, for example, by choosing to receive stock or certain stock options as compensation in lieu of cash wages.

(4) Taxpayers may attempt to structure transactions—without affecting their economic substance—so as to realize their profits in a

³⁸ Lindsey's study is a panel of aggregate taxpayer adjusted gross income classes rather than a panel with individual specific data. Lindsey, "Capital Gains Taxes Under the Tax Reform Act of 1986: Revenue Estimates Under Various Assumptions," 1987.

³⁹ As he did in analyzing the Auten and Clotfelter work, Lindsey constructed his own series of baseline realizations for his own elasticity predictions as well. This, rather than an incorrect elasticity assumption, could explain Lindsey's failure to predict accurately future gain realizations. However, even increasing Lindsey's predicted 1987 realizations by 25 percent to \$105 billion leaves his model far from the historical mark.

Moreover, this could well be a conservative analysis of the degree to which Lindsey's estimate failed to accurately predict realization behavior. Lindsey claims to be estimating the permanent effect of the tax change. The 1986 and 1987 actual data reflect substantial short-term shifting of asset realizations in response to the announced tax change, leading to actual 1986 realizations exceeding permanent realizations and actual 1987 realizations at a level likely to be below permanent realizations. Consequently, the actual 1987 figure is less than what one should expect as a permanent effect. The 1988 figure, which is 30 percent larger than the 1987 figure, may be too soon after the tax change to reflect the permanent effect.

⁴⁰ Former and present members of the Joint Committee staff were the first to publish an analysis of this point. Eric W. Cook and John F. O'Hare, "Issues Relating to the Taxation of Capital Gains," *National Tax Journal*, Vol. 60, September 1987.

form which the tax law categorizes as capital gain rather than ordinary income.⁴¹

Because most published studies ignore this effect, they necessarily focus on the realization elasticity rather than on the revenue elasticity of a capital gains rate change. To the extent that the portfolio effect represents increases in capital gain realizations that come at the expense of reductions in other types of income, these realization elasticities would systematically overstate the net revenue increase attributable to a reduction in capital gains tax rates.⁴²

In recognition of this effect, the Joint Committee staff adjusts its long-run elasticity from 0.7 to 0.66. The Treasury likewise has stated that it takes this factor into account by adjusting its long-run elasticity from 0.9 to 0.8.⁴³ Inasmuch as the reintroduction of a preferential rate for capital gains would provide one of the few tax shelter opportunities following the Tax Reform Act of 1986, the Joint Committee staff portfolio effect adjustment (which is less than half of that made by Treasury) may well be overly conservative; in other words, the revenue loss attributable to this effect may be larger than that projected by the Joint Committee staff. Nevertheless, in preparing the estimate of the Administration proposal, the size of this adjustment was limited due to the lack of quantitative data about the portfolio effect.

d. Other questions raised by Treasury's presentation of the empirical literature

Table 1 of Treasury's March 6 testimony presents a listing of major empirical studies of the elasticity of capital gains realizations. Treasury offers its Table 1 in support of the dual assertions that (1) the elasticities used by Treasury are "conservative" and "smaller than the elasticities found in nearly all the studies" and that (2) the Joint Committee staff elasticities are "simply too low". The Joint Committee staff believes, however, that Treasury's Table 1 may not reflect a totally accurate presentation of the studies to which it refers. Two examples illustrate this point.

(1) Treasury's Table 1 reports that a 1989 study by Jones as showing a realization elasticity of 1.18 for a time series equation covering all capital assets.⁴⁴ However, a review of the study itself

⁴¹ For example, because the Administration proposal makes the preferential rate available only to individuals, corporations in the timber industry could arrange to satisfy their future supply requirements through long-term contracts with individual owners of timber land—rather than by buying the land and growing the timber themselves.

⁴² Some analysts also have suggested that published elasticities may overstate the behavioral response attributable to tax rate changes. For example, James M. Poterba, "Tax Evasion and Capital Gain Taxation," *American Economic Review*, Vol. 77, May 1977, pp. 234-239, has suggested that many studies may overestimate the effects of tax changes on realizations in the early 1980s because of the effects of increased compliance resulting from reporting requirements enacted by the Congress. In addition, transactions costs (e.g., brokerage fees) fell in the late 1970s and early 1980s. Reduced transactions costs should lead to increased trading. Such increased realizations could mistakenly be attributed to the tax changes of 1978 and 1981.

⁴³ It is interesting to note that while both offices believe an adjustment for this factor to be appropriate, the listing of empirical studies presented in Table 1 of Treasury's March 6 testimony appears to compare the *adjusted* revenue elasticities of Treasury and the Joint Committee staff with the *unadjusted* realization elasticities reported by the other studies listed. Such a comparison tends to shift the relative position of the elasticities used by both Treasury and the Joint Committee staff toward the lower end of the group presented.

⁴⁴ Jones, "An Analysis of Aggregate Time Series Capital Gains Equations," U.S. Department of Treasury, Office of Tax Analysis Paper 65, May 1989.

shows the following: Jones reports estimates from 52 equations and makes reference to a number of unreported results. The final preferred equation is estimated over four different time periods under two separate specifications and yields the following estimates of elasticity under the author's preferred specification:⁴⁵

| <i>Equation number</i> | <i>Short-run elasticity</i> | <i>Long-run elasticity</i> |
|------------------------|-----------------------------|----------------------------|
| 4 | 1.13 | 0.18 |
| 8 | 1.14 | 0.25 |

These figures are not only different from the long-run elasticity of 1.18 reported in Treasury's Table 1, but for the long-run elasticity estimates, also are lower than the long-run elasticity assumption of 0.66 used by the Joint Committee staff.

(2) The second example involves a study by Darby, Gillingham and Greenlees.⁴⁶ Treasury Table 1 reports this study as deriving an elasticity, based on time-series equations for all capital assets, of 1.07. A review of the study itself, however, reveals that this figure is derived from a linear equation which the authors criticize as being inappropriate for estimation purposes. By contrast, the equations preferred by the authors yield elasticities between 0.4 and 0.7 at tax rates between 15 and 25 percent.

4. Comparison with Joint Committee Staff Estimates Provided Last Year

a. Elasticities used to estimate a permanent 30-percent exclusion for all assets except collectibles

The elasticities used by the Joint Committee staff to estimate the Administration's capital gains proposal this year are identical to those used last year to estimate the almost nearly comparable capital gains proposal.⁴⁷ To be specific, by letter dated September 14, 1989, Congressman Russo requested an estimate for a proposal that would have provided a 30-percent exclusion for capital gains realized by individual taxpayers from sales of all capital assets (except collectibles) held more than one year. Mr. Russo's request did not incorporate a three-year staggered holding period; however, in all other respects it was identical to the Administration's current proposal. The Joint Committee staff responded to Mr. Russo's request by letter dated September 15, 1989. This response (which is being made public with Mr. Russo's approval) contained the following revenue estimate:

⁴⁵ That this is the author's preferred specification can be inferred by the fact that it is the only result reported for the final equation in the text of the report (see page 17 of Jones paper).

⁴⁶ Michale R. Darby, Robert Gillingham and John S. Greenlees, "The Direct Revenue Effects of Capital Gains Taxation: A Reconsideration of the Time Series Evidence," *Treasury Bulletin*, Spring 1988.

⁴⁷ The Treasury March 6 testimony either states or implies—in four different places—that the Joint Committee staff estimate this year uses a lower elasticity than was used last year. (On page 3, "the JCT's elasticity . . . appears to be lower than the elasticity JCT used last year . . ." On page 7, "absent changes in the JCT's elasticities . . ." On page 11, "However, it also seems clear that the JCT also reduced its elasticity assumption as well." And, footnote 3 to Treasury Table 1, "The JCT elasticities may be lower this year.")

Table 9.—Capital Gains Revenue Estimate Provided to Congressman Russo, September 15, 1989

[Fiscal years; billions of dollars]

| Item | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|--|------|------|------|------|------|------|---------|
| Permanent 30% exclusion for all capital assets (except collectibles); one-year holding period..... | 1.4 | -0.7 | -3.0 | -3.8 | -3.9 | -4.1 | -14.1 |

This estimate was calculated with a short-run elasticity of 1.10 and a long-run elasticity of 0.66—precisely the same elasticities as have been used this year by the Joint Committee staff to estimate the current Administration proposal. It is, therefore, not surprising that this 1989 estimate prepared for Mr. Russo should be very similar to the Joint Committee staff estimate of the current Administration current proposal. The minor differences between the two estimates result from changes in baseline assumptions, holding period requirements, and effective dates.

b. Elasticities used to estimate the Administration proposal of last year

The long-run elasticity used in estimating last year's Administration proposal was 0.66 when all capital assets were included, or 0.72 excluding real estate and depreciable property.⁴⁸ Despite the fact that the 0.66 figure is identical to the elasticity used to estimate the Administration proposal this year, the Joint Committee staff recognizes that a comparison that looks solely to these numbers would be potentially misleading. A proper comparison between the elasticities used for the two proposals must take into account two factors: (1) the proposals are different in ways that affect the elasticity used; and (2) during 1989, the Joint Committee staff changed the form of the mathematical equations, including the elasticity specification, used to estimate all capital gains tax proposals. The relevance of these two factors is discussed below.

Last year's Administration proposal excluded real estate and depreciable property, while this year's proposal is applicable to all capital assets (both proposals excluded collectibles). This factor, taken alone, would tend to decrease the appropriate measure of elasticity.⁴⁹ At the same time, however, last year's proposal provided a larger maximum exclusion (45 percent rather than 30 percent), resulting in a lower proposed tax rate. While the tax rate

⁴⁸ Joint Committee on Taxation, "Statement of Ronald A. Pearlman, Chief of Staff, Joint Committee on Taxation, Before the Senate Committee on Finance" (JCX-3-89), March 14, 1989 (hereinafter sometimes referred to as "Pearlman 1989 statement, JCX-3-89").

⁴⁹ The view that making the exclusion available to a broader class of assets would tend to decrease elasticity appears to be accepted by economists who have studied the subject. See, e.g., Treasury 1985.

had no impact on the constant elasticity assumption actually used to estimate last year's proposal, it would affect any elasticity assumption that varied with the tax rate.⁵⁰

When last year's Administration proposal was presented to Congress in February 1989, the Joint Committee staff chose to use an estimating equation with an elasticity assumption that was constant across all tax rates (rather than varying with the tax rate). Even though the equation implied an elasticity of 0.60, adjustments were made to account for changes in asset composition over time. Accordingly, the estimate actually presented to Congress reflected an elasticity assumption of 0.72 for the proposal (excluding depreciable assets and real estate); the same specification implied an elasticity assumption of 0.66 for a comparable proposal extending to all assets.

By late spring of 1989, the staff had concluded that it was desirable to change the form of the estimating equations (in a manner which preserved the Joint Committee staff's assessment of the magnitude of taxpayer behavioral response), and to use an elasticity specification that varied with the tax rate. This approach was thought to permit more accurate estimation of the wide variety of capital gains rate reduction proposals for which estimates were being requested, including proposals with staggered holding periods. When this new specification was used in connection with capital gains proposals based on a 30-percent exclusion, it too provided an elasticity assumption of 0.66 for all assets.⁵¹

c. Elasticities used to estimate the temporary rate reduction provided in H.R. 3299 as passed by the House

The elasticities used to estimate the Administration proposal this year also are different from those utilized to analyze the revenue effects of the capital gain proposal contained in H. R. 3299 (the so-called "Jenkins-Archer" proposal).⁵² The proposal in H. R. 3299 called for a temporary reduction in tax rates rather than a permanent reduction. In the opinion of the Joint Committee staff, a temporary rate reduction will not generate the same long-run taxpayer response as a permanent reduction.

5. Conclusion

As the foregoing discussion makes clear, both the Joint Committee staff and Treasury believe that taxpayers will realize additional capital gains in response to the lower tax rates proposed by the Administration. The disagreement reflects a difference of opinion as to the magnitude of the response. While the issue is, to some degree, a matter of judgment, the Joint Committee staff firmly believes its judgment of how taxpayers will respond is the one most

⁵⁰ When an elasticity specification varies with the tax rate, a higher rate implies a higher elasticity. Such an assumption is consistent with the standard analysis of the elasticity of consumer demand, in that consumer price elasticity is assumed to be greater when the price of a product is high than when the price of a product is low.

⁵¹ See Pearlman 1989 statement, JCX-3-89. There is no question that *if* the elasticity specification used both last year and this year to estimate proposals involving a 30-percent exclusion had been applied to last year's Administration proposal (which provided a 45-percent exclusion), it would have resulted in a lower elasticity.

⁵² The capital gains proposal in H.R. 3299 was deleted in conference. Identical provisions were subsequently passed by the House in H.R. 3628.

consistent with the best available evidence—the historical record evaluated in light of the appropriate empirical literature. Moreover, despite Treasury's statements to the contrary, the Joint Committee staff elasticity assumption used to estimate the Administration proposal this year is identical to the elasticity assumption that was used last year to evaluate the most nearly comparable capital gains tax reduction proposal.

C. Other Differences

The estimating procedures and assumptions used by the Joint Committee staff differ from those used by Treasury in a number of other specific respects. While these issues are identified below, the Joint Committee staff does not believe that these other differences, considered either individually or in the aggregate, account for more than a minor portion of the difference between the two revenue estimates.

1. Depreciation Recapture

Table 2C (Part II.C.) indicates a substantial difference in the Joint Committee staff and Treasury estimates with respect to the effect of that element of the Administration proposal that would require full depreciation recapture at ordinary income rates. As explained there, the Joint Committee staff estimate of this item reflects a combination of two factors: a revenue increase attributable to the portion of total realizations that will be taxed as ordinary income; and an offset to this revenue increase to account for taxpayers who will decide not to realize gains because the recapture rule serves to increase the average tax rate under the proposal. The Joint Committee staff believes that the Treasury estimate of this line item is intended to account for the same factors.

Assuming the two estimates are indeed comparable in this respect, the Joint Committee staff believes the difference between them results directly from the different elasticity assumptions used by the two offices. In essence, because the Joint Committee staff assumes a lower elasticity (*i.e.*, that taxpayers are less responsive to rate changes) than does Treasury, the Joint Committee staff estimate reflects the view that a higher percentage of the realizations which it predicts (both baseline and induced) will go forward despite the recapture rule.

2. Marginal Tax Rates

Another of the minor differences between Treasury and the Joint Committee staff relates to the projections of marginal tax rates that taxpayers are subject to now, and that they will be subject to in the future, in the absence of a capital gains rate reduction. The Joint Committee staff projects that these marginal tax rates are somewhat higher than does Treasury. This difference arises in part because of differences in estimates of current effective tax rates (which the Joint Committee Staff and Treasury each determine directly from their respective computer models), and in part because of different assumptions about income growth in the future (which is governed by the respective CBO and OMB baseline assumptions). This difference in projected tax rates affects the calculation of how

much of a change in rates the Administration's proposal represents; and the amount of this change, in turn, affects the estimates of elasticity.

3. Miscellaneous

Other differences in the estimates may reflect different assumptions about (a) the number of taxpayers subject to the alternative minimum tax; (b) the effects of the exclusion of collectibles; (c) the effects of the staggered holding periods; (d) the effects of the effective date or staggered holding period rules for the proposal; and (e) any of the other more technical aspects of the proposal.

V. PREDICTION OF A REVENUE MAXIMIZING RATE

The Joint Committee staff estimate of the Administration proposal predicts an initial revenue increase followed by continuing revenue losses; by contrast, the Treasury estimate reflects revenue increases in each year of the budget period. As noted earlier, the most significant reason for this disagreement is a difference in predictions of how much taxpayers will respond to proposed reductions in capital gains tax rates. Heretofore, this disagreement has been discussed in terms of the different elasticities used by the two offices to measure this level of responsiveness. While admittedly difficult to quantify or predict, the concept of elasticity as a measure of taxpayer responsiveness is firmly rooted in economic theory and is the measure actually used to estimate the revenue effects of proposed capital gains tax rate reductions.

In its March 6 testimony, Treasury suggested that the concept of a "revenue maximizing rate" could properly be viewed as an alternative way to convey and compare predictions of taxpayer responsiveness "in a form which is more comprehensible to noneconomists." Treasury defined the revenue maximizing rate for capital gains taxation as the rate at which the government would collect maximum revenue, taking into account both the level of realizations and the rate at which such realizations are taxed. Stated differently, the revenue maximizing rate reflects the point at which either an increase or a decrease in the rate would produce less net revenue.

Treasury's March 6 testimony further stated that while its own revenue estimate would imply a revenue maximizing rate of 23 percent, it believed that the Joint Committee staff estimate would necessarily imply a revenue maximizing rate of 35 percent. Treasury's testimony then criticizes the Joint Committee staff's supposed conclusion with an explanation of why it believes that 35 percent is not likely to be the correct revenue maximizing rate.⁵³ The import of Treasury's March 6 testimony appears to be as follows: because the Joint Committee staff's supposed prediction of taxpayer responsiveness expressed in terms of a revenue maximizing rate is implausible, the Joint Committee staff's prediction of taxpayer re-

⁵³ In the context of its revenue maximizing rate discussion, Treasury stated, "OTA is aware of no study which suggests that revenues would increase if the capital gains tax rate were significantly higher than the rate of tax on ordinary income." Treasury March 6 Testimony, page 11.

The Joint Committee staff believes the following points should be considered in the connection with this statement:

(1) The Joint Committee staff is aware of only one academic study which discusses revenue maximizing rates. Lindsey, "Capital Gains Taxes Under the Tax Reform Act of 1986: Revenue Estimates Under Various Assumptions," 1987.

(2) The study by Darby, Gillingham and Greenlees, "The Direct Revenue Effects of Capital Gains Taxation: A Reconsideration of the Time Series Evidence," 1988, while not endorsing the revenue maximizing rate concept, produced results which would imply a revenue maximizing rate of 35 percent.

sponsiveness expressed in terms of elasticity should be regarded as equally flawed.

The following sections of this pamphlet respond to these assertions. Section A presents the actual revenue maximizing rate derived from the equations used by the Joint Committee staff to estimate the revenue effects of the Administration proposal. Section B then explains why the Joint Committee staff believes that diverting attention from measures of elasticity to predictions of revenue maximizing rates serves to obfuscate rather than aid the analysis. A more technical analysis appears in Appendix B.

A. Joint Committee Staff Estimate of a Revenue Maximizing Rate

Contrary to Treasury's March 6 testimony, the Joint Committee staff revenue estimate of the Administration proposal implies a revenue maximizing tax rate of 28.5 percent—not 35 percent. In order to understand the significance of this figure, it is important to understand that the net revenue effect of a particular capital gains tax rate is the product of two factors: (a) the amount of gains realized and (b) the rate at which such gains are taxed. This point can be illustrated by considering the effects of both a rate decrease and a rate increase:

Rate decrease.—Taxpayers would respond to a lower rate by increasing their gain realizations, but less revenue would be collected from each gain that is realized. At the extreme case, if the rate were reduced to zero, realizations could increase without limit, and yet there would be no revenue collected.

Rate increase.—A capital gains rate higher than the current rate on ordinary income would work in reverse. Taxpayers would reduce the level of their realizations but more tax would be collected from each dollar of gain realized. To consider the other extreme, if the rate were increased to 100 percent, taxpayers would presumably make every possible effort to avoid realizing any gains, and the net revenue also would approach zero.

The balance between these countervailing factors (*i.e.*, gain realizations and the tax rate) is what determines the net revenue impact of any particular proposed rate change. This balance, in turn, is governed by the degree of taxpayer responsiveness to changes in tax rates. For revenue estimating purposes, it is not enough to know that there will be some response to rate changes; it is critical to predict the magnitude of response relative to the magnitude of change. In economic terms, the degree of taxpayer responsiveness is quantified by the concept of elasticity. Elasticity is what enables the estimator to predict how much realizations will change in response to any given change in rates.⁵⁴

⁵⁴ Under this analysis, the revenue maximizing rate is that rate at which the realization elasticity is exactly equal to 1.0. This can be deduced from the definition of elasticity, starting in a context of the rate increases from zero: So long as the elasticity is less than 1.0, revenue will increase as the rate increases, because the decrease in realizations will be more than offset by the increase in revenues on remaining baseline gains. Once the elasticity exceeds 1.0, however, the revenue lost from decreasing realizations will be greater than the revenue increase resulting from imposing the higher rate of tax on the remaining baseline gains. Accordingly, revenue is maximized where the elasticity equals 1.0. This is a somewhat oversimplified explanation, because different taxpayers are taxed at different rates on their gains.

Inasmuch as the Joint Committee staff estimates of capital gains rate reduction proposals have consistently reflected revenue losses in the long run, it should not be surprising that the revenue maximizing rate derived from the Joint Committee staff estimate of the Administration proposal is approximately equal to (or slightly higher than) the rates imposed under present law. In fact a small increase (0.5 percent) in the capital gains tax rate will generate sufficient revenue from the gains that taxpayers realize notwithstanding the rate change to more than offset the decrease in realizations. The following three tables are presented to illustrate this point.

Table 10 presents the Joint Committee staff estimate of the revenue effects of the Administration proposal, with the gain exclusion percentage adjusted to produce marginal tax rates ranging from 20 to 30 percent. As Table 10 indicates, the Joint Committee staff would predict that the revenue loss from the proposal would diminish as the rate approaches 28 percent, that there would be a net revenue increase at rates up to 28.5 percent, but that as rates climb above 28.5 percent, net revenue begins to decline.

Table 10.—Revenue Effects of the Administration Capital Gains Proposal Under Alternative Exclusion Percentages ¹

[Fiscal years; billions of dollars]

| Exclusion percentage | Tax rate ² (percent) | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|----------------------|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 30.0 | 19.6 | 0.7 | 3.1 | -2.3 | -2.7 | -4.7 | -4.7 | -10.6 |
| 25.0 | 21.0 | 0.5 | 2.5 | -2.2 | -2.5 | -3.6 | -3.6 | -8.9 |
| 21.9 | 22.0 | 0.4 | 1.6 | -2.0 | -2.0 | -2.3 | -2.3 | -6.6 |
| 17.9 | 23.0 | 0.3 | 1.4 | -1.1 | -1.2 | -1.4 | -1.5 | -3.5 |
| 14.3 | 24.0 | 0.3 | 1.0 | -0.8 | -0.8 | -0.9 | -1.0 | -2.2 |
| 10.7 | 25.0 | 0.1 | 0.5 | -0.5 | -0.5 | -0.5 | -0.6 | -1.5 |
| 7.1 | 26.0 | 0.1 | 0.3 | -0.2 | -0.2 | -0.2 | -0.2 | -0.4 |
| 3.6 | 27.0 | (³) | 0.1 | (⁴) | (^{4}) | (^{4}) | (^{4}) | (^{4}) |
| 0.0 | 28.0 | | | | | | | |
| N.A. | 28.5 | (⁴) | (⁴) | (^{3}) | (^{3}) | (^{3}) | (^{3}) | (³) |
| N.A. | 30.0 | (⁴) | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.6 |

¹ For purposes of these estimates, it is assumed that the proposal is effective for asset sales on or after January 1, 1990. Additionally, the estimates do not include the phase-in of the 3-year holding period.

² Calculated by applying the exclusion percentage to a statutory rate of 28%.

³ Gain of less than \$50 million.

⁴ Loss of less than \$50 million.

Tables 11 and 12 reveal the principal components of the net revenue effect shown on Table 10. Table 11 presents the static revenue effects of the possible rate changes; on a static basis, losses occur when rates are reduced, gains result from rate increases. Table 12 shows the countervailing effect of taxpayer behavior: any rate reduction will induce additional realizations generating revenue to

offset some—but not all—of the static loss; rate increases will deter realizations, thereby reducing the static revenue gain that would otherwise result.

Table 11.—Static Revenue Effect of the Administrations Capital Gains Proposal With Alternative Exclusion Percentages ¹

[Fiscal years; billions of dollars]

| Exclusion percentage | Tax rate ² (percent) | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|----------------------|---------------------------------|------------------|-------|-------|-------|-------|-------|---------|
| 30.0 | 19.6 | -2.6 | -17.7 | -18.7 | -19.9 | -20.4 | -20.9 | -100.2 |
| 25.0 | 21.0 | -2.2 | -15.0 | -15.9 | -16.9 | -17.4 | -17.8 | -85.3 |
| 21.9 | 22.0 | -2.0 | -13.1 | -13.9 | -14.8 | -15.2 | -15.5 | -74.4 |
| 17.9 | 23.0 | -1.6 | -11.0 | -11.6 | -12.4 | -12.7 | -13.0 | -62.3 |
| 14.3 | 24.0 | -1.3 | -8.6 | -9.1 | -9.7 | -9.9 | -10.2 | -48.7 |
| 10.7 | 25.0 | -0.9 | -6.0 | -6.3 | -6.7 | -6.9 | -7.1 | -33.8 |
| 7.1 | 26.0 | -0.5 | -3.6 | -3.8 | -4.0 | -4.1 | -4.2 | -20.3 |
| 3.6 | 27.0 | -0.2 | -1.2 | -1.3 | -1.3 | -1.4 | -1.4 | -6.8 |
| 0.0 | 28.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| N.A. | 28.5 | (³) | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 2.8 |
| N.A. | 30.0 | 0.7 | 4.8 | 5.1 | 5.4 | 5.5 | 5.6 | 27.1 |

¹ For purposes of these estimates, it is assumed that the proposal is effective for asset sales on or after January 1, 1990. Additionally, the estimates do not include the phase-in of the 3-year holding period.

² Calculated by applying the exclusion percentage to a statutory rate of 28%.

³ Gain of less than \$50 million.

Table 12.—Revenue Effects of Induced Realizations Under the Administration's Capital Gains Proposal With Alternative Exclusion Percentages ¹

[Fiscal years; billions of dollars]

| Exclusion percentage | Tax rate ² (percent) | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-95 |
|----------------------|---------------------------------|------------------|-------|-------|-------|-------|-------|---------|
| 30.0 | 19.6 | 3.0 | 18.9 | 14.4 | 14.9 | 13.4 | 13.8 | 78.4 |
| 25.0 | 21.0 | 2.5 | 16.0 | 12.3 | 13.0 | 12.5 | 12.8 | 69.1 |
| 21.9 | 22.0 | 2.2 | 14.0 | 10.9 | 12.2 | 11.8 | 12.1 | 63.1 |
| 17.9 | 23.0 | 1.8 | 11.8 | 10.2 | 10.3 | 10.6 | 10.9 | 55.7 |
| 14.3 | 24.0 | 1.4 | 9.2 | 8.1 | 8.6 | 8.9 | 9.1 | 45.3 |
| 10.7 | 25.0 | 1.0 | 6.4 | 5.8 | 6.2 | 6.3 | 6.5 | 32.3 |
| 7.1 | 26.0 | 0.6 | 3.9 | 3.6 | 3.8 | 3.9 | 4.0 | 19.8 |
| 3.6 | 27.0 | 0.2 | 1.3 | 1.2 | 1.3 | 1.3 | 1.4 | 6.7 |
| 0.0 | 28.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| N.A. | 28.5 | (³) | -0.4 | -0.5 | -0.5 | -0.6 | -0.7 | -2.7 |
| N.A. | 30.0 | -0.7 | -5.0 | -5.2 | -5.5 | -5.6 | -5.8 | -27.8 |

¹ For purposes of these estimates, it is assumed that the proposal is effective for asset sales on or after January 1, 1990. Additionally, the estimates do not include the phase-in of the 3-year holding period.

² Calculated at the maximum statutory rate of 28%.

³ Loss of less than \$50 million.

Tables 10, 11, and 12 thus illustrate the effects of the elasticity assumption used by the Joint Committee staff. This elasticity implies that any rate reduction under the Administration proposal will result in long-run static revenue losses that exceed the revenue increases from induced realizations. It likewise implies that while any rate increase would deter realizations to some degree, if the rate increase is small (up to 28.5 percent) the static revenue gain would more than offset the revenue lost from deterred realizations, but that if the rate is raised above the 28.5 percent level, an overall revenue loss results because the static revenue gain is less than the revenue lost from realizations that will not occur.

B. Defects in the Revenue Maximizing Rate Concept

The Joint Committee staff also disagrees with Treasury's suggestion that consideration of a revenue maximizing rate provides useful insight into the reliability of the elasticity assumptions used in the underlying revenue estimate. Several factors lead the Joint Committee staff to this conclusion:

Although the estimating methodology used by the Joint Committee staff permits the calculation of a revenue maximizing rate, this calculation is extremely sensitive to the particular revenue estimating equations used. In other words, for a single revenue estimate with a given elasticity assumption, there may be more than

one revenue maximizing rate calculated depending on the equations used.⁵⁵

Even though both Treasury and the Joint Committee staff have presented estimates of the revenue maximizing rates that flow from the particular elasticity assumptions and revenue estimating equations used to estimate the Administration proposal, when these equations are used to predict revenue maximizing rates instead of revenues, they do not take into account certain factors which will actually affect revenue and which are taken into account by the revenue estimate itself. For example, the revenue maximizing rates predicted do not take account of the portfolio effect (which reduces revenue as capital gains replace ordinary income). Likewise ignored are factors affecting the efficiency of enforcement and collection in the tax system.

It is also important to note that prediction of a revenue maximizing rate is dependent on the tax system as a whole. Thus, while the Joint Committee staff estimates a revenue maximizing rate of 28.5 percent in the context of the Administration proposal, it does not follow that this would be the revenue maximizing rate in the context of other proposals. For example, in the context of a proposal to increase the rate of tax on ordinary income to 50 percent, it is likely that the Joint Committee staff would predict a different revenue maximizing rate for capital gains. The revenue maximizing rate might likewise be different in the context of a proposal to alter substantially penalties for noncompliance, or to increase the enforcement resources available to the Internal Revenue Service. (See Appendix B for more detailed discussion.)

The Joint Committee staff believes that the relative absence of discussion of revenue maximizing rates in the economic literature reflects a general recognition of the theoretical problems outlined above, and also supports the view that the concept provides no significant assistance in evaluating how taxpayers will respond to the rate reductions proposed by the Administration.

⁵⁵ This possibility is illustrated with the equations presented in Appendix B.

VI. DISTRIBUTIONAL IMPACT OF ADMINISTRATION PROPOSAL

A. Distributional Effects

Table 13 below presents the Joint Committee staff's estimate of the distributional effect of the Administration's capital gains proposal.⁵⁶

Table 13.—Distributional Effect of the Administration's Capital Gains Proposal

[1990 Income Levels]

| Income Class ¹ | Number of returns with tax change (thousands) | Aggregate tax change (millions of dollars) | Average tax reduction ² (dollars) | Percent distribution of aggregate tax change |
|---------------------------|---|--|--|--|
| Less than \$10,000 | 59 | -4 | 68 | (3) |
| 10,000-20,000 | 638 | -56 | 88 | 0.4 |
| 20,000-30,000 | 1,360 | -136 | 100 | 0.9 |
| 30,000-40,000 | 1,811 | -297 | 164 | 1.9 |
| 40,000-50,000 | 1,502 | -415 | 276 | 2.6 |
| 50,000-75,000 | 2,423 | -1,004 | 414 | 6.3 |
| 75,000-100,000 | 984 | -785 | 798 | 4.9 |
| 100,000-200,000 | 1,299 | -2,709 | 2,085 | 17.0 |
| 200,000 and above..... | 681 | -10,522 | 15,454 | 66.1 |
| Totals | 10,756 | -15,928 | 1,481 | 100.0 |

NOTE.—Details may not add to totals due to rounding.

¹ The income concept used to place tax returns into income classes equals adjusted gross income plus: (1) tax-exempt interest, (2) employer contributions for health plans and life insurance, (3) inside buildup on life insurance, (4) worker's compensation, (5) nontaxable social security benefits, (6) deductible contributions to individual retirement accounts, (7) the minimum tax preferences, and (8) net losses in excess of minimum tax preferences from passive business activities.

² The tax reduction reported here assumes no change in taxpayer behavior. Thus, this measure understates the tax benefit received by certain taxpayers.

³ Negligible.

The second column in Table 13 estimates the number of returns in each income class which will benefit from the proposed capital gains rate reduction. The third column reports the aggregate tax

⁵⁶ This table originally was released as part of Joint Committee on Taxation, "Estimate of Administration Proposal for a Reduction in Taxes on Capital Gains of Individuals," (JCX-5-90), February 14, 1990.

reduction which accrues to each income class. The fourth column calculates the average dollar tax reduction per return. The last column calculates the percentage of the aggregate tax change which accrues to each income class.

Table 13 calculates the benefit taxpayers would receive from the proposed rate reduction if they realized the same amount of gains that they would have realized in the absence of a rate reduction. In other words, this calculation measures only the benefit the taxpayer receives if he or she does not alter behavior. This is a conservative estimate of the actual benefit, because it does not assume a behavioral response. If taxpayers respond by realizing additional gains they will obtain even more benefit from the change, since taxpayers change their behavior only if the change makes them even better off. Thus, this calculation understates the benefit received by taxpayers who realize capital gains.

Table 13 reports the distribution of the tax incidence rather than the distribution of taxes paid. If a reduction in capital gains tax rates leads high-income taxpayers to realize more gains, the taxes they pay also will increase, and in reflection of those increased payments, the distribution of total taxes paid will shift toward such high-income taxpayers.

However, the Joint Committee staff does not believe that such an increase in the distribution of taxes paid implies that the incidence of the tax on high-income taxpayers has increased. To the contrary, the high-income taxpayer has benefited from being able to dispose of assets at a lower tax rate, thereby reaping a greater after-tax return. Moreover, as noted above, any additional tax paid in response to a capital gains rate reduction results only from a voluntary change in behavior. The Joint Committee staff believes this analysis—which focuses on increased benefit rather than on taxes paid—more accurately describes the distributional effect of a rate reduction.⁵⁷

B. Dynamic Distributional Analysis

Treasury's March 6 testimony introduces the concept of dynamic distribution analysis with the observation that if higher-income taxpayers increase their realizations by an amount sufficient to increase net receipts to the Federal Government, the amount of taxes paid by high-income taxpayers will be greater after the tax cut than before.⁵⁸ What the Treasury has called a dynamic distribution analysis is merely an analysis of the distribution of taxes paid.

Two examples highlight the confusion which can arise by an attempt to compare an analysis of the distribution of taxes paid with an analysis of the distribution of the after-tax benefit of the tax reduction (referred to by economists as the "incidence" of the tax).

(1) At a price of \$1 per loaf of bread, a consumer may purchase only one loaf of bread, whereas at a price of \$.60 per loaf of bread it is conceivable that the consumer will purchase two loaves. A price analysis would suggest that the consumer has benefited from a decline in the price of bread. An expenditure analysis would

⁵⁷ For further discussion on the appropriate methodology for assessing distributional effects, see Jane Gravelle and Lawrence B. Lindsey, "Capital Gains," 38 *Tax Notes*, January 25, 1988.

⁵⁸ Treasury March 6, 1990 Testimony, pages 8-9.

reveal that the consumer's expenditure on bread has increased (\$1.20 total expenditure, rather than \$1.00). In fact both statements are true—the consumer expenditure on bread has increased and the consumer has benefited from a lower price for bread.

(2) As a second example, consider a proposal which exempted all capital gains from tax. An analysis of the distribution of taxes paid would show that all taxpayers equally paid no tax. A tax incidence analysis would show that taxpayers receive a benefit from such exemption, and such benefit would vary across taxpayers to the extent that they owned capital assets with accrued gains.

C. Nonrecurring Gains and Permanent Income

The Joint Committee staff distributional estimate classifies taxpayers on the basis of their incomes including capital gains. Some have argued that the Joint Committee tables overstate the extent to which a reduction in capital gains taxes will benefit taxpayers with higher recurring or permanent incomes, as opposed to taxpayers whose incomes may be high only for a single year (for example, because they may, in that year, have realized a "once in a lifetime" capital gain from the sale of a business).⁵⁹

In order to test the reliability of the Joint Committee income classification methodology, the staff has reviewed "panel" data prepared by the Internal Revenue Service from the Statistics of Income (SOI) for the five-year period, 1979-1983. These data allow the analyst to track the number and dollar value of capital gains realized by particular taxpayers in each of the five years under review. In addition, the Joint Committee staff has examined the detailed information available on gain realizations in the 1985 Sale of Capital Assets file (SOCA) compiled by the Internal Revenue Service.

The most significant results of a preliminary analysis of these data are as follows:

(1) *Number of returns with gains.*—Approximately 15 million individual taxpayers realized capital gains during the five-year period, 1979-1983. The following chart shows what percent of these taxpayers had gains in any given number of years:

| <i>Number of years in which taxpayer reported gains:</i> | <i>Percentage of all taxpayers reporting gains</i> |
|--|--|
| 1 year | 43.7 |
| 2 years..... | 17.6 |
| 3 years..... | 13.2 |
| 4 years..... | 9.6 |
| 5 years..... | 15.7 |

⁵⁹Such taxpayers are referred to in Treasury's March 6 testimony at pages 9-10.

(2) *Dollar value of gains.*—During the five-year period, individual taxpayers realized in excess of \$400 billion of gains, of which approximately \$142 billion was included in income. The following chart shows what percentage of the \$142 billion of gains was realized by taxpayers who had gains in any given number of years:

| <i>Taxpayers who reported gains in each of:</i> | <i>Percentage of total dollar value of reported gains</i> |
|---|---|
| 1 year | 9.8 |
| 2 years..... | 9.1 |
| 3 years..... | 10.3 |
| 4 years..... | 12.0 |
| 5 years..... | 58.9 |

(3) *Repeated gain realizations within one year.*—Analysis of the 1985 SOCA file provides information on the extent to which taxpayers realize gains within one year. In 1985, taxpayers who undertook only one transaction represented 44 percent of all taxpayers who reported gains, but they accounted for 21 percent of the dollar value of all gains realized. Consequently, nearly 80 percent of all gains realized in 1985 were reported by taxpayers who realized more than one gain in that year. Less than 15 percent of the dollar value of all gains were realized by those taxpayers who engaged in only one transaction and had nongain incomes less than \$75,000.⁶⁰ By contrast, approximately 28 percent of the dollar value of all gains reported in 1985 were realized by the less than 6 percent of all taxpayers who undertook 11 or more transactions in that year. And, more than 12 percent of the dollar value of all reported gains were realized by the six-tenths of one percent of taxpayers whose nongain income exceeded \$200,000 and who undertook 11 or more transactions.

(4) *Effects of gain realization on taxpayer's income class.*—The Joint Committee staff distribution analysis takes into account gains realized by taxpayers in determining the taxpayer's income class. The data show that a relatively small percentage of taxpayers who realize capital gains in a given year change more than one income class in the succeeding year. Thus, for example, more than 75 percent of taxpayers who realized gains in 1981 and reported AGI in excess of \$200,000 for that year also reported their AGI to be in excess of \$200,000 for 1982; more than 95 percent of such over \$200,000 taxpayers had income in excess of \$100,000 in 1982. Of taxpayers realizing gains in 1981 with AGI between \$20,000 and \$30,000, approximately 80 percent reported a 1982 AGI between \$10,000 and \$40,000.

⁶⁰ A discussion of the proper income classification for distribution analysis is in item (6), below.

(5) *Inclusion versus exclusion of capital gain from the measure of income.*—Some commentators have suggested that it is inappropriate to include any capital gain in income for the purpose of undertaking a distributional analysis of gains. The premise for this argument is the assumption that all gains are one-time, nonrecurring events. To the extent that gains are nonrecurring, a measure of income which includes the current year gain will overstate the taxpayer's permanent income and make him appear to have a higher income than he does on a recurring basis. However, to the extent that taxpayers realize gains more than once during their lifetime, a measure of income which excludes the current year gain will understate the taxpayer's permanent income and make him appear to have a lower income than he does on a recurring basis.

The panel data confirm the Joint Committee staff's prior conclusion that a substantial number of taxpayers realize gains on a recurring basis, that is, in more than one year. In addition, the detailed transaction data indicates that the majority of the dollar value of gain realized within any one year is realized by taxpayers who make multiple realizations. Thus, the Joint Committee staff thinks it would be inappropriate to exclude capital gains from income in calculating the distributional effect of a tax change.

It also is worth noting in this regard that even with respect to a taxpayer who realized only one gain during his lifetime, excluding that gain from a calculation of his income would understate his permanent income. For example, assume that 20 years ago a taxpayer, whose other annual income is \$40,000, bought an asset which appreciated \$50,000 each year. Upon sale today, there would be a \$1 million gain. While a measure of income of \$1,040,000 surely overstates this taxpayer's permanent income, a measure of \$40,000 likewise understates this taxpayer's permanent income because the taxpayer's asset offered him an additional \$50,000 of annual income. Theoretically, this taxpayer's annual income could be said to be \$90,000.

(6) *The use of "Adjusted Gross Income" as an income classifier.*—The staff of the Joint Committee on Taxation uses a broadly defined income measure as its income classifier when preparing distributional analyses. Some commentators argue that adjusted gross income (AGI) should be used as an income classifier. The Joint Committee staff disagrees with this view. AGI does not adequately measure economic income. For example, AGI does not include interest received from investment in tax-exempt municipal bonds, tax-deductible contributions made to individual retirement accounts, and the nontaxable portion of social security benefits.

An additional problem of income measurement arises when categorizing taxpayers by their reported adjusted gross incomes. When examining data from the Internal Revenue Service's Statistics of Income, the first (lowest) income category of each table often includes taxpayers whose income is negative. A negative income for tax purposes could arise from the active conduct of a farming or other business activity or it could be the result of tax shelter activity. Thus, a distribution table that used AGI as the income classifier may include taxpayers with substantial economic income in the lowest income classes because such taxpayers offset that income by deductions and credits.

Distributional analyses of capital gains legislative proposals will be influenced to some extent if gains are either included in or excluded from the income classifier. Inclusion of gains will tend to overstate the extent higher-income taxpayers realize gains; exclusion of gains will tend to understate the effect on higher-income taxpayers. The available data show rather clearly that most gains are reported by taxpayers with recurring rather than one-time gains, with almost 60 percent of the gain reported by taxpayers with gains in each of the five years studied. Thus, the Joint Committee staff believes that it is appropriate to include capital gains in the income classifier.

As stated in its March 6 testimony, Treasury has established income classes by averaging taxpayers' incomes over five years. The Joint Committee staff does not believe the results of the two approaches are very different. In fact, the Treasury distributional analysis (as reported in Table 6 of its March 6 testimony) is very similar identical to Table 13 above. In Treasury's Table 6, the measure which corresponds to a distribution of the tax burden is the column labeled "Change in Taxes: Static." This column shows that 53.5 percent (\$3.8 billion of a \$7.1 billion) of the static reduction in revenues accrues to taxpayers which the Treasury computes to have permanent adjusted income in excess of \$200,000. Taxpayers with permanent incomes between \$100,000 and \$200,000 receive 19.7 percent of the benefits (\$1.4 billion out of \$7.1 billion). By comparison, the Joint Committee staff estimates 17.0 percent of the benefit will accrue to taxpayers with incomes between \$100,000 and \$200,000, and that 66.1 percent of the benefits will accrue to taxpayers with incomes above \$200,000. In sum, therefore, taxpayers whose incomes exceed \$100,000 will receive 83.1 percent of the benefit according to the Joint Committee staff analysis, and 73.2 percent of the benefit according to the Treasury "permanent income" classifier distribution.

Appendix C contains more detailed supporting tables and discussion of the Joint Committee staff analysis of the Administration proposal.

APPENDICES

APPENDIX A

Technical Specifications of Revenue Estimating Methodology

1. Estimating Equations

A useful starting point in examining the revenue estimates of capital gains proposals, which should not only point out variations of approach but should serve to highlight certain technical differences, is an analysis of the following two time-series equations, some variant of which appears in most published studies (t-statistics in parenthesis):⁶¹

$$\begin{aligned} \text{LN(RCG)} = & -7.9506 + 1.2106 \text{ LN(PRICE)} + 0.5084 \text{ LN(RCE)} + 0.9546 \text{ LN(RGNP)} \\ & \quad (5.523) \quad (4.006) \quad (2.599) \\ & + 2.1110 \text{ LN(RGNPL)} - 0.6003 \text{ LN(MTR)} \\ & \quad (2.482) \quad (-2.665) \end{aligned} \quad [1]$$

$$R^2 = 0.9866$$

$$\text{DW} = 1.3634$$

$$\begin{aligned} \text{LN(RCG)} = & -6.2809 + 1.2203 \text{ LN(PRICE)} + 0.5059 \text{ LN(RCE)} + 0.9538 \text{ LN(RGNP)} \\ & \quad (5.522) \quad (4.025) \quad (2.643) \\ & + 2.2052 \text{ LN(RGNPL)} - 0.0337 \text{ MTR} \\ & \quad (2.260) \quad (-2.739) \end{aligned} \quad [2]$$

$$R^2 = 0.9867$$

$$\text{DW} = 1.3588$$

Both equations [1] and [2] are estimated over the period 1954 to 1985 using ordinary least squares.⁶² In each equation RCG is realized capital gains; PRICE is an index of consumer prices; RCE is real household holdings of corporate equity; RGNP is real gross national product; RGNPL is RGNP lagged one period; MTR is the marginal tax rate; and LN denotes the natural logarithm. R^2 is the measure of the percentage of variance of the dependent variable (the logarithm of capital gains) which is explained by the estimate equation. DW is the Durbin-Watson statistic, which measures serial correlation in the unexplained variance.

2. Elasticities

While equations [1] and [2] above are similar, they say something different about the elasticity of capital gains realizations with respect to changes in the marginal tax rate. Because equation [1] uses the natural logarithm of the (marginal) tax rate as a predictor of realizations, the elasticity is equal to the estimated coefficient of the tax rate variable (*i.e.*, -0.6003). This means that equation [1]

⁶¹ Because of the data limitations mentioned above, the exact specification will depend on whether the equation is estimated on cross-section or time-series data. Auerbach, "Capital Gains Taxation and Tax Reform," 1989; CBO 1988.

⁶² While data are available for years subsequent to 1985, it was felt that the effects of the Tax Reform Act of 1986 might cause spurious results.

assumes that the (realization) elasticity is constant across all tax rates. Because equation [2] represents a different mathematical formula, the elasticity is equal to the estimated coefficient (*i.e.*, -0.0337) times the tax rate itself. At a tax rate of 20 percent, for example, the estimated elasticity is -0.6740 . Thus, both equations [1] and [2] yield different estimates of the elasticity of capital gains realizations:

$$e_1 = b \quad [1a]$$

$$e_2 = b \times \text{MTR} \quad [2a]$$

where b is the estimated coefficient from the relevant equation and where, for example, in a general form, e_1 denotes the elasticity derived from equation (1).

3. Induced Realizations

The empirical literature suggests that taxpayers respond to lower tax rates on capital gains by realizing more gains. While this has never been in dispute, the magnitude of such a response, and in particular whether enough realizations could be generated to increase Federal revenues, has been the subject of debate. The Joint Committee staff estimates assume that aggregate long-term capital gains realizations can be represented by a form much like equation [2] above. It is difficult to distinguish short-run effects and long-run effects with such an equation. To compensate, several adjustments are made.

The starting point is the CBO baseline of capital gains realizations. The first step is to modify the basic estimating equation in order to "calibrate" the model to reflect CBO assumptions. This is done by rewriting the equation in the following form:

$$\text{LN(RCG)} = a + b \times \text{MTR} \quad [3]$$

In equation [3], RCG is realized (long-term) gains; MTR is the marginal tax rate; and b is a parameter estimate obtained from equation [2]. The actual estimate of b used by the Joint Committee staff is -0.0351 , which results in a slightly higher (realization) elasticity of 0.70 when evaluated at a 20-percent tax rate.

In calibrating the model, the Joint Committee staff solves equation [3] for the parameter a in order to insure that the baseline is reached in every year of the budget period. The Joint Committee staff calculates marginal tax rates from the Individual Income Tax Model. Once baseline gains are simulated, the model is modified to reflect marginal tax rates under the proposed law; the Individual Model is used for this purpose. Finally, the Joint Committee staff solves for long-run realizations under the proposal by substituting

the new marginal tax rates into equation [3], making sure the parameter a remains constant.⁶³

An adjustment to the above procedure was made to reflect the evidence that indicates the short-run effects of a capital gains rate reduction differ significantly from the long-run effects. Specifically, the coefficient b was allowed to vary to reflect a short-term elasticity of approximately -1.1 ; the long term was assumed to be reached in the third year. Once the new level of realizations is determined, a further adjustment is made to reflect the fact that taxpayers are assumed to shift into the tax-preferred asset. This adjustment is carried out in much the same manner as was done for the short-term/long-term distinction: b was allowed to vary to reflect the difference between "realization" and "revenue" elasticity and the difference in realizations was assumed to generate a revenue loss equal to difference in the tax rate on ordinary income.

⁶³ Because taxpayers are assumed to increase their amount of baseline realizations under the proposal, the marginal rate on these induced gains will be somewhat higher than that applied under the static case.

APPENDIX B

Technical Explanation of Revenue Maximizing Rates

The central issue in dispute in revenue estimates of proposals to reduce the rate of tax on capital gains is how much taxpayers will respond to a change in the tax rate. The Joint Committee staff believes that concept of revenue maximizing rates confuses rather than clarifies this central issue for several reasons:

(1) The notion of a revenue maximizing tax rate places undue emphasis upon choice of a particular mathematical formula to represent taxpayer behavior.

(2) The notion of an invariant revenue maximizing tax rate is inconsistent with the fact that taxpayers have faced different tax regimes over the past twenty years.

(3) The notion of a revenue maximizing tax rate typically focuses only on realization behavior and not on the potential for the conversion of ordinary income to capital gain income.

1. The Intuition of a Revenue Maximizing Rate

The intuitive appeal of the notion of a revenue maximizing tax rate arises from the following "Laffer curve" type argument: At a tax rate of zero, the government will not collect any revenue (because there is no tax imposed). Likewise, at a tax rate of 100 percent, the government will not collect any revenue (because taxpayers will forego realizing any capital gains). It follows, therefore, that there is some rate between zero and 100 percent at which government revenue is maximized. If the potential conversion of ordinary income to capital gain income is ignored, the revenue maximizing tax rate is that tax rate at which the realization elasticity with respect to the tax rate is exactly equal to -1.0 .

2. Functional Form of Equations From Which Estimates of Elasticity Are Derived

Economists represent economic relationships by a mathematical formula. For example, ignoring non-tax factors, the relationship between realization of gains and tax rates might be represented by the following equation:

$$G = a + bt \quad [4]$$

In this equation, G represents gain realizations, t the marginal tax rate, and a and b are parameters. Theory would predict that b should be a negative number because it is expected that gains realizations will increase as rates decrease.

There is no one correct mathematical equation which represents this relationship. Economists have utilized several different equa-

tions as models of this same basic economic relationship. Other equations utilized follow:⁶⁴

$$\text{LN}(G) = a + b\text{LN}(t) \quad [5]$$

$$\text{LN}(G) = a + bt \quad [6]$$

$$\text{LN}(G) = a + bt + ct^2 \quad [7]$$

In these equations, LN denotes the natural logarithm; as before, G and t denote gain realizations and the marginal tax rate; t^2 represents the square of the marginal tax rate; a, b and c denote parameters. Economists write these models to apply statistical methods to the available data to quantify the economic relationships. Statistical methods permit the analyst to estimate the parameters.

Each of the mathematical models in equations [4] through [7] describes the same economic relationship: gain realizations are affected by tax rates. No theoretical reason exists to prefer one model over another. In the economics literature on capital gains, unlike other areas of economics, the models utilized have not been derived from an explicit underlying model of taxpayer behavior. Often the model chosen for estimation is chosen for the convenience it offers the investigator in applying the statistical method of estimation. The primary purpose for even writing such models has been to apply statistical methods to data to report an estimate of the elasticity of taxpayer response.

Elasticities can be calculated from each of the equations. The value of the elasticity depends on the parameters. The equations below compute the elasticities corresponding to equations [4] through [7] (e_i denotes the elasticity derived from equation i):

$$e_4 = b(t/G) \quad [8]$$

$$e_5 = b \quad [9]$$

$$e_6 = bt \quad [10]$$

$$e_7 = bt + 2ct^2 \quad [11]$$

Except for equation [9], the elasticity varies with the tax rate and in the case of equation [8] it varies with the level of gains as well. This observation is important because it is possible for each of

⁶⁴ Examples of these equations can be found in CBO 1988 and Auerbach, "Capital Gains Taxation and Tax Reform," *National Tax Journal*, 1989.

these different models to agree on an estimate of the elasticity of taxpayer responsiveness when, for example, tax rates on gains are 25 percent and gain realizations are 1,000, but to disagree substantially about what that equation would imply about the revenue maximizing tax rate.

To see this point, assume that each of the models has estimated that the elasticity is -0.5 at a tax rate of 25 percent and realizations of 1,000. Solving equations [8] through [11] produces parameter values for \mathbf{b} in equations [4] through [7]. Below, b_i represents the value of the parameter \mathbf{b} in equation i which is consistent with an elasticity of -0.5 when evaluated at a tax rate of 25 percent:

$$b_4 = -20.0 \quad [12]$$

$$b_5 = -0.5 \quad [13]$$

$$b_6 = -0.02 \quad [14]$$

$$b_7 = 54.5 \text{ and } c_7 = -1.0904 \quad [15]$$

Given these parameter values,⁶⁵ and remembering that the revenue maximizing tax rate is the level at which the elasticity equals one in absolute value, reveals that equation [5] would predict no tax rate at which revenue is maximized. Increases in the tax rate would always increase revenue. The elasticity is constant, always less than 1.0. Equation [4] would predict that revenue would be maximized at a tax rate of 37.5 percent. Equation [6] would predict that revenue would be maximized at a tax rate of 50 percent. Equation [7] would predict that revenue would be maximized at a tax rate of 25 percent. However, as a quadratic equation, equation [7] would also predict that revenue would be minimized at a tax rate of -0.02 percent.⁶⁶ Several conclusions can be drawn from this example.

First, it is not the case that one of the models is better than the others, nor that any one of the models is obviously wrong, but rather that models are approximations to reality. They are limited by the range of the observed variables. For example, between 1954 and 1986, the top marginal tax rate on capital gains ranged from approximately 20 percent to 35 percent. All of the above models could do an excellent job of approximating taxpayer behavior within that range, but they may not accurately predict taxpayer behavior outside of that range. The revenue maximizing tax rates predicted by equations [4] and [6] would both fall outside the observed range of tax rates. The prediction of equation [7] would fall inside the ob-

⁶⁵ These are arbitrary choices of parameter values for equation [7]; there are an infinite number of possible parameter combinations.

⁶⁶ A negative tax rate is a subsidy. Equation [7] predicts subsidies to taxpayers larger than 0.02 percent would reduce revenue losses.

served range, but also leads to a prediction about subsidies which justly could be called absurd.

Second, the revenue maximizing tax rate is extremely sensitive to the choice of functional form. But, as stated previously, there is no theoretical reason to prefer one functional form to another.

Third, if over a given range of tax rates one analyst assumes a high elasticity, while another analyst assumes a lower range of elasticities, it does not follow that the first analyst assumes a lower revenue maximizing tax rate than does the second analyst. In this example, the equations were defined to produce an elasticity of -0.5 at a tax rate of 25 percent.

Reference to actual data may aid this discussion. Equation [1] and equation [2] in Appendix A both predict comparable taxpayer elasticities when evaluated at tax rates of 20 percent. However, since equation [1] is of the same form as equation [5] while equation [2] is of the same form as equation [6], equation [1] does not predict a revenue maximum while equation [2] would. Equation [2] predicts a revenue maximizing tax rate of 29.7 percent, because the parameter estimate for the marginal tax rate variable is -0.0337 . The parameter estimate for the marginal tax rate variable used by the Joint Committee staff in a similar equation is -0.0351 , which predicts a revenue maximizing rate of 28.5 percent.

The importance of the arbitrary nature of the functional form in arriving at a revenue maximizing tax rate cannot be overemphasized. For example, a Treasury analysis of the 1978 tax reduction used the following mathematical formulation:⁶⁷

$$\ln(G) = a + 14.216(t) - 29.522\text{sqrt}(t), \quad [16]$$

where $\text{sqrt}(t)$ is the square root of the tax rate. From this model, the Treasury predicted that reducing the top marginal tax rate from approximately 35 percent to 28 percent in 1978 would increase revenue. The revenue maximizing tax rate derived from this mathematical model is a tax rate of 0.5 percent. As a quadratic equation, the revenue minimizing tax rate would be 93.2 percent.^{67a} An additional implication of the equation is that the revenue raised with a tax rate of 100 percent (when presumably taxpayers would not realize gains) exceeds that to be raised at a tax rate of 87 percent. The point, however, is not that the Treasury model is a poor model, but rather that the notion of the revenue maximizing tax rate is not very useful in analyzing proposed tax changes of this type.

3. Additional Critique of Revenue Maximizing Tax Rates As An Indicator of Taxpayer Behavioral Response

The notion of a revenue maximizing tax rate is also subject to theoretical criticism. The discussion above examined the derivation of revenue maximizing tax rates from models which predict taxpayer realizations. None of the above equations accounts for the ability

⁶⁷ Treasury 1985, p. 166.

^{67a} 93.2 percent is the revenue minimizing tax rate among taxes greater than 0.5 percent. Of course, a tax rate of zero yields no tax revenue.

to convert ordinary income into capital gains. If conversion possibilities exist, then the revenue maximizing tax rate derived from an equation which predicts realizations does not tell the analyst where total revenues are maximized.

In theory, the revenue maximizing tax rate should depend on the overall tax regime which taxpayers face. For example, theoretically, taxpayers respond to tax rates differently when there is vigorous enforcement of the tax laws than when enforcement is lax. Similarly, for gain recognition, the spread between the ordinary tax rate and the tax rate on gains should affect taxpayer behavior. If taxpayer response to tax rates is different in different tax regimes, then the revenue maximizing tax rate should be different in different tax regimes. Unfortunately, all the studies which examine taxpayer behavior rely on data drawn from earlier tax regimes. Generally, studies have not attempted to account for improved reporting or the spread in tax rates on gain income and other income.⁶⁸

The Joint Committee staff believes it is inappropriate to draw conclusions about a revenue maximizing tax rate based on data drawn in substantial part from a tax regime prior to 1982 which had more lax reporting of gain realizations and, which prior to 1987, had substantially higher tax rates on ordinary income than on income from capital gains. While the criticism that analysis of taxpayer responsiveness should depend on the tax regime rightfully applies to estimates of elasticity as well, the Joint Committee staff believes that the variability introduced by the choice of the mathematical formula makes the criticism more acute for discussions of a revenue maximizing tax rate. As noted, in analyzing taxpayer responsiveness in terms of elasticity, the Joint Committee staff does try to account for the effect of the applicable tax regime such as when the staff makes adjustments for income conversion opportunities and inclusion of a gains preference under the AMT.

⁶⁸ Three exceptions are: CBO 1988; Cook and O'Hare, "Issues Relating to the Taxation of Capital Gains," 1987; and Poterba, "Tax Evasion and Capital Gain Taxation," (May 1987).

APPENDIX C

Technical Description of Distributional Analysis

The data used to analyze the extent to which taxpayers realize capital gains on a recurring basis come from a panel of data collected for 1979 through 1983. These data were assembled to study capital gain realizations.⁶⁹ While not containing detailed transaction information for each year, these data report the aggregate gain realizations, if any, for the same taxpayers in each of five consecutive years.⁷⁰ In addition, the 1985 SOCA data also were analyzed to measure the extent to which gains realized within one year are realized by taxpayers who undertake only one transaction as opposed to multiple transactions.

1. Results from the Panel Data

a. Incidence of multiple capital gain realizations

Creation of an income classifier for the analysis.—For this analysis, the Joint Committee staff defined the income classifier to be the five-year average of the taxpayer's adjusted gross income (AGI). For example, if the taxpayer's AGI was \$30,000 in 1979, \$31,000 in 1980, \$35,000 in 1981, \$36,000 in 1982, and \$40,000 in 1983, his five-year average income would be \$34,400. This classifier includes the includable portion of long-term capital gains in income.

Dollar value of gains.—Table 14 reports the incidence of the dollar value of multiple capital gain realizations accruing to each income class over the five-year period. During the five-year period, individual taxpayers realized approximately \$419 billion in net long-term capital gains in excess of short-term losses. Of that total, individual taxpayers included in income in excess of \$142 billion of capital gains (during that period a portion of long-term gains was excludable). Only 9.8 percent of the dollar value of included gain was realized by taxpayers who realized gains in only one year of the five in the panel. By contrast, 58.9 percent of the dollar value of included gain was realized by taxpayers who realized gains in each and every year of the panel. Taxpayers whose AGI averaged in excess of \$200,000 and realized gains in each of the five years realized nearly one-third of all gains. Taxpayers whose AGI averaged less than \$100,000 annually and realized gains in only one of the five years realized less than 7 percent of all gains.

⁶⁹ These data are the basis of one of the recent Treasury studies on capital gains. Auten, Burman, and Randolph, "Estimation and Interpretation of Capital Gains Realization Behavior: Evidence from Panel Data," 1989.

⁷⁰ The realization data contained in the 1979 to 1983 panel appear to be generally consistent with other data on realizations, such as the 1985 Sale of Capital Assets (SOCA) data, which are the most recent detailed information available.

Table 14.—Incidence of Multiple Capital Gain Realizations by 5-year Average Adjusted Gross Income, 1979–83
Panel—Dollar Value of Gains ¹

[Millions of dollars]

| Average AGI | Taxpayers reporting gains in only 1 of 5 years | | Taxpayers reporting gains in 2 of 5 years | | Taxpayers reporting gains in 3 of 5 years | | Taxpayers reporting gains in 4 of 5 years | | Taxpayers reporting gains in each of 5 years | | Row total | |
|-----------------------------|--|----------|---|----------|---|----------|---|----------|--|----------|-----------|---------|
| | Dol-lars | Per-cent | Dol-lars | Per-cent | Dol-lars | Per-cent | Dol-lars | Per-cent | Dol-lars | Per-cent | Dollars | Percent |
| Less than \$10,000..... | 607 | 0.4 | 1,070 | 0.8 | 1,087 | 0.8 | 1,361 | 1.0 | 4,061 | 2.8 | 8,186 | 5.7 |
| \$10–\$20,000 | 931 | 0.7 | 1,259 | 0.9 | 261 | 0.2 | 365 | 0.3 | 922 | 0.6 | 3,738 | 2.6 |
| \$20–\$30,000 | 1,266 | 0.9 | 419 | 0.3 | 228 | 0.2 | 194 | 0.1 | 1,902 | 1.3 | 4,009 | 2.8 |
| \$30–\$40,000 | 1,403 | 1.0 | 740 | 0.5 | 1,859 | 1.3 | 1,091 | 0.8 | 2,272 | 1.6 | 7,365 | 5.2 |
| \$40–\$50,000 | 1,190 | 0.8 | 1,452 | 1.0 | 468 | 0.3 | 1,047 | 0.7 | 1,636 | 1.1 | 5,793 | 4.1 |
| \$50–\$75,000 | 2,612 | 1.8 | 2,296 | 1.6 | 789 | 0.6 | 1,807 | 1.3 | 7,746 | 5.4 | 15,250 | 10.7 |
| \$75–\$100,000 | 1,788 | 1.3 | 1,214 | 0.9 | 1,685 | 1.2 | 400 | 0.3 | 7,208 | 5.1 | 12,295 | 8.6 |
| \$100–\$200,000 | 2,165 | 1.5 | 2,588 | 1.8 | 4,872 | 3.4 | 4,344 | 3.0 | 12,513 | 8.8 | 26,482 | 18.6 |
| Greater than \$200,000..... | 1,954 | 1.4 | 1,905 | 1.3 | 3,436 | 2.4 | 6,508 | 4.6 | 45,639 | 32.0 | 59,442 | 41.7 |
| Column total | 13,914 | 9.8 | 12,943 | 9.1 | 14,685 | 10.3 | 17,117 | 12.0 | 83,899 | 58.9 | 142,558 | 100.0 |

¹ Dollar value of gains included in AGI. During the period 1979 to 1983 a portion of long-term gains was excludable.

Number of returns with gains.—Table 15 presents the incidence of multiple capital gain realizations accruing to each income class over the five-year period measured by number of returns. As in Table 14, the income classifier is average AGI. During the five-year period, approximately 15 million taxpayers realized gains. Nearly 44 percent of those taxpayers realizing gains realized gains in only one year of the five. More than one fifth of taxpayers realizing gains realized gains in only one year and had average AGI of \$50,000 or less. Just under 16 percent of taxpayers who realized gains during the five-year period did so in each year.

Table 15.—Incidence of Multiple Capital Gain Realizations by 5-Year Average Adjusted Gross Income, 1979-83
Panel—Number of Returns

[Thousands of returns]

| Average AGI | Taxpayers reporting gains in 1 of 5 years | | Taxpayers reporting gains in 2 of 5 years | | Taxpayers reporting gains in 3 of 5 years | | Taxpayers reporting gains in 4 of 5 years | | Taxpayers reporting gains in each of 5 years | | Row total | |
|-----------------------------|---|---------|---|---------|---|---------|---|---------|--|---------|-----------|---------|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Less than \$10,000..... | 330 | 2.2 | 121 | 0.8 | 93 | 0.6 | 61 | 0.4 | 49 | 0.3 | 654 | 4.3 |
| \$10-\$20,000 | 738 | 4.8 | 230 | 1.5 | 145 | 0.9 | 134 | 0.9 | 140 | 0.9 | 1,387 | 9.1 |
| \$20-\$30,000 | 842 | 5.5 | 292 | 1.9 | 208 | 1.4 | 106 | 0.7 | 184 | 1.2 | 1,632 | 10.7 |
| \$30-\$40,000 | 760 | 5.0 | 295 | 1.9 | 281 | 1.8 | 145 | 0.9 | 162 | 1.1 | 1,643 | 10.7 |
| \$40-\$50,000 | 833 | 5.4 | 314 | 2.1 | 165 | 1.1 | 119 | 0.8 | 162 | 1.1 | 1,593 | 10.4 |
| \$50-\$75,000 | 1,739 | 11.4 | 696 | 4.5 | 462 | 3.0 | 307 | 2.0 | 608 | 4.0 | 3,812 | 24.9 |
| \$75-\$100,000 | 863 | 5.6 | 431 | 2.8 | 300 | 2.0 | 196 | 1.3 | 396 | 2.6 | 2,186 | 14.3 |
| \$100-\$200,000 | 521 | 3.4 | 294 | 1.9 | 312 | 2.0 | 314 | 2.1 | 464 | 3.0 | 1,905 | 12.4 |
| Greater than \$200,000..... | 62 | 0.4 | 60 | 0.4 | 49 | 0.3 | 86 | 0.6 | 240 | 1.6 | -497 | 3.2 |
| Column total..... | 6,687 | 43.7 | 2,733 | 17.6 | 2,015 | 13.2 | 1,468 | 9.6 | 2,404 | 15.7 | 15,307 | 100.0 |

Summary.—Among taxpayers who realized gains in the period 1979 through 1983, a substantial number of taxpayers realized one-time, or nonrecurring, gains. However, in dollar value, the bulk of realizations were undertaken by taxpayers who were repeatedly in the market.

b. Year-to-year variance in taxpayer income

Inclusion of capital gains in any income classifier may temporarily make a taxpayer appear wealthier than he would appear on a recurring basis. To investigate the importance of this criticism, the Joint Committee staff has constructed a "transition matrix" which shows the probability that a taxpayer in a given income class in a given year is in the same or another income class in the succeeding year.

Description of methodology.—Table 16 is a transition matrix for 1981 to 1982, for those taxpayers who realized capital gains in 1981. The rows are classified by the taxpayer's 1981 AGI, including realized gains. The columns are classified by the taxpayer's 1982 AGI, including realized gains, if any. All entries are a percentage of the number of taxpayers in the given income class who realized capital gains in 1981.⁷¹ The entry of 17.8 in the third column of the second row says that 17.8 percent of taxpayers who had a 1981 AGI between \$10,000 and \$20,000, and reported income from capital gains in 1981, had a 1982 AGI between \$20,000 and \$30,000.

⁷¹ Note that the income classifier here is not the same as that of Tables 14 and 15, although, like Table 15, Table 16 examines numbers of returns rather than dollar values.

Table 16.—Transition Matrix of 1982 AGI by 1981 AGI, Taxpayers With Capital Gains

[Percentage distribution of returns]

| AGI (1981 income class) | 1982 income class | | | | | | | | |
|------------------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|------------------------|------------------------|
| | Less than \$10,000 | \$10,000 to \$20,000 | \$20,000 to \$30,000 | \$30,000 to \$40,000 | \$40,000 to \$50,000 | \$50,000 to \$75,000 | \$75,000 to \$100,000 | \$100,000 to \$200,000 | Greater than \$200,000 |
| Less than \$10,000 | 56.3 | 25.8 | 7.3 | 2.0 | 0.1 | 3.4 | 0.1 | 2.9 | 2.3 |
| \$10-\$20,000 | 9.6 | 50.5 | 17.8 | 10.7 | 4.6 | 6.0 | 0.7 | 0.0 | 0.0 |
| \$20-\$30,000 | 6.1 | 14.6 | 43.0 | 22.5 | 10.3 | 2.1 | 0.0 | 1.5 | 0.0 |
| \$30-\$40,000 | 4.7 | 8.3 | 15.3 | 43.3 | 14.1 | 12.7 | 1.7 | 0.0 | 0.0 |
| \$40-\$50,000 | 2.9 | 4.2 | 13.3 | 9.9 | 25.5 | 39.1 | 5.1 | 0.0 | 0.0 |
| \$50-\$75,000 | 1.1 | 1.2 | 1.5 | 6.3 | 11.8 | 51.2 | 23.1 | 3.5 | 0.4 |
| \$75-\$100,000 | 0.5 | 1.1 | 1.0 | 2.9 | 3.1 | 19.3 | 45.7 | 25.7 | 0.7 |
| \$100-\$200,000 | 1.2 | 0.2 | 1.3 | 0.7 | 1.2 | 5.8 | 14.5 | 66.6 | 8.6 |
| Greater than \$200,000 | 1.3 | 0.1 | 0.1 | 0.1 | 0.1 | 1.2 | 2.1 | 18.6 | 76.5 |

Results of the analysis.—This transition matrix indicates that very few taxpayers who realize gains move more than one income class away from the income class in which they were the preceding year. Reading down the diagonal (from top left to lower right) indicates that this is generally the case for each income class. For example, of those taxpayers who had AGI between \$100,000 and \$200,000 in 1981, approximately 10 percent had an income less than \$75,000 in 1982. In fact, more than 75 percent had a 1982 income in excess of \$100,000. Examination of transition matrices for 1979 to 1980, 1980 to 1981, and 1982 to 1983 indicate that Table 16 is generally representative of the five-year period.

Summary.—To the extent that relatively few taxpayers have substantial year-to-year variation in income, reliance on an income classifier constructed from one specific year should not create significant biases to a distributional analysis.

2. Results from the SOCA Data

Table 17 presents a distributional analysis, classified by AGI less net capital gain, of those taxpayers who undertook only one transaction in 1985. Table 17 reports that while taxpayers who undertook only one transaction in 1985 represent 44 percent of all taxpayers who reported gains, they account for 21 percent of the dollar value of all gains realized. Consequently, nearly 80 percent of all gains realized in 1985 could be considered recurring gains. Less than 15 percent of the dollar value of all gains realized by those taxpayers who engaged in only one transaction had non-gain incomes less than \$75,000. By contrast, approximately 28 percent of the dollar value of all gains reported in 1985 were realized by the less than 6 percent of all taxpayers who undertook 11 or more transactions in that year. Further, more than 12 percent of the dollar value of all reported gains were realized by the six-tenths of one percent of taxpayers whose non-gain income exceeded \$200,000 and who undertook 11 or more transactions.

Table 17.—Distribution of Capital Gain Realizations¹ by AGI Less Net Capital Gain Among Taxpayers With Only One Transaction 1985

| Adjusted gross income less net capital gain | Number of returns (per-cent) ² | Dollar value of gains (per-cent) ³ |
|---|---|---|
| Less than zero | 0.88 | 1.8% |
| 0 to \$10,000 | 6.17 | 1.0% |
| 10 to 20,000 | 6.90 | 1.7% |
| 20 to 30,000 | 7.85 | 2.7% |
| 30 to 40,000 | 6.03 | 2.5% |
| 40 to 50,000 | 5.58 | 1.8% |
| 50 to 75,000 | 6.88 | 3.1% |
| 75 to 100,000 | 2.02 | 1.7% |
| 100 to 200,000 | 1.37 | 2.2% |
| 200,000 and over | 0.38 | 2.2% |
| All taxpayers with one transaction | 44.06 | 21.1% |
| All taxpayers with more than one transaction..... | 55.94 | 78.8% |

¹ Gain realizations reported on Schedule D.

² Percentage of all taxpayers realizing gains regardless of number of transactions.

³ Percentage of the dollar value of total gain realizations regardless of number of transactions.

Source: Joint Committee on Taxation calculation from 1985 Sale of Capital Assets file.

The Joint Committee staff believes that Table 17 may understate the extent to which capital gains represent a regular component of a given taxpayer's income, rather than isolated, once-in-a-lifetime events. This understatement results from two factors. First, for a gain to be classified as a one-time, nonrecurring event, it must be both the only transaction in which the taxpayer engages in during one specific year, and also the only transaction the taxpayer engages in over a long period of years. Using data from only one year (1985) can address the first, but not the second of these conditions. Any classification based on taxpayers who engage in only one transaction in a given year must overstate the extent to which gain realizations are non-recurring, because some of the taxpayers who realize only one gain in the year of observation may, in later years realize one or more gains. This defect is addressed by examination of the panel data above.

Second, for the purpose of this analysis, the Joint Committee staff defined all transactions which took place on a single day as one transaction. This definition was selected to attempt to account for the case in which a small business owner sells a business and reports separately the gain on inventory, structure, land and equipment. While gain or loss from each asset must be reported separately, all such sales should properly be regarded as part of one

transaction. The Joint Committee staff believes that the "same day, same transaction" rule closely approximates this result because sales of businesses are typically reported as occurring the date the transaction is closed. The Joint Committee staff recognizes, of course, that this definition tends to overstate gains as single transactions because it also treats as a single transaction any number of unrelated sales (*e.g.*, of publicly traded stock) that occur on a single day.



