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Chapter Author: Martin S. Feldstein, Daniel R. Feenberg

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6 Alternative Tax Rules and Personal Saving Incentives: Microeconomic Data and Behavioral Simulations

Martin Feldstein and Daniel R. Feenberg

6.1 Introduction

Personal saving has traditionally accounted for more than half of all real net private saving in the United States. Incentives that increase the personal saving rate therefore have a potentially significant effect of the total rate of capital formation.[1] The purpose of the current paper is to present some new microeconomic evidence that is relevant to evaluating alternative changes in the personal tax treatment of savings and of interest and dividends.

There are, of course, many factors in addition to the personal tax rules that contribute to the low rate of saving in the United States, including consumer credit rules, the social security system, the taxation of business income, and the tax treatment of personal interest expenses. Our focus on the personal tax treatment of savings and the income from savings should not be misinterpreted as an indication that we believe that personal tax rules alone are responsible for the low United States saving rates. We do believe, however, that changes in these tax rules are a potentially useful way of increasing saving.

There has nevertheless long been resistance among both economists and government officials to changing the tax rules to encourage saving.[2]

Martin Feldstein is professor of economics, Harvard University (on leave). He was formerly president of the National Bureau of Economic Research and is currently chairman, Council of Economic Advisers. Daniel R. Feenberg is a research associate at the National Bureau of Economic Research.

The views expressed here are the authors' and should not be attributed to any organization.

1. Total capital formation also depends on government saving and international capital flows. Government saving has always been small and, in the majority of years since 1950, has been negative. Feldstein and Horioka (1980) show that United States net international capital flows have averaged less than 1% of saving and, for the OECD as a whole, are not responsive to domestic differences in saving rates.

2. Some would say to "reduce the features that discourage saving." The difference depends on whether one takes "income" or "expenditure" as the appropriate object of taxation. We need not comment on this issue in the current paper.

The opposition to encouraging saving has in part been a vestige of the Keynesian fear that a higher rate of saving might only increase unemployment. Whatever the relevance of this concern in earlier decades, oversaving is no longer regarded as a potential problem. A further source of opposition to modifying the tax rules to encourage saving has been a concern that any such change would thwart the egalitarian thrust of tax policy. This in turn reflected a belief that the incentive effects of tax changes would be negligible, implying that tax policy could encourage saving only by redistributing disposable income from lower income taxpayers with low marginal propensities to save to higher income taxpayers with high marginal propensities to save.

In contrast, there is now strong professional and political interest in tax changes that could encourage personal saving.[3] This reflects in part a reassessment of the earlier studies that had concluded that saving is not sensitive to the rate of return and therefore also not sensitive to the tax treatment of that return. Because those studies used nominal rather than real interest rates, the interest rate coefficient was biased in a way that made it appear to be insignificant or even to have the reverse sign (Feldstein 1970). New studies that relate saving to an estimate of the *real* net rate of return have suggested that savings do respond positively to this more appropriate measure of the return (Boskin 1978). Unfortunately, the problems of measuring the relevant real expected return are such that the econometric evidence is never likely to be compelling. It is important therefore that the general theory of consumer behavior implies directly that a compensated increase in the real net rate of return necessarily induces individuals to postpone consumption. The effect on saving of a change in the taxation of capital income therefore depends on the timing of tax payments and on the response of government spending.[4] If government spending in each year remains unchanged, national savings must rise. If the compensating changes in the tax keep tax liabilities in each year unchanged, private saving must also increase.[5]

Tax changes that reduce the difference between the pretax and posttax returns on capital may be worthwhile even if the saving rate does not respond positively to the net rate of return. A gap between the pretax and posttax rates of return implies a loss of welfare no matter what the uncompensated savings response. Of course, since the revenue lost by reducing the tax on saving could alternatively be used to reduce some other distorting tax, the desirability of reducing the tax on saving is not unambiguous. Nevertheless, recent investigations in the theory of opti-

3. See, for example, chapter 13 of the present volume as well as Becker and Fullerton (1980), Boskin (1978), Bradford (1980*a*), Feldstein (1977, 1978*a*), Fullerton et al. (1979), King (1980), McLure (1980), Summers (1978), and von Furstenburg (1980).

4. This sentence and the following two sentences are explained in Feldstein (1978*b*).

5. The proposed changes in the tax treatment of saving are compensated changes if not reducing the tax on saving would imply that some other tax would be reduced.

mal taxation do not suggest that the tax rate on the income from savings should probably be lower, and perhaps very much lower, than the tax rate on labor income.[6] If the marginal rate of substitution between current consumption and future consumption is independent of the quantities of leisure consumed, the optimal tax rate on the income from savings is zero (Mirrlees 1976). Substantial departures from this separability assumption still leave it optimal to tax capital income less than labor income. Indeed, if subsidizing retirement consumption reduces the distorting effect of the labor income tax on preretirement work effort, it may be optimal to "tax" the income from saving at a negative rate, i.e. to subsidize it. Explicit calculations of a simple model using empirically plausible but conservative parameter values (i.e. assuming that the compensated supply responses of both labor and saving are zero) imply that there may be a substantial potential welfare gain associated with reducing the tax on capital income and making up the lost revenue by an increase in the tax on labor income (Feldstein 1978*a*; see also Green and Sheshinski 1978 and Summers 1980). More generally, the potential gain from reducing the tax on capital income depends on the extent of the existing wedge between pretax and net-of-tax rates of return. It is significant therefore that in recent years personal, business, and property taxes have taken more than two-thirds of the real pretax return on capital used by nonfinancial corporations (Feldstein and Poterba 1980).

Although economists have generally been concerned with reducing this source of welfare loss, the public and congressional discussion has focused on increasing aggregate saving. Moreover, the recent proposals to encourage saving emphasize the incentive effects of a higher net rate of return and not a redistribution of disposable income from lower income to higher income groups. Indeed, a principal reason for using personal tax changes in addition to changes in business tax rules is to permit a targeting of the tax reduction benefits on middle income taxpayers rather than on all taxpayers in proportion to their existing wealth.

A further reason for directly encouraging an increase in personal saving is to reduce the inflationary pressures that might otherwise accompany a tax-induced increase in the demand for investment. Although the total rate of capital accumulation is constrained by the rate of saving, capital accumulation can be increased without altering the personal tax rules if the corporate tax rules are changed to increase the rate of return after the corporate income tax. This in turn raises the net return to savers and encourages increased saving. If the savings response were rapid enough, the economy would shift to a higher rate of investment with no increase in the rate of inflation. In practice, however, the corporate tax changes would probably raise investment demand more rapidly than the

6. We use the expressions "tax on saving" and "tax on the income from saving" interchangeably.

supply of savings. The result would be an increase in inflationary pressure.[7] Direct tax incentives to save can prevent these inflationary pressures by causing the increase in saving to occur at the same time as the increase in investment demand.

Two dynamic aspects of saving are particularly important. First, because saving represents an adjustment of the stock of wealth, a relatively small change in the desired level of wealth can induce a relatively large increase in the rate of saving. Second, because the desired level of wealth depends on the expected *future* net rates of return, an anticipated reduction in the future rate of tax on investment can induce a rise in current saving. Thus there can be an increase in saving without any concurrent government deficit.[8]

There is surprisingly little econometric evidence about individual saving behavior and the likely magnitude of response to alternative tax rules. In particular, there is no evidence that deals explicitly with such things as the *anticipated* rate of return, the effect of the tax rate per se, or the impact of nonlinear rules like the maximum levels of deductible savings for the current Individual Retirement Accounts. Although we cannot fill these gaps in the current paper, we believe that we can provide some useful information on the current distribution of saving, wealth, and investment income in relation to tax rates and total income. This evidence can be used to evaluate the potential impact and revenue cost of alternative tax rules in a way that is just not possible without detailed microeconomic evidence. In particular, we focus on the conflict between the desire to limit the deductions or exclusions of the individual filer (in order to reduce the total revenue loss and to focus the benefits on middle income taxpayers) and the possibility that such limits would eliminate any *marginal* incentive for most taxpayers.

Our analysis uses two bodies of microeconomic data. The principal data source is the Treasury's public use sample of individual tax returns. We use a stratified random sample of 26,643 individual tax returns for 1972 (a one-in-four random sample of the full public use sample) in conjunction with the NBER TAXSIM model,[9] which computes tax liabilities and tax rates based on the tax law as of 1972 and the alternative modifications. This data set provides detailed information on current interest and dividends, labor income, and total taxable income for each individual. A special advantage of the 1972 data is that the exact age of

7. The inflationary pressure could of course be checked by a tighter monetary policy, allowing the money rate of interest to rise relative to the Wicksellian natural rate of interest during the transition. But such exclusive reliance on monetary policy in the transition is not without substantial real costs in our economy with many long-term fixed interest contracts.

8. These ideas about the timing of tax changes are discussed briefly in Feldstein (1980) and developed more fully in chapter 13 of the present volume.

9. The economists who have participated in the development of TAXSIM are Daniel Feenberg, Martin Feldstein, Daniel Frisch, Larry Lindsey, and Harvey Rosen.

each taxpayer is included (based on IRS examination of Social Security Administration records for each individual). Our second body of data is the 1972 Consumer Expenditure Survey of the Bureau of Labor Statistics. Although the sample of 7,795 observations is inferior to the TAXSIM data in a number of ways,[10] it has the unique advantage of containing information on individual financial saving. Since the TAXSIM sample used in this paper is also for 1972, results obtained with the two data sets are generally comparable.

Although a great many specific proposals to encourage saving have been made, all of them have in common the purpose of increasing the net rate of return on saving or, equivalently, of increasing the amount of future consumption that can be obtained per dollar of current consumption that is foregone. The proposals that are particularly concerned with saving and that form the focus of our analysis can usefully be divided into two types: (1) those that allow the taxpayers to exclude some amount of *saving* from taxable income and (2) those that allow the taxpayer to exclude some amount of *interest and dividend income* from taxable income.[11] Before examining the specific saving proposals, we comment briefly on some more general tax proposals that also might encourage saving.

The most general of these proposals is to replace the income tax with a tax on consumer spending.[12] In comparison to the income tax, a consumption tax in effect allows a deduction for all saving. A more modest partial move in the direction of a consumption tax would be to adopt a value-added tax to replace part of the current tax structure. This again would be like the deduction method because income that is saved would avoid the value-added tax.

Several general proposals that would reduce the effective tax rate on interest and dividends have also been actively discussed. Some form of integration of the corporate and personal taxes (presumably by giving individuals a credit for corporate taxes in proportion to dividends received) would raise the net rate of return on equity investment and

10. The Consumer Expenditure Survey contains fewer observations on high income families, is aggregated into family units rather than taxpayer units, and does not contain a precise measure of taxable income.

11. These two methods can be equivalent in the sense that they define the same lifetime budget constraint for an individual and therefore induce the same consumption choices. This equivalence is violated to the extent that these are bequests or that the individual's marginal tax rate varies over time. Moreover, in practice these proposals would differ for a very long transition period because different cohorts of taxpayers are affected differently; e.g. the benefits of deducting saving have little effect on those who are already retired while an interest and dividend exclusion does; more generally, on the nonequivalence in the transition generation of consumption taxes (that allow a savings deduction) and labor income taxes (that exclude capital income) see Feldstein (1978*b*).

12. This proposal has a long and venerable pedigree that is discussed in Kaldor (1955) and Musgrave (1959). See also Bradford (1980*b*), Feldstein (1976), Fisher (1937), Kay and King (1978), the Meade Committee (1978), and the United States Treasury (1977).

therefore encourage equity finance as well as increased saving. The same would be true of a proposal to permit individuals to exclude a limited amount of dividends that are reinvested in new issue corporate stock. Adjusting the measurement of interest income to exclude some or all of the effect of inflation on interest rates would encourage the use of debt as well as increased saving. The proposals to reduce the maximum marginal tax rate to 50% or to tax "personal services income" and "investment income" on two separate schedules would raise the net return on all forms of capital.

Although these general proposals might be useful in encouraging saving, we shall not explore them further in the paper, in order to concentrate on the simpler and more direct deduction and exclusion proposals. Section 6.2 examines the deduction approach and considers the consequences of such a change in both the short-run transition and the longer run. The next section then analyzes the short- and long-run consequences of interest and dividend exclusion proposals. There is a brief concluding section.

6.2 Deductions for Saving

Under existing law, an individual who is not a participant in an employer-sponsored pension plan[13] can establish an Individual Retirement Account (IRA) and contribute up to 10% of his wage and salary, with a limit of $1,500 per year. These contributions are deductible from total income in calculating taxable income, and the earnings on the assets in the IRA are not subject to tax. A penalty is imposed if the funds are withdrawn from the IRA before the individual reaches age fifty-nine. Withdrawals after that age are taxable as ordinary employment income. The IRA is thus similar to a consumption tax with respect to the eligible amount of saving.[14]

The saving incentive provided by the IRA could be increased in three ways: (1) by raising the percentage and/or dollar ceilings on contributions; (2) by extending the IRA option to everyone with wage and salary income and not just to those who are not already participating in a pension plan; and (3) by increasing the liquidity of the IRA accounts by permitting withdrawals after as little as (say) four years. To the extent that IRA participants are effectively constrained by either the 10% or $1,500 limits, the IRA does not provide any marginal incentive to save more. In the present paper we compare some of the implications of 10%

13. A "participant" in such a pension plan need not have or be accruing any vested benefits.

14. Individuals with self-employment income are eligible for a similar program. Anyone can contribute up to 15% of self-employment income to a Keogh Plan, with a maximum of $7,500. The contribution is deductible, and the income of the plan is untaxed. Withdrawals are taxed as ordinary employment income.

and 15% limits with ceilings of $2,000 and $3,000. Because higher limits increase the revenue cost of these plans, we also consider a combination of a higher ceiling and partial deductibility, e.g. allowing an individual to contribute 15% of earnings up to $3,000 but deduct only half of this amount. Such partial deduction plans increase the range of marginal effectiveness although, for previously intramarginal contributions, they reduce the incentive as well as the cost. (Because the 1972 tax return data do not separate the earnings of husbands and wives, all of the proposals are defined in terms of the taxpaying unit rather than the individual.)

The current rule that limits eligibility for an IRA to those who do not participate in employer pension plans eliminates approximately 50% of all employees.[15] Moreover, those employees without pension coverage tend to be those who are least likely to save and least likely to be affected by tax considerations; they have low incomes and are frequently quite young.[16] The current eligibility limit thus eliminates substantially more than 50% of those who would be encouraged by saving deductibility if it were generally available. The current paper examines a savings deduction plan in which all individuals with wage and salary income may participate.[17]

Finally, the restriction that funds must remain in the IRA until the individual reaches age fifty-nine (or be subject to a special withdrawal tax and other penalties) substantially reduces the liquidity of the IRA savings. For many individuals, this reduction in liquidity may outweigh the higher net-of-tax return that the IRA offers. An individual at age forty may be unwilling to commit funds for nineteen years even in exchange for a higher rate of return. This illiquidity could be eliminated by allowing individuals to choose at the end of a short period like four years between withdrawing the funds in the account (and paying tax on the amount) or "rolling over" the funds for another four-year period. In practice, individuals who are reluctant to commit funds for a very long period may decide sequentially to leave the funds in the IRA account rather than pay the tax on the withdrawal. Although we have no way to examine this issue with the existing data, this possibility for making IRA accounts more attractive should be borne in mind when considering the likely responses to extending the IRA option to all individuals.

If the savings deduction is judged as an incentive to a higher rate of saving,[18] there are three potential problems. First, during a transition

15. On the extent of private pension coverage, see President's Commission on Private Pensions (1980).

16. The number of IRA plans indicates that only about 5% of those who are eligible have actually established an IRA; see Lubick (1980), p. 14.

17. The Canadian government introduced such a plan in 1972.

18. As opposed to judging it in terms of removing the tax wedge between the pretax and posttax rates of returns or of switching the tax base to avoid what some regard as an unjust double taxation of income that is saved.

period after the tax law is changed, individuals can reduce their tax liability without any increase in saving by transferring previously accumulated assets into the special account. Under an IRA–type plan with a 10% limit, an individual with assets equal to one year's earnings could obtain the maximum savings deduction for a decade without doing any additional saving. Indeed, for such an individual, the tax change would provide no marginal incentive to save while the tax reduction for previous saving would increase disposable income and therefore presumably cause an increase in consumer spending.[19] The extent to which this is a problem depends on the amount of financial assets (relative to earnings) that individuals have available and on their willingness to sacrifice the liquidity of those assets by committing them to an IRA.[20] We shall examine in detail the amount of financial assets that individuals have and the potential revenue effect if these assets were transferred to a special savings account during a transition period after the introduction of a savings deduction rule.

The second potential problem with a savings deduction plan is that, even after the transition period in which individuals merely transfer preexisting assets into a special savings account, there would be some individuals for whom a savings deduction with dollar and percentage limits would provide either no marginal incentive or a marginal incentive that is small relative to the intramarginal tax reduction. Thus an individual earning $10,000 and saving $900 might increase his saving by $100 to the $1,000 maximum allowed by a 10% ceiling but would receive a tax reduction on the entire $1,000 amount. With even a 20% marginal tax rate, the tax cost would be double the induced saving. We shall investigate the potential importance of the problem by examining the current distribution of savings relative to wage and salary income and the potential savings and revenue effects if individuals respond in different ways to the change in tax rules.

The third problem is that individuals may not be very responsive to the change in the net rate of return implied by the savings deduction. Because we are uncertain about the likely response, we shall present results for several different behavioral assumptions. At one extreme, we assume no behavioral response. At the other, we assume that all individuals take maximum advantage of the potential deduction. We also investigate a

19. This would, of course, be offset by a reduction in other consumer spending caused by the increase (or lack of decrease) in some other tax.

20. Individuals might in principle borrow and use the borrowed funds to finance their IRA contributions, thus earning tax-free interest in the IRA and paying tax-deductible interest on the borrowed funds. We ignore the possibility of borrowing on the assumption that most individuals have little opportunity to borrow without collateral and that the expanded IRA (like the existing IRA and Keogh) could not legally be accepted as collateral for a loan. Individuals might borrow by enlarging their house mortgage, but this would be discouraged by the need to hold most of the proceeds of such borrowing for several years before it could be contributed to the IRA.

response described in terms of the elasticity of current consumption with respect to the marginal rate of transformation between current and future consumption.

Before looking at the specific results, four notes of caution are appropriate. First, our analysis is only a partial equilibrium one. We assume that interest rates and other factor incomes remain unchanged. Second, the only behavioral response that we consider is saving. Since a higher net rate of return improves the trade-off between current work and future consumption, some individuals may respond by working more. Their saving would increase even if their saving rate remained unchanged. Of course, for some individuals the income effect would dominate and work effort would be decreased.[21] We ignore any such change in work effort and labor income. Third, we do not adopt an explicit life-cycle framework for our analysis. This implies that we do not take age explicitly into account in calculating the response to tax rules[22] and that we do not deal separately with the increased saving of the savings cohorts and their subsequent increased dissaving. Analyzing the complex dynamics of explicit intertemporal optimization would require much better data than currently exist. Moreover, there is no agreement on the extent to which individual saving does correspond to such rational life-cycle optimization. Finally, we consider only limited tax consequences; in particular, we ignore the effects of increased accumulation on corporate tax revenue.

6.2.1 Asset Transfers during Transition

We begin our analysis by examining the extent to which individuals could respond to an expanded IRA program by transferring preexisting assets into the special savings accounts. The data we present show that this is a relatively unimportant problem except perhaps for those with relatively high incomes.

Table 6.1 presents the cumulative distribution of gross financial assets in each income class based on the 1972 Tax Model. Although the tax returns do not report financial assets as such, the gross financial assets can be estimated from the reported interest and dividends. For this purpose, we have used a uniform dividend yield of 3% for all taxpayers and a uniform interest rate of 4.5%.[23] It may be useful to bear in mind that in 1972 per capita disposable personal income was $3,837 and by 1980 it had

21. If the change in the saving rule is a compensated change, the income effect could be ignored. Of course, the alternative tax change might also affect current work and thus current saving.

22. In some calculations, however, we assume that taxpayers over the age of sixty-five are not eligible to participate.

23. The 1972 mean dividend price ratio for the Standard and Poor's corporate index of 500 stocks was 2.84%. The maximum interest rate that could be paid on time deposits was 4.5%.

Table 6.1 **Cumulative Distribution of Gross Financial Assets**

Gross Financial Assets	AGI Class (× $1,000)				
	0–10	10–20	20–30	30+	All
$0	69	38	16	6	55
$1,000	79	54	27	10	66
$2,000	83	63	34	13	72
$5,000	89	75	47	20	80
$10,000	93	84	62	28	87
$20,000	96	91	74	39	92
$40,000	98	96	85	54	95

Source: 1972 Tax Model.
Note: Dividend and interest are capitalized at .03 and .045, respectively. Individuals over age sixty-five are excluded.

somewhat more than doubled (in current prices) to $8,010. The population to which this tabulation refers includes all families and unrelated individuals, except those headed by someone aged sixty-five or older. Note that among those with incomes under $10,000 (approximately $20,000 at 1980 levels), 79% had less than or equal to $1,000 of gross financial assets. Only 11% had as much as $5,000.

Since our concern is with the extent to which individuals could use existing financial assets to contribute to an IRA–type plan without doing any new saving, we have also restated these estimates of gross financial assets in terms of the number of years that they could be used to fund the maximum IRA–type contribution for which the individual is eligible. For example, with an allowable IRA–type contribution equal to 10% of income with a maximum of $2,000, an individual earning $15,000 with $7,000 of gross financial assets would have enough to finance somewhat more than four years of maximum IRA contributions. Table 6.2 shows the cumulative distribution of "potential years" for taxpayers grouped by income class based on IRAs equal to the lesser of $2,000 and 10% of wage and salary income. These data exclude taxpayers over age sixty-five and apply the IRA rule to taxpaying units rather than separately to each individual. Note that in the class with adjusted gross incomes (AGIs) of less than $10,000, 79% did not have enough financial assets to finance even a single year's maximum IRA contribution. Since this under $10,000 group contained 60% of all taxpayers below age sixty-five, it is clear that for the great majority of taxpayers there is little problem of a substantial revenue loss while these individuals finance IRA–type contributions out of previously accumulated assets. Even in the higher income group with 1972 AGIs of $10,000 to $20,000, 60% lacked even one year's worth of IRA contributions at the maximum allowable rate. Only about 15% of taxpayers with AGIs below $10,000 and 20% with AGIs between $10,000

Table 6.2 **Cumulative Distribution of the Number of Years of Transferable Assets**

Years of Transferable Assets	AGI Class (× $1,000)				
	0–10	10–20	20–30	30+	All
1	79	60	39	27	69
2	82	69	47	31	75
3	84	73	54	34	78
4	85	77	60	36	80
5	86	80	64	38	82
6	87	82	68	40	83
7	88	84	70	41	85
8	89	85	73	44	86
9	90	87	74	46	87
10	90	88	76	47	88
11	91	89	79	49	88
12	91	89	79	50	89
13	91	90	81	52	89
14	91	91	82	53	90
15	91	91	82	54	90
16	91	92	82	55	90
17	92	92	83	55	91
18	93	93	84	57	92
19	93	93	85	58	92

Source: 1972 Tax Model.

Note: Cumulative percentage of taxpayers without the indicated number of years' worth of financial assets to finance an IRA equal to 10% of wages, with a ceiling of $2,000, solely from those assets. Individuals over age sixty-five are excluded. Dividends and interest are capitalized at .03 and .045, respectively.

and $20,000 had enough financial assets to finance as much as five years of contributions.

Table 6.3 presents the aggregate implications of this potential asset transfer for a savings deduction plan that allows contributions of 10% of income with a $2,000 annual maximum. The table shows that the maximum contribution that individuals could legally deduct totaled $56.1 billion, or slightly more than $800 per taxpayer. By contrast, the maximum amount that could be financed by transfer from existing assets in the first year was only $26.9 billion. It should be emphasized that this maximum transfer would occur only if all taxpayers were prepared to lose the liquidity of these assets in order to obtain the higher net-of-tax return. (Note that because of the $2,000 ceiling approximately four-fifths of this deduction accrues to those with incomes below $20,000 and nearly all of it to those with incomes below $30,000.)

The distribution of assets in tables 6.1 and 6.2 implies that this first-year transfer would exhaust much of the available assets of most taxpayers.

Table 6.3 **Aggregate Effects of Alternative Savings Deduction Plans**

AGI Class (× $1,000)	Millions of Returns	Maximum Contribution ($ billions)	Contributions from Assets ($ billions)	
			Year 1	Year 3
0-10	42.2	17.9	5.1	3.1
10–20	22.2	28.6	14.4	8.1
20–30	4.1	7.2	5.2	3.6
30+	1.6	2.4	2.1	1.9
All	70.0	56.1	26.9	16.8

Source: 1972 Tax Model.

Note: Potential reductions in taxable income with the introduction of a universal IRA. The maximum deduction is 10% of wages with a ceiling of $2,000. Individuals over age sixty-five are excluded.

The final column of table 6.3 confirms the importance of this by tabulating the amount of preexisting assets that could be transferred in the third year of such a new tax rule. The total amount of transferable assets is reduced from $32 billion to only $17 billion, or less than one-third of the maximum potential contribution in that year.

In interpreting the revenue losses associated with asset transfers, it is important to bear in mind that they represent a one-time fixed cost of transition to a new system. The true economic cost of this revenue loss is not the revenue loss itself but the much smaller excess burden that would be incurred in making up this lost revenue or that otherwise could have been avoided if the lost revenue had instead been used to reduce some other distorting tax. The corresponding gain is the present value of the perpetual reduction in the excess burden caused by the incorrect mix of taxes on capital and labor incomes. Because this is a comparison of a one-time cost with a perpetual gain in a growing economy, the one-time transition cost is likely to be relatively small.

6.2.2 Marginal and Intramarginal Saving after the Transition

After the transition period, an individual can have a tax deduction only for net saving that actually adds to individual wealth and the national capital stock.[24] Of course, some of this saving would have been done anyway. Moreover, for those individuals who would in any case have saved more than the maximum deductible amount, the deductible saving would be intramarginal and the tax rule would influence saving only by an income effect. For such individuals, since some of the tax reduction would be spent, the net effect would be an increase in consumption. But for those individuals who would otherwise have saved less than the

24. Unless the individual borrows to finance these contributions. See footnote 20 for the reasons why this is not likely to be a significant problem.

deductible amount, the new rule would provide a marginal incentive to save. If, however, the saving would have been close to the limit, the increased saving may be constrained to be less than the tax reduction.

To shed some light on this issue, we have examined the distribution of existing saving rates relative to wage and salary income. For this purpose, we use the 1972 Consumer Expenditure Survey and define saving as the "change in nominal net financial assets, excluding the appreciation of portfolio assets." We use this definition of saving (rather than say the change in net worth) because it defines the kind of saving for which the tax deduction would be allowed. We then use this information to calculate the amount of intramarginal saving and other preexisting saving for which taxpayers would receive deductions and compare this to the potential increases in saving that might be induced under different assumptions about the behavioral response of taxpayers. The effects on tax revenue are also calculated.

Table 6.4 presents the cumulative distributions of the ratio of net financial saving to wage and salary income for four income classes as well as for households as a whole. It is clear that a 10% limit on deductible saving would be a binding constraint for only a small fraction of all households. Among those with income below $10,000, only 14% saved 10% of their income in the form of financial asset accumulation. The fraction is essentially the same for those with incomes between $10,000

Table 6.4 Cumulative Distribution of the Ratio of Changes in Net Financial Assets to Wage and Salary Income

Ratio of Change in Financial Assets to Wage and Salary Income	Income Class (× $1,000)				
	0–10	10–20	20–30	30+	All
−.04	15	16	14	12	15
−.02	19	20	18	15	19
< 0	23	26	24	20	24
0	69	57	49	41	61
.02	76	69	59	54	70
.04	80	77	68	63	77
.06	83	81	74	67	80
.08	85	84	77	69	83
.10	86	87	79	72	85
.12	88	88	86	73	87
.15	89	90	86	77	89
.18	90	91	87	78	90
.36	94	96	94	88	95

Source: 1972 Consumer Expenditure Survey.
Note: Tabulations exclude households with no wage or salary income.

and $20,000. Among those with incomes over $20,000, the $2,000 limit on saving deductibility becomes the constraint instead of the 10% limit. This implies that deductibility would be inframarginal for a larger fraction of these taxpayers. But the figures for the $20,000 to $30,000 class imply that only about one in five would otherwise be at or above the deductibility limit.

Another striking feature of table 6.4 is the very high fraction of households who report no change in their gross financial assets. Some 24% of all households indicate some reduction in financial assets during the year, and an additional 37% indicate neither saving nor dissaving. Only 39% report positive saving. A tax rule allowing deductibility of saving would provide an unambiguous incentive to save more to the 60% with zero or negative saving since there would be no offsetting income effect associated with preexisting saving (Feldstein and Tsiang 1968).

We have prepared simulations to compare the effects on saving and tax revenue of four alternative savings deductions and several different possible behavioral responses. The two basic savings deductions are 10% of earnings with a $2,000 limit and 15% of earnings with a $3,000 limit. A more restricted alternative that reduces the revenue loss without changing the set of taxpayers for whom the deduction provides a marginal incentive would limit the tax deduction to only half of the contribution to the saving plan; i.e. a taxpayer with earnings of $15,000 could contribute up to $1,500 but would receive a tax deduction for only $750. The earnings on all the assets in the fund would, however, be untaxed. The final option presented in this table is designed to offset the fact that higher income taxpayers already save a larger fraction of their income than low income taxpayers. For taxpayers with incomes over $10,000, it restricts the deduction to the excess over a "floor" equal to 5% of the earnings over $10,000. For example, a taxpayer with earnings of $20,000 could only deduct savings contributions in excess of $500. Such a taxpayer could contribute an additional $2,000 but would receive a deduction only of $2,000 for the $2,500 contribution. This would have no adverse incentive effect on anyone who would save at least 5% under existing tax rules. Moreover, even the initial 5% has some incentive effect associated with it since the income on all the assets in the fund is untaxed. Indeed, for some high income taxpayers for whom the $2,000 ceiling is a binding limit, the ability to contribute an additional 5% of nondeductible earnings may be an incentive to save.[25]

For each of the four alternative plans, we have calculated the increase in savings and decrease in tax revenue implied by several alternative behavioral response assumptions. The first assumption, that there is no change in saving, provides a reference standard for comparing the tax

25. Individuals might, of course, seek to circumvent the floor by bunching their saving into alternate years, but this would be worth doing only if the ceiling were not binding.

revenue implications of alternative behavioral responses. At the opposite extreme would be the assumption that taxpayers increase their saving to the maximum amount of the allowed deduction. It seems very unlikely, however, that individuals who currently do no saving would suddenly switch to this maximum amount. We have therefore examined two alternatives that are much more conservative. The first assumption is that only those who currently have positive saving would switch to the maximum, with no change in the behavior of nonsavers. The alternative assumption is that taxpayers with positive assets would take the maximum deduction while those with no assets would not respond at all. A fourth assumption is an arbitrary intermediate response: each taxpayer who has positive saving increases his saving halfway from his actual 1972 level to the maximum amount. For example, a taxpayer with \$15,000 of earnings and \$500 of preexisting annual savings would, with the 10% plan, increase his saving to \$1,000.

The other three behavioral response calculations reflect the assumption that consumer spending responds to the income and substitution effects of a deduction rule with constant partial price and income elasticities. The basic concept in this calculation is the relative "price" of current consumption in terms of foregone future consumption. Consider an individual who decides between spending a dollar now or saving it and spending the principal and accumulated interest at the end of T years.[26] Let the nominal interest rate be i, the inflation rate be π, and the individual's marginal tax rate be θ. Under current law, the individual chooses between spending one dollar now and spending $(1 + (1 - \theta)i)^T$ dollars in year T. The real value of that Tth year spending is $(1 + (1 - \theta)i)^T/(1 + \pi)^T$, or, ignoring terms that are of second order, $(1 + (1 - \theta)i - \pi)^T$. We shall call this rate of transformation R_0. If the individual could instead deduct the dollar of saving, by foregoing one dollar of current consumption he could add $1/(1 - \theta)$ dollars to his current savings. If the saving accumulates untaxed, this grows to $(1 + i)^T/(1 - \theta)$ dollars at the end of T years. The individual pays tax on this nominal value, although presumably at a lower tax rate $(\theta' < \theta)$ because he is then retired. The net of tax accumulation is thus $(1 - \theta')(1 + i)^T/(1 - \theta)$. In real terms this is (again ignoring second-order terms)

$$R_1 = (1 - \theta')(1 + i - \pi)^T/(1 - \theta).^{27}$$

Note that if $\theta' = \theta$, the combination of deductibility and the nontaxation of the interest on the savings account is equivalent to having no

26. In reality, there would not be single year but a probabilistic interval with probabilities that reflected survival probabilities.

27 If only a fraction λ of the contribution is deductible but the subsequent tax is limited to the same fraction of withdrawals, the rate of transformation becomes $R_1 = (1 - \lambda\theta')(1 + i - \pi)^T/(1 - \lambda\theta)$; with a binding level of deductibility, the plan has no effect on marginal saving and therefore $R_1 = R_0$.

deduction and then allowing the savings to accumulate completely untaxed (i.e. with no tax when funds are disbursed from the account). This is equivalent to consumption tax treatment and removes the distortion in the individual's choice between early and late consumption. However, the distortion between leisure and consumption (both present and future) remains and presumably biases the individual's decision in favor of leisure. At the alternative extreme, in which withdrawals from the fund at retirement are untaxed ($\theta' = 0$), the individual chooses between one dollar of current consumption and $(1 + i - \pi)^T/(1 - \theta)$ dollars of consumption in year T. This represents a more favorable trade-off between current and future consumption than a consumption tax and thus distorts consumption in favor of the retirement years. But because it permits the individual to transform a dollar of pretax earnings into retirement consumption at the real rate of interest, such treatment offsets the bias against working that is inherent in the consumption tax. Indeed, with $\theta = 0$ this method is equivalent to no tax at all as far as the trade-off between current leisure and future consumption is concerned.

For the purpose of the simulations, we approximate the change in consumption as the sum of a price effect and an income effect:

$$dC = \frac{\partial C}{\partial R} dR + \frac{\partial C}{\partial Y} dY \,, \tag{2.1}$$

where C is consumption, R is the price of current consumption (in terms of foregone future consumption), and Y is disposable income. From equation (2.1) it directly follows that

$$\begin{aligned} \frac{dC}{C} &= \frac{R}{C} \frac{\partial C}{\partial R} \frac{dR}{R} + \frac{Y}{C} \frac{\partial C}{\partial Y} \frac{dY}{Y} \\ &= \alpha_R \frac{dR}{R} + \alpha_Y \frac{dY}{Y} \,, \end{aligned} \tag{2.2}$$

where α_R and α_Y are the price and income elasticities. We shall assume that these partial price and income elasticities are locally constant.

We use this approximation to calculate the level of consumption under the deduction rule (C_1) as a function of the initial consumption level (C_0), the two related price values (R_1 and R_0), and the income effect of the tax change (dY). For simplicity, we shall describe this in the case where the individual initially has a positive level of saving ($S_0 > 0$) but in which the deduction limit is never binding (i.e. both S_0 and the level of saving under the deduction rule, S_1, are less than the limit, L). In this case, the relative price increase caused by the deduction rule is $dR/R = (R_1 - R_0)/R_0$. The income effect depends on the change in income caused by the deduction rule at the initial level of saving. Recall that under current tax law the individual who saves S_0 "buys" future consumption of S_0R_0. With the deduction rule, this same level of future consumption can be bought at the lower current cost, R_0S_0/R_1. The difference between these two is the increase in income at the initial consumption pattern. Thus $dY = S_0 - S_0R_0/R_1 = S_0(R_1 - R_0)/R_1$. Substituting these expressions into equation (2.2) we obtain

$$\frac{C_1 - C_0}{C_0} = \alpha_R \frac{R_1 - R_0}{R_0} + \alpha_Y \frac{S_0(R_1 - R_0)}{Y_0R_1} . \tag{2.3}$$

It is clear that equation (2.3) is only an approximate measure of the change in consumption. We use the linear approximation of equation (2.1) and evaluate it at the initial values of R_0 and S_0. We define consumption to include all uses of income other than financial saving and taxes; in particular, we include mortgage repayments in consumption. Moreover, we look only at a single year in isolation. In a full life-cycle model, the price effects would be more complex, the income change would reflect the discounted value of the price changes in future years as well, and the initial level of income (Y_0) would be replaced by a discounted value of future incomes. (Note, however, that if the individual's saving rate remained relatively constant over a number of years, the use of S_0/Y_0 instead of a ratio of two discounted values would not change the result appreciably.)

The magnitudes of the income and substitution effects determine whether the switch to a deduction rule raises or lowers consumption. The effect on saving can then be calculated from the change in consumption and the change in tax revenue:

$$(S_1 - S_0) + (C_1 - C_0) + (T_1 - T_0) = 0 , \tag{2.4}$$

where T_0 is the individual's tax liability under current tax law and T_1 is the tax liability under the deduction rule. For an individual whose final level of saving is below the deduction limit, $T_1 - T_0 = -\theta S_1$; i.e. the individual's tax liability is reduced by the product of his marginal tax rate (θ) and his savings deduction (S_1). Note that equation (2.4) implies that even if the income and substitution effects on consumption balance so that consumption remains unchanged ($C_1 - C_0 = 0$), saving will increase if the tax liability falls ($S_1 - S_0 > 0$ if $T_1 - T_0 < 0$). Of course, the income effect could dominate the price incentive and cause consumption to rise by enough to leave savings lower. To evaluate this in the current case, we need values of α_R and α_Y and the microeconomic distributions of tax rates, savings, and incomes.

Before discussing the values of α_R and α_Y, we may comment briefly on three special cases, where saving is negative, zero, or above the limit. If initial saving is negative ($S_0 < 0$), there is neither an income effect nor a price effect. Both consumption and saving remain unchanged. With zero initial saving, there is a price effect but no income effect; consumption falls and saving rises. For an individual whose initial saving exceeds the deduction limit ($S_0 > L$), there is no price effect (since $R_1 = R_0$) and an income effect given by $L(R_1 - R_0)/R_1$; consumption rises and saving may rise or fall. Finally, for an individual whose initial level of saving is below the ceiling ($S_0 < L$) but for whom equations (2.3) and (2.4) imply that S_1 exceeds the ceiling, we take saving to be either the limit or, if it is greater, the value of saving implied by the income effect alone.

In all of our simulations, we assume a unit elasticity of consumption with respect to disposable income: $\alpha_Y = 1$. Since we lack reliable econometric evidence on α_R, we perform simulations for a range of values. At one extreme is the case of $\alpha_R = 0$, i.e. no substitution effect. In this implausible limiting case, the only response to the tax change is the income effect and therefore an increase in consumption. More generally, $\alpha_R < 0$ and the response of consumption depends on the relative strength of substitution and income effects. Since intuition about consumer behavior is in terms of the uncompensated price elasticity rather than the pure price effect, we derive simulation values of α_R from assumptions about the uncompensated response of consumption for a "representive" taxpayer with disposable income of $Y_0 = \$10,000$, savings of $S_0 = \$200$, and a marginal tax rate of $\theta = 0.25$. To calculate the values of R_0 and R_1, let $i = 0.10$ be the nominal interest rate and $\pi = 0.08$ be the rate of inflation. Assume that the time to retirement consumption is $T = 15$ years and that in retirement the individual's marginal tax rate will be half what it is now: $\theta' = 0.50\theta$. Then $R_0 = (1 + (1 - \theta)i - \pi)^T = (1 + 0.075 - 0.08)^{15} = 0.93$ and $R_1 = (1 - \theta)(1 + i - \pi)^T/(1 - \theta) = 0.875\ (1.02)^{15}/0.75 = 1.57$. Thus $R_1/R_0 = 1.69$.

Consider first the case in which a change in the net rate of return has no effect on consumption, i.e. $C_1 = C_0$. Equation (2.3) then implies that

$$0 = \alpha_R \frac{R_1 - R_0}{R_0} + \alpha_Y \frac{S_0(R_1 - R_0)}{Y_0 R_1} \tag{2.5}$$

or, with $\alpha_Y = 1$,

$$\alpha_R = -\frac{S_0}{Y_0}\frac{R_0}{R_1}. \tag{2.6}$$

These specific assumptions for our representative taxpayer then imply $\alpha_R = -0.0118$. Note that although this value of α_R implies that the income and substitution effects balance and leave consumption unchanged for the "representative" taxpayer, someone with a lower initial saving rate will have a smaller income effect and will therefore be induced by the deduction rule to reduce consumption while someone with a higher initial saving rate will be induced to increase consumption.

We also present simulations based on the assumption that an increase in the net rate of return would cause our representative taxpayer's consumption to decrease, i.e. that the substitution effect outweighs the income effect. More specifically, we approximate the consumption response of this type of "representative" taxpayer to deductibility as a 2% decrease in consumption. Equation (2.3) then implies[28]

$$-0.02 = \alpha_R \frac{1.57 - 0.93}{0.93} + \frac{0.02(1.57 - 0.93)}{1.57}, \tag{2.7}$$

or $\alpha_R = -0.041$.

The relation between these responses of a "representative" individual and the aggregate responses that we obtain in the simulations reflects the distribution of initial saving rates and price changes and the effects of the deductibility ceilings. We should again emphasize that these calculations are not precise estimates but are approximations for a broad range of parameter values. A more complete analysis would instead derive each individual's consumption response with the help of an explicit utility function in a life-cycle context. Realistic life-cycle calculations would have to take into account bequests and inheritances as well as family structure, private pension benefits, social security, etc. Liquidity considerations and the possible favorable misunderstanding of the deductibility should also be considered. At this time, there is just not enough information to perform such a calculation.

In the simulations we calculate two different measures of the effect of the deduction on tax revenue. The first of these is the short-run effect that results from the immediate deduction of the savings deposited in the special account. This is approximately equal to the product of the individual's marginal tax rate and the lesser of savings (S_1) and the ceiling on the savings deduction. In fact, we use the Tax Model to calculate more precisely the effect of the savings deduction in a way that takes into account the nonlinearity of the tax schedule and other features of the tax law. Of course, for taxpayers with negative savings, there is no change in tax revenue.

Because withdrawal of funds from the savings account requires paying tax, the initial deduction is in part only a postponement of the tax liability. Indeed, if the tax rate in retirement is equal to the tax rate when working ($\theta' = \theta$), the initial deduction is fully offset by the subsequent withdrawal tax. The advantage of the deduction account is then only that the income on the assets accrues without tax. More generally, the long-run reduction in tax revenue reflects both the lower tax rate when funds are withdrawn ($\theta' < \theta$) and the exclusion from taxable income of the interest and dividend income on the amount of saving that would have

28. Recall that for the representative taxpayer the real net rate of return rises from -0.005 to 0.020; including the deductibility effect implies that the current opportunity cost of consumption rises from 0.93 to 1.57.

been done under the old law (since the income on the induced saving would not otherwise exist).

We calculate the long-run revenue loss by noting first that the initial level of saving S_0 grows under current law to R_0S_0 before it is consumed while with the deductions it grows to R_1S_0. The entire difference, $(R_1 - R_0)S_0$, is the accumulated value of the lower taxes that the government collects on S_0 and on the resulting interest and dividend income. The present value of that difference as of the initial date, discounting at the real pretax rate of returns, is $(R_1 - R_0)S_0/(1 + i - \pi)^T$. This is the present value of the revenue loss associated with the initial level of saving. The additional saving causes an additional revenue loss to the extent that the tax rate in retirement (θ') is less than the tax rate at the time that the deduction is taken. If S_1 is less than the deduction limit, the initial revenue loss on the induced saving is $\theta(S_1 - S_0)$. The induced saving grows over time to $(S_1 - S_0)(1 + i - \pi)^T$ and yields a tax revenue of $\theta'(S_1 - S_0)(1 + i - \pi)^T/(1 + i - \pi)^T = \theta'(S_1 - S_0)$. The net revenue loss on the induced saving is thus $(\theta - \theta')(S_1 - S_0)$. The full long-run reduction in revenue (associated with the single year's saving) thus has a present value of $(R_1 - R_0)S_0/(1 + i - \pi)^T + (\theta - \theta')(S_1 - S_0)$. The simulations modify this formula in the appropriate way in the cases where initial saving is negative or where the limit on deductibility is binding and use the full tax simulation calculations instead of just the marginal tax rate.[29]

Table 6.5 summarizes the results of these simulations. Consider first the effects of the alternative plans on tax revenue if taxpayers do not adjust their saving at all. A savings deduction limited by 10% of wages and $2,000 would have an immediate revenue cost of $49. The present value of the full long-run tax effect is slightly larger, $60, implying that the exclusion of the interest and dividends outweighs the recouping of part of the initial deduction. Increasing the limits by 50% (to 15% of wages and $3,000) increases the initial cost by proportionally less but increases the long-run deduction by almost 50%. This indicates that the primary value to taxpayers of the higher limits is in the implied interest and dividend exclusion. Finally, note that, while cutting the deduction in half obviously halves the short-run revenue loss, the long-run revenue effect is much less.

Consider now the effects of the alternative saving responses to the 10% deduction limit. If taxpayers who already do some saving increase their saving to take full advantage of the deductions, average saving would rise by $158. The deduction of this saving would increase the revenue loss by $36, from $49 to $85. The present value of the long-run revenue loss would also rise, but by proportionately less since the increase reflects the

29. This measure of revenue loss does not reflect the extra corporate tax revenue that would be collected on the additional capital.

Table 6.5 Simulations of Different Behavioral Responses to Alternative Savings Deduction Rules: Mean Changes in Saving and Taxes

	10% Deduction, $2,000 Limit Change In			15% Deduction, $3,000 Limit Change In			Partial Deduction: One-Half of 15% Deduction, $3,000 Limit Change In			Deduction with Floor: 10% Deduction, $2,000 Limit, Floor of 5% of Income over $10,000 Change In		
		Tax Revenue			Tax Revenue			Tax Revenue			Tax Revenue	
	Saving	Short Run	Long Run	Saving	Short Run	Long Run	Saving	Short Run	Long Run	Saving	Short Run	Long Run
Savings unchanged	0	49	60	0	61	86	0	31	67	0	37	24
Savings increase to maximum if saving > 0	158	85	78	298	125	118	289	64	83	97	57	34
Savings increase to maximum if assets > 0	129	79	75	240	116	114	240	61	82	79	53	32
Savings increase halfway to maximum if saving > 0	79	67	69	144	94	102	144	94	99	48	47	29
Representative consumption unchanged (α_R = .0118)	58	47	57	57	54	82	28	29	66	26	32	22
Representative consumption increased (α_R = 0)	10	37	51	5	43	77	−8	25	64	10	30	21
Representative consumption decreased (α_R = −0.041)	157	69	68	168	79	94	111	39	71	68	40	26

Source: Simulations based on 1972 Consumer Expenditure Survey.

Note: All figures are mean annual amounts for the population of household units and are expressed in 1972 dollars.

differences between the initial deduction and the present value of the extra revenue obtained when the funds are withdrawn. The corresponding figures when the response is limited to those who initially had positive assets or when the size of the response is halved are similar although obviously somewhat smaller.

The partial price elasticity associated with unchanged consumption for the representative taxpayer ($\alpha_R = -0.0118$) causes saving to rise by an average of $58 per taxpayer. The immediate revenue loss associated with this is $47, and the long-run revenue loss is $57. Thus, in this case, the increased personal saving exceeds the immediate reduction in personal tax revenue and is approximately equal to the long-run tax reduction. If the incentive to postpone consumption does cause a fall in consumption, the increase in saving exceeds the short-run and long-run loss of tax revenue.

Since all of these figures are means per taxpayer and there were 70 million taxpayers in 1972, these estimates imply that the immediate revenue cost of a 10% deduction plan is a minimum of $3.5 billion (at 1972 levels) with no saving response. Beyond that, each dollar of induced saving reduces revenue by only about 20 cents. With consumption unchanged, the revenue loss is $3.5 billion and the increased saving is $4 billion. With consumption reduced by 2%, the revenue loss is somewhat less than $5 billion and the saving increase is about $10 billion.

Tables 6.6 and 6.7 analyze the effects of a savings deduction by income class. Table 6.6 accepts the conservative assumption of unchanged consumer spending and examines the impact on saving and taxes of alternative deduction plans. It is clear that the basic deduction of 10% of wages with a $2,000 limit induces proportionately more response at each higher level of income. Note that switching from a 10%, $2,000 limit to a 15%, $3,000 limit has virtually no effect except in the highest income group. Table 6.7 focuses just on the 10%, $2,000 deduction limit but examines the responses in each income class associated with different types of behavior. One point worth noting is that the effect of different price elasticities on the amount of saving is proportionately greater for low income taxpayers than for high income taxpayers. Note also that, regardless of the price elasticity, there is little tax reduction below $10,000 and that above $10,000 the tax reduction rises at least in proportion to income.

6.3 Exclusion of Interest and Dividends

Until 1980, an individual taxpayer could exclude the first $100 of dividend income from AGI and therefore from taxable income. A couple could exclude twice that amount. The law was modified in 1980 to double these exclusions and to extend them from dividends to both dividends

Table 6.6 Distributional Implications of Alternative Savings Deduction with No Change in Consumption: Mean Changes in Saving and Taxes

	10% Deduction, $2,000 Limit Change in			15% Deduction, $3,000 Limit Change in			Partial Deduction: One-Half of 15% Deduction, $3,000 Limit Change in			Deduction with Floor: 10% Deduction, $2,000 Limit, Floor of 5% of Income over $10,000 Change in		
		Tax Revenue			Tax Revenue			Tax Revenue			Tax Revenue	
Income Class (× $1,000)	Saving	Short Run	Long Run	Saving	Short Run	Long Run	Saving	Short Run	Long Run	Saving	Short Run	Long Run
0–10	13	9	9	11	10	15	6	5	12	12	9	9
10–20	60	53	70	58	61	96	28	33	79	26	38	35
20–30	166	143	168	146	160	273	67	88	221	69	88	38
30+	444	310	329	521	387	427	282	193	291	172	175	16
All	58	47	57	57	54	82	28	29	66	26	32	22

Source: Simulations based on 1972 Consumer Expenditure Survey.
Note: All figures are means and are expressed in 1972 dollars.

Table 6.7 Distributional Aspects of Alternative Behavioral Responses to a 10% Savings Deduction: Mean Changes in Saving and Taxes

	Change in Saving by Income Class (× \$1,000)				Short-Term Change in Taxes by Income Class (× \$1,000)				Long-Run Changes in Taxes by Income Class (× \$1,000)			
	0–10	10–20	20–30	30+	0–10	10–20	20–30	30+	0–10	10–20	20–30	30+
Savings unchanged	0	0	0	0	9	58	155	260	9	73	174	307
Savings increase to maximum if saving > 0	44	251	353	267	16	110	252	371	12	99	223	362
Savings increase to maximum if assets > 0	26	207	320	253	14	101	243	366	11	95	218	360
Savings increase halfway to maximum if saving > 0	22	126	177	134	13	84	204	319	11	86	199	336
Representative consumption unchanged ($\alpha_R = .0118$)	13	61	166	444	9	53	143	310	9	70	168	329
Representative consumption increased ($\alpha_R = 0$)	2	6	41	112	7	43	115	194	8	65	154	272
Representative consumption decreased ($\alpha_R = 0.041$)	39	194	462	691	13	77	210	452	11	82	202	400

Source: Simulations based on 1972 Consumer Expenditure Survey.

and interest. For anyone with interest and dividend income below the limit, the exclusion effectively eliminates the tax on such income at a margin and therefore has the full neutrality of a consumption tax.

The principal problem with the current exclusion is that the limit may be too low. For a couple with more than $400 of interest and dividends, the exclusion is intramarginal and has no effect on the taxation of additions to wealth. With today's interest rates, a couple with as little as $4,000 of wealth could easily find that the income from any additional saving would be fully taxed. This section considers alternative proposals to raise the limit on the exclusion. To reduce the cost of such an increase, we also consider two partial exclusion plans (the first plan excludes 20% of all interest and dividend income while the second plan excludes one-half of the first $1,000 of interest and dividend income)[30] and a plan with a floor (individuals with incomes in excess of $10,000 can only exclude interest and dividend income to the extent that it exceeds 5% of the income over $10,000 and then only up to a limit of $1,000).

From the taxpayers' point of view, the interest and dividend exclusion has two advantages over a savings deduction that implies the same real net rate of return. First, because the interest and dividend exclusion is not restricted to a separate account, there is no loss of liquidity to counterbalance the increase in yield. Second, there are no additional accounting or record-keeping requirements. Both of these features suggest that, all other things being equal, individuals are likely to be more responsive to an exclusion than to a savings deduction. Against this might be balanced the "psychological" effect of the savings deductions in focusing attention on an immediate tax reward for saving. We know of no evidence on the basis of which this can be evaluated.

The dividend and interest exclusion also has the advantage that there is no transition problem comparable to the transfer of existing assets that ocurrs with a savings deduction. Of course, the interest and dividend exclusion has an analogous problem since taxes are reduced immediately on the interest and dividends earned on preexisting wealth. But this problem does not just apply during the transition. Rather, with the interest and dividend exclusion, there is no real distinction between the initial "transition" tax reductions and the subsequent "steady state" reduction in taxes that result from assets that would have existed even without the exclusion.

The principal issue in judging the potential usefulness of the interest and dividend exclusion is the amount of additional saving that is gener-

30. Different combinations of the "exclusion limit" and the "exclusion fraction" correspond to the same loss of tax revenue but have different incentive effects. The incentive effect depends on the distribution of existing wealth and on the sensitivity of saving to the net return. It would be interesting to use the information on the distribution of assets and alternative assumptions about the savings response to examine the implication of alternative combinations of the limit and the exclusion fraction.

ated per dollar of foregone tax revenue. Of course, there is no revenue loss directly caused by the *increased* accumulation of wealth induced by the new tax rule. The interest and dividends that go untaxed would not have existed otherwise and therefore obviously would not have been taxed. All of the revenue loss is due to the exclusion of interest and dividends or wealth that would have existed in any case.[31] This revenue loss therefore depends on the distribution of existing interest and dividends, the limit on the exclusion, and the fraction that is excluded if there is less than a full exclusion. Section 6.3.1 presents evidence on this distribution.

In evaluating the likely response to an interest and dividend exclusion, we give particular attention to those who currently have zero interest and dividends. As the data in section 6.2 on the distribution of gross financial assets implied, this is a very sizable group. Among taxpayers as a whole, 46% had no interest and dividends. The concentration of individuals at zero reflects a kink in the intertemporal budget constraint. Even in the absence of taxes, the budget constraint would be kinked at the point of zero saving, reflecting the fact that the borrowing rate exceeds the rate that individuals receive on deposits. Since most taxpayers do not itemize their deductions, the tax rules leave the borrowing rate unchanged but reduce the net lending rate even more.[32]

Because of the kink, individuals with different preferences will have the same behavior. Because the reason that a particular individual has zero interest and dividends in equilibrium cannot be determined from the available data, the likely effect of a tax change is ambiguous as well. Figure 6.1 illustrates this ambiguity in a two-period model of income and consumption. In both parts of this figure, line *ABC* represents a constant interest rate budget line between current and future consumption. At point *B*, the individual neither borrows nor lends. The tax on interest income shifts the lending segment of the budget constraint from *BC* to *BE*. The higher interest rate on borrowing than on lending shifts the borrowing segment from *AB* to *DB*.

In figure 6.1*a*, the individual faced with the constant interest rate budget line *ABC* would choose to save and therefore to consume at point *X*. But with the kinked budget line *DBE*, the individual chooses point *B* with no borrowing and lending. In figure 6.1*b*, the individual faced with

31. At first, this seems to be in sharp contrast to the savings deduction plan where a deduction is given for induced saving as well as for the saving that would have occurred in any case. But the deduction itself is relevant only to the extent that the marginal tax rate of the saver exceeds his marginal tax rate when funds are withdrawn. Even when this is true, it is not a reason for preferring one plan over the other without knowing more about the response of individuals to this aspect since schemes with equal revenue loss could obviously be designed.

32. In 1972, all interest income was taxable. Although a $200 exclusion applied to dividend income, most taxpayers did not have any dividend income.

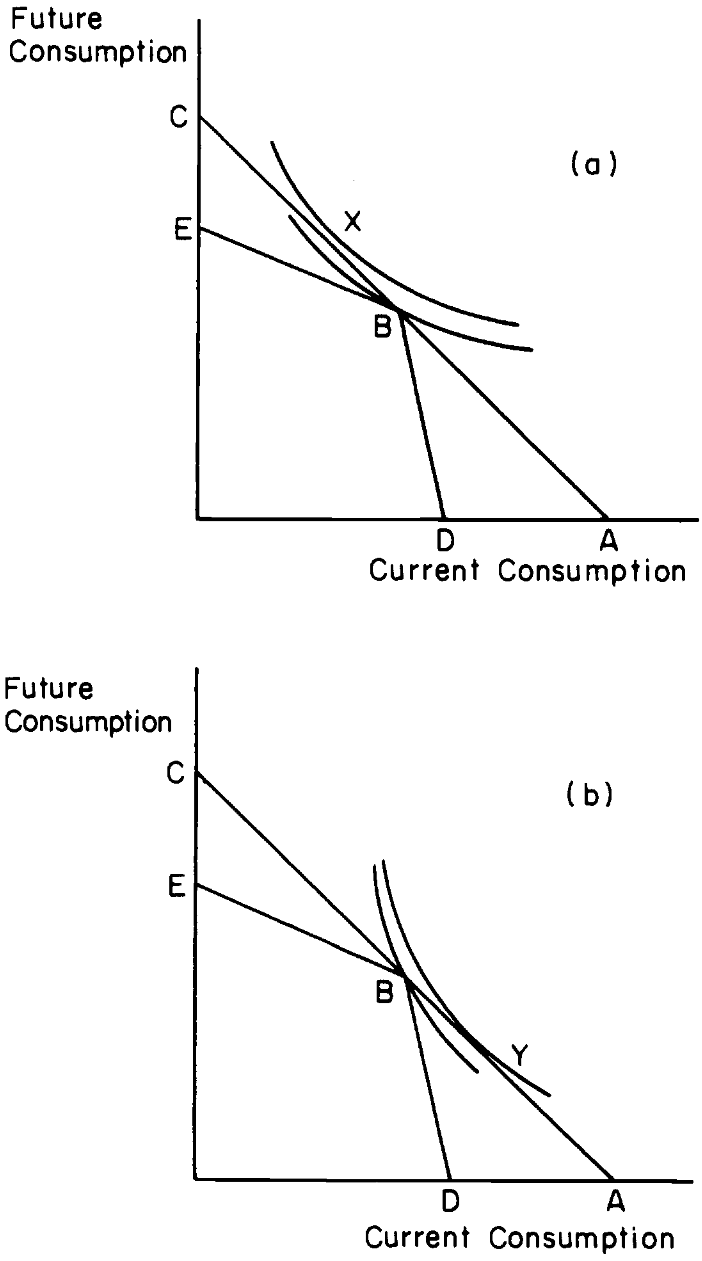

Fig. 6.1 The kinked intertemporal budget constraint.

line *ABC* would choose to borrow and therefore to consume at point *Y*. But with the kinked budget line *DBE*, this individual also chooses point *B*. The exclusion of interest and dividend income would raise the savings segment of the budget line from *BE* to *BC*. In figure 6.1*a*, this induces the individual to save and shifts the equilibrium from *B* to *X*; in contrast, in figure 6.1*b* this has no effect on the individual's behavior. Because we only observe that the individual is now at point *B* and cannot distinguish between the 6.1*a* and 6.1*b* situations, the effect of the tax change is ambiguous.

We might in principle reduce the uncertainty by distinguishing between those individuals with zero interest and dividends who also borrow and those who do not. The borrowers are in equilibrium on segment *BD* and would not be influenced by a shift in the lending line from *BE* to *BC*. The ambiguity would therefore pertain only to those who were truly at point *B* with no borrowing as well as no lending. There are two difficulties with this line of reasoning. The first is a practical one: information on borrowing is only available for itemizers and is therefore not available for the majority of taxpayers and for an even larger share of the group without interest and dividends since itemizing of deductions is relatively uncommon in this group. But even if information on borrowing were available, there would be a problem since many individuals both borrow and lend. Since the borrowing is generally at a higher interest rate than the lending (typically consumer credit and savings accounts), the observed behavior reflects considerations of liquidity and convenience and therefore cannot be reconciled with the simpler analysis of figure 6.1.

Since the prospective behavior of those who currently have no interest or dividends is inherently ambiguous, we present simulations based on two alternative assumptions about this group. The first type of simulation makes the very conservative assumption that all individuals would prefer to be borrowing and therefore do not change their saving in response to an interest and dividend exclusion rule. The alternative sets of simulations assume that all individuals respond by increasing their wealth to take at least some advantage of the exclusion; no distinction is made between those who initially have interest and dividend income and those who do not. This behavior is consistent with figure 6.1*a* (although with the individual switching from *B* to a point that may induce less saving than at *X* if the exclusion limit is binding). Further information about the simulation method as well as the simulation results will be presented in section 6.3.2.

6.3.1 The Distribution of Interest and Dividend Income

The current distribution of interest and dividend income determines the tax revenue effects of various exclusion limits and the extent to which changes in the limits can have marginal incentive effects. In considering the data presented in this section, it is important to bear in mind that the 1980 level of per capita income was approximately double the 1972 level and therefore that the typical taxpayer in 1980 had approximately twice the amount of financial assets. Moreover, the level of interest rates and the dividend-price ratio also doubled between 1972 and 1980. Thus a taxpayer who had $200 of interest and dividends in 1972 probably had about $800 in 1980.

Table 6.8 presents the cumulative frequency distribution of interest and dividend income by AGI class. Note that 46% of all taxpayers had no interest and dividend income and that an additional 25% had between $1 and $200 of such income. Introducing a $200 exclusion would thus provide an increase in the *marginal* real net interest rate for 71% of taxpayers while giving a tax reduction with no marginal incentive effect to the remaining 29%. Extending the exclusion from $200 to $400 would add an additional 7% to the number of taxpayers with a higher real net return and would double the intramarginal tax saving for the 22% of taxpayers with more than $400 of interest and dividends.

Since the vast majority of 1972 taxpayers had AGIs below $10,000, the overall pattern also describes the distribution of interest and dividend income in that income class. The pattern is also similar among those with AGIs between $10,000 and $20,000. Only in the very small class of taxpayers with higher incomes (less than 10% of 1972 taxpayers had AGIs over $20,000) did the interest and dividend distribution differ substantially from this pattern. For example, among those with AGIs between $20,000 and $30,000 of income, only 45% had less than $200 of interest and dividend income. For that income class, a $200 exclusion would be intramarginal for 55% of taxpayers.

Table 6.9 shows that the distribution of interest and dividend income also differs substantially by age. While 71% of all taxpayers had less than or equal to $200 of interest and dividends, more than 90% of those less

Table 6.8 **Cumulative Distributions of Interest and Dividend Income by Adjusted Gross Income Class**

Interest and Dividend Income	AGI Class (× $1,000)				
	0–10	10–20	20–30	30+	All
$0	58	37	16	5	46
$200	77	70	45	18	71
$400	82	80	59	26	78
$800	87	87	73	40	85
$1,600	91	93	82	54	90

Source: 1972 Tax Model Data.

Note: Values shown are cumulative percentages of taxpayers with less than the indicated amount of interest and dividend income.

Table 6.9 **Cumulative Distributions of Interest and Dividend Income by Age Class**

Interest and Dividend Income	Age Class				
	22–29	30–49	50–64	64+	All
$0	65	51	34	18	46
$200	91	80	59	32	71
$400	95	87	69	39	78
$800	97	93	78	50	85
$1,600	98	94	89	63	90

Source: 1972 Tax Model.

Note: Values shown are cumulative percentages of taxpayers with less than the indicated amount of interest and dividend income.

than twenty-nine years old and 80% of those aged thirty to forty-nine fell into this category. By contrast, only 32% of those over age sixty-four had as little as $200. These figures indicate that a $200 exclusion in 1972 would have had a marginal incentive effect for a relatively large fraction of preretirement taxpayers and that, for those older than sixty-five, the exclusion would be largely an intramarginal reward for earlier saving.

6.3.2 Simulations of Alternative Exclusion Rules

We now present the results of simulations of alternative exclusion rules. These simulations use the TAXSIM model for 1972; the baseline simulation therefore includes a $200 dividend exclusion. For cost reasons, we have reduced the sample by a one-in-three selection, yielding a simulation sample of 8,881 taxpayers.

The effect of an exclusion rule on tax revenue depends only on the parameters of the exclusion rule and not on the taxpayers' behavioral response. This reflects the fact that no revenue is lost on the induced increase in saving and the resulting increase in interest and dividend income.

Because the exclusion rules refer to the income earned on the stock of financial assets and not to annual savings, we simulate the behavioral response in terms of the stock of financial assets (or "assets" for short). We estimate each taxpayer's initial level of assets by assuming that the interest income reflects an interest rate of 4.5% and that the dividend income reflects a dividend-price ratio of 3.0%. On this basis we estimate an initial average level of gross financial assets of $8,230 for each of the 77.5 million tax returns.

Table 6.10 presents the simulated effects on tax revenue and on assets of the six exclusion plans: (1) exclusion of the first $200 of interest and dividend income; (2) exclusion of the first $400; (3) exclusion of the first $1,000; (4) exclusion of half of the first $1,000; (5) exclusion of interest

Table 6.10 **Simulated Effects of Alternative Dividend and Interest Exclusions with Different Behavioral Responses: Mean Changes in Tax Revenues and Assets**

	$200 Limit	$400 Limit	$1,000 Limit	$1,000 Limit, 50% Exclusion	$1,000 Limit with Floor*	No Limit, 20% Exclusion
1. Decrease in tax revenue	$13	$21	$37	$19	$30	$34
Increase in assets:						
2. Maximum response	$3,284	$7,122	$19,646	$19,646	$14,390	
3. Halfway response	$1,642	$3,561	$9,823	$9,823	$7,195	
4. Maximum response for those with positive initial financial assets only	$727	$2,008	$6,861	$6,861	$4,639	
5. Constant elasticity, $\eta = 1$	$98	$219	$546	$270	$369	$1,539
6. Constant elasticity, $\eta = 2$	$191	$429	$1,089	$543	$733	$3,283

Source: Simulations based on 1972 TAXSIM Data.

*The floor restricts the interest and dividend exclusion to the excess of interest and dividends over 5% of their income over $10,000.

and dividend income in excess of a floor equal to 5% of income over $10,000 subject to a limit of $1,000; and (6) exclusion of 20% of interest and dividend income without limit. These simulations are based on all taxpayers, including those over age sixty-five. The first row shows the effect of each exclusion rule on the mean annual tax liability per taxpayer. Under the existing law, the mean 1972 tax liability was $1,247. Exclusion of the first $200 of interest as well as dividends would reduce this by $13 to $1,234. This very small change in tax revenue reflects the fact that most taxpayers have much less than $200 of interest and dividends. With 77.5 million tax returns, the reduction of $13 per return implies a total revenue loss of $1.0 billion.

Increasing the exclusion from $200 to $400 reduces mean tax revenue by $8 per return; i.e. a doubling of the exclusion raises the revenue loss by about 60%. Similarly, raising the exclusion by 150% from $400 to $1,000 only raises the revenue loss by about 75% or $16 per return. Limiting the exclusion to 50 percent of the first $1,000 cuts the revenue loss in half; i.e. the total revenue loss with this rule is $19 per return or about the same as for a full exclusion of the first $400 of interest and dividends. Limiting the exclusion to the excess over a floor of 5 percent of income over $10,000 cuts the revenue loss from $37 to $30. Finally, the 20% exclusion without limit reduces tax revenue by $34 per return.

Four types of behavioral responses are simulated. The first assumes that each taxpayer increases his assets enough to take full advantage of the exclusion. Thus for the $200 exclusion each taxpayer accumulates a total of $4,445 of assets since we assume an interest rate of 4.5%. Although the average initial value of assets is $8,230 the distribution of these assets is such that most taxpayers have substantially less than $4,000; as table 6.8 indicated, 71% of taxpayers had less than $200 of interest and dividends. The first number in the second row of table 6.10 indicates that the average increase in assets if each taxpayer accumulated enough to take advantage of the full $200 exclusion would be $3,284.

The second simulation reduces the full response in an arbitrary way by assuming that everyone moves half way from his existing assets to the full $4,445. Thus someone who currently has $3,000 of assets increases them by $772. This response is of course equivalent to assuming that half of the taxpayers do not respond at all while half respond fully, or to any other distribution of individual responses that averages a half-way response.

The third simulation makes the very conservative assumption that all those taxpayers with no dividend and interest income in 1972 would not respond at all to the exclusion. All other taxpayers increase their assets to take full advantage of the exclusion. The result, shown in the third row of table 6.10, is an increase in mean assets of $727.

The final simulation also begins with the conservative assumption that those taxpayers who initially have no assets would continue to have no assets. Moreover, those with a relatively small initial amount of assets are assumed to show a correspondingly small increase in wealth. In particular, we assume that their behavior is governed by a constant elasticity response of assets to the relative "costs" of present and future consumption.

$$\frac{A_1}{A_0} = \left(\frac{R_2}{R_0}\right)^{\eta}, \quad (3.1)$$

where A_0 is the actual assets with the existing law, A_1 is the assets with the exclusion, and R_0 and R_2 are the rates of transformation with the current and alternative tax rules. With an exclusion but no deduction, $R_2 = (1 + i - \pi)^T$ an, as before, $R_0 = (1 + (1 - \theta)i - \pi)^T$; for any individual whose interest and dividend income already exceeds the exclusion, $R_2 = R_0$ and there is no change in assets. We are fully aware that this is a very rough model of behavior that does not capture the life-cycle character of the induced change in consumption and that quite arbitrarily assumes that all those who currently have no assets are either myopic or would prefer to be net borrowers even if there were no tax on interest income. We nevertheless illustrate this constant elasticity asset response by simulating with two alternative values: $\eta = 1$ and $\eta = 2$. A unit elasticity implies, for example, that an individual with a marginal tax rate of 20% and initial assets of $2,000 would increase her assets by $692; an elasticity of 2 would imply an increase of $1,623. The results of these simulations are shown in rows 5 and 6. With a $200 limit and a unit elasticity of response, the average increase in assets would be $98; an elasticity of 2 implies a mean asset increase of $191.

Although the results for the other exclusion limits in table 6.10 are self-explanatory, three comments are worth making. Note first that increasing the exclusion limit raises the potential accumulation by more than a proportionate amount even though the revenue effect rises less than proportionately. Second, the floor reduces the revenue cost of a $1,000 limit exclusion by $7 or somewhat less than 20%. In contrast, the increase in assets in every behavioral simulation fell by a greater percentage. Third, the 20% exclusion has by far the largest behavioral effect both absolutely and per dollar of revenue loss.

It is clear from the wide range of possible responses that we have recorded in table 6.10 that our uncertainty about the effect of a dividend and interest exclusion is very substantial. The 1980 legislation, introducing a $400 interest and dividend exclusion, will provide a natural experiment from which we can hope to learn more about the nature of the individual savings response. Of course, the evidence on even the first year's experience will not be available in usable form until about 1984 and policymakers may want to make decisions about savings incentives before then. It is perhaps reassuring therefore that the simulations reported in table 6.10 indicate that the alternative exclusion plans involve quite little revenue loss. Moreover, even these revenue loss figures overstate the net impact of an interest and dividend exclusion to the extent that the additional capital is invested in the corporate sector and results in increased corporate tax revenue.

6.4 Conclusion

The public's increased awareness of the low rate of personal saving in the United States and of the high effective tax rate on the income from personal saving has generated a growing interest in changing the individual income tax rules to stimulate saving. Although there are many specific plans, there are two principal options: (1) deductions from taxable income for savings deposited in special accounts where interest then accrues untaxed until the funds are withdrawn and (2) the exclusion of interest and dividends from taxable income. The revenue loss that would result from such deductions or exclusions can be limited by restrictions on the maximum amount of the deduction or exclusion or by allowing only a partial deduction or exclusion. The problem with any such ceiling or floor, however, is that it may eliminate marginal incentives (for those with savings or investment income above the ceiling or well below the floor) or severely restrict the size of the incentive effect (for those who are near the ceiling). The desirability of any saving plan depends critically on its ability to limit the revenue loss without destroying the marginal incentives.

Analyzing the effects of limits and floors requires microeconomic data on savings, financial assets, and interest and dividend income. The present paper uses such data from individual tax returns and from the Consumer Expenditure Survey to estimate the potential effects of alternative tax rules. Because the likely response of households to new tax rules is not known, we present simulations for a variety of different behavioral assumptions.

Although the savings deduction and the interest exclusion are fundamentally very similar, they are likely to have quite different effects during a rather long period of transition because they treat active savers very differently from those who previously saved and are currently dissaving. Moreover, potential savers may be influenced by the liquidity differences between the two methods or by the appearance that the immediate deduction confers a greater benefit. Because individuals differ in their situations and perceptions, a combination of both plans might be more effective in raising saving than an equal-cost reliance on either plan alone. The paper therefore presents separate analyses of the two types of plans.

The evidence that we present is not adequate for choosing the best combination of these options or even for deciding whether either option should be chosen. We do not have sufficient information about savings behavior to predict the response of capital accumulation to these plans. Moreover, the design of an approximate tax policy involves not only the savings response but more general aspects of excess burden and the fair distribution of the tax burden.

But the analyses in this paper are sufficient to demonstrate that some of the potential problems that have been raised as objections to the savings proposals are not very serious. First, although some of any savings deduction would merely reward saving that would have occurred in any case, even with a deduction limited to 10% of wages and salaries (with a ceiling of $2,000) there would be very few savers for whom the incentive was intramarginal. Similarly, at 1972 levels of wealth and interest rates, a $400 exclusion of interest and dividends would provide a marginal incentive for more than 75% of taxpayers.

The second basic fact that emerges in our study is that the reduction in tax revenue caused by an exclusion or deduction plan would be relatively modest. With the exclusion plans, the revenue loss does not depend on the taxpayers' response to the changed incentive. In 1972, a $400 interest and dividend exclusion would have entailed a revenue loss of only $21 per taxpayer, or an aggregate of less than $2 billion. Increases in the $400 limit involve substantially less than proportionate increases in the revenue loss. The revenue effect of a savings deduction plan does depend on the reaction of savers to the new incentive. Although some preexisting assets would be transferred into the special accounts in the years immediately after a savings deduction plan was introduced, the potential transfer amounts and associated revenue loss are relatively small for the vast majority of taxpayers. After the transition period, if there were no increase in saving, a deduction limited to 10% of wage income (with a ceiling of $2,000) would entail a revenue loss at 1972 levels of only $4 billion.[33] Any actual increase in saving that is induced by the deduction would then substantially exceed the associated loss of tax revenue.[34]

33. This short-run revenue loss is based on the existing savings distribution and excludes asset transfers; see section 6.2.1 for evidence on the modest one-time revenue cost of allowing deductions for asset transfers. The corresponding long-run revenue loss, which also reflects both the loss of the subsequent tax revenues that would have been collected on the interest and dividends on these savings and the gain in tax revenue that would eventually be collected when the funds are withdrawn, would be about $5 billion.

34. Recall that if the revenue loss on this additional saving is measured by the immediate consequence of the deduction, an extra dollar of saving reduces tax revenue by only about 20 cents. This tax reduction is partially recovered (in a present value sense) to the extent that the individual's tax rate is as high when the funds are withdrawn. Although no tax is collected on the interest and dividends earned on the extra capital, this is not a revenue loss since it would not otherwise have existed. Indeed, the corporate income tax on this additional capital could more than offset the loss in personal tax revenue.

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Comment Martin J. Bailey

The paper "Alternative Tax Rules and Personal Saving Incentives," by Martin Feldstein and Daniel R. Feenberg, correctly emphasizes the advantages of a comprehensive reform of the taxation of income from capital, and correctly remarks on the political imperatives that force a piecemeal approach in its place. The quantum leap of a major Pareto improvement in this area is unmistakably out of reach, whereas the time is ripe for third-best proposals such as integrations of corporate and personal income taxes and the limited exclusions considered in this paper. Pragmatically, therefore, the paper is a necessary, valuable exercise. If read with the proper care and selectivity, the results are useful and are superior to the corresponding estimates produced by the Treasury Department and by the Joint Committee on Internal Revenue Taxation.

The estimates can be further improved and narrowed down by better methods. Hence my comments imply restrained enthusiasm for the results as given: I regret that the authors failed to use all the analytical tools they had at their command. The principal tools they neglected are neatly summarized in the following quote from their paper: "The effect on savings of a [reduction] in the taxation of capital income therefore depends on the timing of tax payments and on the response of government

Martin J. Bailey is with the Department of Economics, University of Maryland.

spending. If government spending in each year remains unchanged, national saving must rise. If the compensating changes in the tax keep tax liabilities in each year unchanged, private saving must also increase." These propositions, now well established, were derived from the theory of household maximization subject to budget constraint, a theory regrettably neglected in the balance of the paper. Also omitted was the compensated tax change, whose use would have obviated discussion of the controversy about the Ricardian equivalence theorem and with the related and highly debatable income effects. Without these complications the only possible outcome is a fall in consumption, and the range of cases to be considered would be markedly reduced.

Also, sampling error can be considerably reduced in tax simulations by nonrandom sampling from the Treasury's public use sample of individual tax returns, taking all due care to avoid bias in the selection criteria.

Throughout the paper, purchases of financial assets are considered equivalent to savings, subject to only slight caveat. The authors do explain that taxpayers with eligible assets would use up a savings exclusion for several years by transferring these assets into the special tax-privileged accounts. They also argue that taxpayers would be deterred by the inconvenience from converting an ineligible asset, such as the home, into eligible form by borrowing against it (e.g. by increasing the mortgage.) However, there is no appreciable inconvenience in using the net proceeds of a new, larger mortgage to buy eligible assets and then to transfer them year by year into the special account. Similarly, an increased dividend exclusion would doubtless induce more corporations to specialize in high dividend-payout ratios. Responses like these will reduce and could even nullify the predicted national savings (or consumption) responses.

The reader will note that this comment on taxpayer responses involving no new saving increases the chance of a zero consumption effect, in contrast to my earlier comment suggesting that consumption must decline. Thus the criticisms partly offset each other. However, the fact remains that for compensated tax changes the case of a consumption increase cannot occur (apart from asymmetrical distributional effects). A zero consumption change would be the extreme case among the possibilities.

Careful analysis of taxpayer responses to tax changes is the needed next improvement in the estimation of revenue effects—a step that has been in development in various studies for some time. It is only beginning to affect official estimates, although that picture has lately changed from one extreme to the other in the flamboyant appearance of "supply-side" ideas and claims. The Feldstein and Feenberg paper is a constructive attempt to improve the picture.