

THE CRISIS IN U.S. SAVING AND PROPOSALS TO ADDRESS THE CRISIS

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THE U.S. is facing a saving crisis. Compared with the period 1950 to 1979 our national rate of saving has declined by 60 percent. If our saving rate does not rebound, Americans will, over time, fall far below Western Europeans and the Japanese with respect to per capita wealth and percapita income.

The precise explanation for the drop in U.S. saving in the 1980s remains a puzzle. Many factors, such as demographics, would have suggested an increase in U.S. saving. What is clear is that the policy mix of the 1980s was not effective in raising national saving. Some observers, myself included, believe that certain of the saving incentives of the 1980s were so poorly designed that they probably contributed to the decline in national saving.

The Administration and many members of Congress should be applauded for sounding the alarm about U.S. saving. Unfortunately, the proposed Family Saving Accounts (FSA), expansion of Individual Retirement Accounts (IRAs), and reduction in capital gains tax rates are unlikely to raise U.S. saving and could well reduce it even further.

This paper takes a critical look at Administration and Congressional proposals to increase U.S. saving. It begins in Section I with a discussion of why one should care about the rate of U.S. saving. Section II then describes the U.S. saving problem using corrected measures of the U.S. net national saving rate. The net national saving rate is the conceptually correct measure of U.S. saving; in contrast, conventional private and personal saving rate measures of U.S. saving are not well-defined from the perspective of economic theory because they depend on economically arbitrary definitions of "taxes" and "transfers." Section III discusses this problem of using conventionally-defined

private and personal saving rate measures, and it indicates the proper way to measure saving by the private sector. The new measure of private sector saving presented in Section III indicates that it is changes in private sector saving behavior, rather than government consumption behavior, that have kept and are keeping our national saving rate so low.

Section IV discusses alternative explanations of low U.S. saving in the 1980s. This discussion serves as background to Section V which examines the FSA, IRA, and capital gains tax cut proposals. Section VI considers the empirical literature relevant to the policy proposals, and Section VII presents simulations from the Auerbach-Kotlikoff dynamic fiscal policy model on deficit-financed reductions in capital income tax rates. Finally, Section VIII concludes with some alternative suggestions for increasing U.S. saving.

I. Why Do We Care About the Rate of U.S. Saving?

The low rate of U.S. saving is very troubling for a number of reasons. First, there is the problem of keeping up with the Joneses—in this case Western Europe and Japan. While data differences make precise international comparisons of net national saving rates difficult, the available figures (after corrections) suggest the U.S. is saving at roughly half the rate of the Western Europeans and at about a third of the rate of the Japanese. Based on current saving patterns, total wealth owned by Americans will increase by roughly 10 percent over the next decade, while that of the Japanese will increase by 20 to 25 percent. If current saving patterns persist, Americans will, over time, become the poor cousins of the Japanese and Western Europeans. We will not only have less wealth per person, but less net national product (income) per person, since NNP includes income earned on American owned assets.

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Second, less wealth accumulation by Americans means less control of the world's wealth by Americans, including wealth that is invested in the U.S. As the Japanese correctly tell us, the reason we are running large current account deficits is because the accumulation of additional wealth by Americans—the saving of Americans—is insufficient to finance investment in the U.S. Since Americans aren't saving enough and investing enough in the U.S., foreigners are doing the investing for us. One answer—the wrong answer—to foreign investment in the U.S. is to restrict such investment. Such a policy would make Americans even poorer over time because the level of U.S. wages, out of which many Americans save, depends on the amount of capital employed in the U.S. relative to the amount of labor employed in the U.S. Restricting foreign investment will lower U.S. capital to labor ratios and lower U.S. real wages.

A third reason for concern about U.S. saving relates to the welfare of the next generation of retirees and their potential demands on the next generation of workers. The fact that income levels and poverty rates of the current elderly are close to those of the rest of the current population does not necessarily mean the same will be true in 30 years. Apparently baby boomers are not setting as much aside (in proportionate terms) for their old age as did their parents. Perhaps they are saving less because they think social security will be as generous to them as it was to their parents and grandparents. Recent social security legislation, however, suggests the opposite. The future benefits of baby boomers were cut by 15 to 20 percent under the 1983 Social Security Amendments. In addition, retiree medical benefits provided by Medicare (as well as private employers) are in the process of being scaled back.

These points would not be so troubling if we could expect baby boomers, who are going to live longer, to work longer. But the trend toward early retirement continues, albeit at a slower rate than in the 1970s. The prospect of a politically powerful baby boom generation arriving in old age with low incomes relative to the

working age population raises the specter of a huge intergenerational transfer through social security or some other mechanism early in the next century.

II. The State of U.S. Saving

In 1989 the rate of U.S. saving out of net national product—our net national saving rate—was a mere 3.6 percent. This figure is just 40 percent of the 8.9 percent average rate of net national saving observed between 1950 and 1979. Unfortunately, last year's remarkably poor saving performance was no outlier compared with the rest of the 1980s. Between 1980 and 1984 the U.S. saving rate averaged only 5.0 percent; and since 1985 it has averaged only 3.6 percent.

These figures are based on National Income and Product (NIPA) measures and definitions of net national product, household consumption, and government consumption. Economists have long faulted NIPA accounting for treating the acquisition of consumer and government durables as current consumption. This is clearly inappropriate; households do not fully consume a newly purchased refrigerator in the space of one year, rather they consume only the annual services of the refrigerator. Similarly, the government doesn't fully consume the services of a new machine or building it acquires in a single year, rather only that year's services from the new machine or building.

Table 1 presents the net national saving rate based on both the National Income Accounts measures of net national product, private consumption, and government consumption and corrected versions of these numbers. Both the corrected and uncorrected measures of the net national saving rate show a marked drop in U.S. saving in the 1980s. According to the corrected measure, the U.S. saving rate averaged only 7.2 percent during the period 1980 through 1985. This average is about three fifths the corrected average saving rate of the 1970s and just over half the corrected average rate of the 1950s and 1960s. The corrected saving rate for the first half of the 1980s is indeed so low that it is even less than the average saving rate

in the 1940s. While data are not available to calculate corrected saving rates since 1985, the uncorrected data suggests that the corrected rates for 1986 through 1988 are even lower than those in the first half of this decade.

The uncorrected measures understate the true rate of U.S. saving by roughly one third. This is a considerable difference and suggests the need for care in comparing U.S. saving rates with those of foreign countries, many of whom adopt different measures of net national product, private consumption, and government consumption.

III. Why Private and Personal Saving Rate Measures are Unreliable

The net national saving rate—defined as net national product less total private plus government consumption divided by net national product—has a solid conceptual basis in neoclassical economic theory. This, unfortunately, is not the case for other concepts of saving, such as the NIPA private and personal saving rates. These measures of saving depend on the definition of taxes and transfers, which, from the perspective of economic theory is completely arbitrary (see Kotlikoff 1989). To give an example, consider social security contributions. Economic theory does not tell us whether to label these payments to the government as "taxes" or as "the purchase of claims to future social security benefits." The "tax" terminology suggests social security contributions are not a form of private saving, while the "purchase of claims" terminology suggests they are a form of private saving. Since social security contributions are considerable, how one chooses to label them will make a huge difference to one's measure of private and personal saving.

Rather than rely on such economically arbitrary and, therefore, uninformative indices of private saving behavior, consider what I shall call the private sector saving rate. The private sector saving rate takes net national product less government consumption as the appropriate measure of disposable income for the private sector; it is the nation's output left

over after the government has consumed. The private sector saving rate then asks what fraction of this disposable income is saved (not consumed) by the private sector; i.e., the denominator for the private sector saving rate is defined as net national product less government consumption, while the numerator equals this measure of disposable income less private consumption.

Table 1 presents measures of the private sector saving rate. Regardless of whether one corrects the basic data for consumer and government durables, it is clear that the private sector saving rate fell dramatically in the 1980s. According to the uncorrected data, the private sector saving rate averaged 11.4 percent over the period 1950 through 1979. In contrast, from 1980 through 1989 the private sector saving rate averaged only 5.5 percent.

IV. Alternative Explanations of Low U.S. Saving in the 1980s

What has changed to lead households to switch from saving 11.4 cents of every dollar of national output not consumed by the government to saving only 5.5 cents of every dollar of national output not consumed by the government?

One potential explanation for low U.S. saving in the 1980s that can be dismissed is that increased government consumption is to blame. As Table 1 indicates the ratio of government consumption to NNP was only slightly higher in the 1980s than in the previous two decades. It is easy to show that had the private sector saving rate not declined in the 1980s, the small increase in government consumption relative to NNP would have had only a trivial impact on the rate of national saving.

While the government did not consume much more of NNP in the 1980s than in the previous three decades, many contend that the government, by running large deficits, shifted the burden of paying for government consumption from current to future generations. Such generational policy, the argument goes, should induce a spending spree by current generations in response to their reduced tax bill. This argument ignores, however, other policies

Table 1

*Net National and Private Sector Saving Rates
Corrected and Uncorrected*

Period	Corrected Measures			Uncorrected Measures		
	National Saving Rate	Private Sector Saving Rate	G/Y	National Saving Rate	Private Sector Saving Rate	G/Y
1950-1959	.133	.167	.203	.092	.116	.211
1960-1969	.130	.166	.215	.089	.116	.226
1970-1979	.118	.152	.223	.085	.109	.222
1980-1985	.072	.093	.230	.050	.064	.223
1980-1989	na	na	na	.043	.055	.225

na not available

The corrected net national product measure adjusts the National Income and Product Accounts measure of net national product by 1) adding the imputed rent on consumer durables and government tangible assets, excluding military equipment (expenditure on which is treated as current consumption) and 2) subtracting the depreciation on the stock of consumer durables and government tangible assets (excluding military equipment). Corrected private consumption measure equals private consumption expenditure on goods and services plus the imputed rent on consumer durables. Corrected government consumption equals the National Income Account measure of government consumption less government expenditures on (nonmilitary) equipment and structures, plus the imputed rent on government equipment (nonmilitary) and structures. The data used to correct the National Income Account figures come from the U.S. Department of Commerce's study entitled Fixed Reproducible Tangible Wealth in the United States, 1925-85.

of the Reagan administration that redistributed away from current generations toward future generations. One important example is the 1983 Social Security Amendments.

The strongest proponents of "the deficit caused the drop in our saving rate" are Keynesian economists. According to the Keynesian view households base their consumption decisions on current disposable income, and the Reagan income tax cuts raised disposable incomes. This is true, but other federal, state, and local policies lowered disposable incomes. On balance, disposable income as a share of net national product was only slightly higher in the 1980s than in the previous decades. For all (federal, state, and local)

governments the ratio of taxes plus transfers to NNP averaged .220 between 1980 and 1987. It averaged .226 for the 1970s, .239 for the 1960s, and .224 for the 1950s. In considering these figures it is also worth noting that the very slight decline in the 1980s in the ratio of net taxes to NNP primarily reflects a decline in corporate taxation.

It is hard to argue that saving disincentives are responsible for the decline in saving in the 1980s. Marginal personal tax rates on capital income fell through the last decade, with the top marginal rate declining from 70 percent in 1980 to 33 percent in 1988. Some of the policies used to promote savings, such as the IRAs, were, as discussed in Section V, poorly designed

to produce new saving and probably reduced rather than increased national saving. Others, such as the move toward a consumption oriented tax base associated with the adoption of the Accelerated Cost Recovery System were not in place for long enough to have had a significant effect on saving; simulation studies (e.g., Auerbach and Kotlikoff, 1987) indicate that many government policies aimed at stimulating savings can have significant effects that are observed only after decades, rather than a few years.

Most theories of consumption predict that households will increase their spending in response to an increase in wealth. While the 1980s witnessed a significant increase in stock market wealth, if one adds together capital gains and losses for all U.S. assets less liabilities the total capital gain for the 1980s is only \$260 billion measured in 1988 dollars. This represents only 1.7 percent of total 1988 U.S. net wealth, and is too small to account for much of the decline in net national saving.

The 1980s witnessed changes in income inequality, demographics, and female labor force participation, but each of these changes should have led to more, not less net national saving. One possible explanation for the recent decline in saving is a reduction in saving for bequests, which may tie in with the decline in the birth rate. At least half and possibly as much as two thirds of U.S. wealth can be traced not to life cycle saving for retirement, but rather to private bequests and other intergenerational transfers. It is hard to determine whether there has been a decline in the bequest motive for saving, but such a decline would not be surprising given the general deterioration of the family in the U.S.

Much of U.S. bequests in this Century may have been in large part involuntary in reflection of the limited availability of old age annuities. But the increased availability of social security and private pension annuities, particularly over the last twenty years, may have reduced bequests and precautionary concerns about eating up one's wealth too fast. The re-

duction in life span risk may thus have spurred the elderly to consume more, contributing to the reduction in national saving.

Whether a decline in bequest saving explains our critically low saving rate is a question whose answer will require significant additional research. At the moment, however, there is no "smoking gun" explanation for the critically low level of U.S. saving.

V. Proposed Saving Initiatives

A. Family Saving Accounts and the Expansion of IRA Deductibility

To understand whether a given saving proposal will work in terms of raising net national saving, we need to ask whether the proposal will lead to less private sector consumption than would otherwise be the case. The mere fact that households place a portion of their savings in IRAs or similar accounts does not mean they are reducing their consumption. Quite the contrary. IRAs and FSAs permit tax arbitrage whereby individuals reduce their taxes by simply moving money that they may previously have saved or only recently borrowed from a non-tax sheltered account into an IRA or FSA. The tax savings permit such individuals to consume more.

Unfortunately, economic research has failed to focus on the consumption effects of IRAs and similar accounts. Instead, the research has studied the propensity of different segments of society to put money in these accounts. But the placing of money in these accounts tells us nothing about their saving effects. The only clear fact about household consumption and IRAs is that household consumption as a share of NNP increased precisely during the period that the use of IRAs expanded. This factoid should give considerable pause to advocates of IRAs and FSAs.

One response to the concern about tax arbitrage is that the proposals limit their use by very high income households. While this is true, middle income and even many

lower income households are able, with a little bit of thought, to see how they can save taxes and consume more by "investing" in IRAs and FSAs. Even if we consider households who have no previous saving and cannot borrow from relatives or the banking system to engage in tax arbitrage, there is no guarantee that contribution of funds to IRAs and FSAs will be associated with a reduction in current consumption. First, many of the households who place their saving in these accounts may have intended to save the same amount even in the absence of these tax shelters, and using these accounts will simply lower their tax liabilities, permitting an increase in their consumption. This seems particularly likely for households who would anyway save more than the maximum contribution amounts. Second, for households contributing less than the maximum contribution amounts and for whom these tax shelters truly represent marginal incentives to consume less today and, therefore, more tomorrow, there is also an "income effect" to consider. The "income effect" here refers to the fact that households need to put less aside today to meet specific future consumption goals if they can earn a higher after-tax return on their saving. While there is a "substitution effect" from the higher after-tax return that may lead households to raise their future consumption goals, the "income effect" could certainly outweigh the substitution effect, leaving even non-tax arbitragers both contributing to these tax shelters and consuming more.

Another reason to suspect that the new proposals will lower, not raise national saving are the proposals' provisions that permit households to withdraw their funds, at no penalty, to purchase their first home or to pay for educational or medical expenses. Unfortunately, these provisions are geared toward helping households increase, not reduce, their current or near term consumption of housing, medical, and educational services.

Whose Saving is Subsidized at the Margin by IRAs and FSAs?

As mentioned above, IRAs and FSAs provide households with tax arbitrage op-

portunities. When these arbitrage opportunities are fully exploited, the household makes the maximum contribution, thereby obtaining the maximum reduction in taxes, but ends up with the same marginal tax on capital income as without these "saving" incentives. For such "savers" IRAs and FSAs represent a pure intramarginal (lump sum) handout, and, according to economic theory, they will increase their consumption accordingly.

The fact that 75 percent of contributions to IRAs are from households who contribute the maximum (Galper and Byce 1986) is quite telling. For these households IRAs simply expand their intertemporal budget constraints (represent a positive income effect), but provide no incentive at the margin to consume less today. For those households in income classes above \$50,000, the percentage contributing the maximum in 1986 was close to 90 percent. It is worth noting that these upper-income households are precisely the group that would benefit from the Bentsen et al. proposal to expand the deductibility of IRAs.

Granted that most of the households (where "most" refers to most of the IRA dollar action) contributing to IRAs experience a positive income effect (that should induce more consumption), but no "substitution" (incentive) effect, do at least the remaining households experience a "substitution" effect; i.e., do they actually end up with a lower marginal capital income tax and, therefore, a greater incentive to defer current consumption? The answer is no for many of the remaining households. First of all, certain low income households are sufficiently poor that they pay no Federal income tax. Such households obviously receive no higher return from contributing to IRAs than not contributing.

Second, there is a segment of households who can receive the same after-tax return as offered by IRAs simply by increasing their contributions to their firm's pension plan or to their own Keogh plan. For such households IRAs or FSAs do not, at the margin, provide any additional opportunities beyond those already available and should, therefore, have no im-

fact on such households' consumption.

Third, there is surely a segment of households who are forced to contribute more to capital income tax-free employer pension plans than they would do voluntarily. Such households already feel they are being forced, through either defined benefit or defined contribution pension plans, to save too much, even if the return on these savings is not being taxed. Given the opportunity through IRAs or FSAs to save even more at a zero effective capital income tax rate, such households would say "no thank you."

The point of the previous two paragraphs is that for many American households the Federal tax structure looks, at the margin, not like an income tax, but rather like a wage tax. IRAs and FSAs are not provisions being added in isolation to a clean system of income taxation; rather they are being added to a mixed tax structure that, at this point, may more closely resemble a wage tax structure than an income tax structure.

There are surely some households for whom IRAs and FSAs reduce effective capital income taxation at the margin. An example of such a household would be one that 1) is unable to borrow in a tax deductible manner (e.g., through a mortgage) to engage in tax arbitrage, 2) is not covered by a pension plan, and 3) has liquid wealth that is less than the maximum contribution, 4) has sufficient income to be in a positive tax bracket, 5) and would otherwise have saved less than the maximum contribution.

But even for such a household for which IRAs and FSAs provide a saving incentive at the margin, the income effect could well outweigh the substitution effect. Indeed, as described in the Section VII, simulations based on the Auerbach-Kotlikoff dynamic fiscal policy simulation model indicate that deficit-financed cuts in the capital income tax rate will, over time, reduce the economy's saving and crowd out its capital formation. In other words, even if we made the counterfactual assumption that was most generous to the IRA and FSA proposals namely, that all American households experience a reduction in their capital income tax rates, the Auerbach-

Kotlikoff model predicts there will still be a reduction in national saving. This is not surprising. To have substitution effects outweigh income effects one needs to assume very much larger intertemporal elasticities of substitution than have been estimated for the U.S.

Proposed Cut in Capital Gains Tax Rate

The proposed cut in capital gain taxes is another example of a poorly designed saving incentive. While they would provide increased incentives for additional saving, the proposed tax cuts also represent a tax windfall to those with accrued, but not yet realized capital gains on past saving. Under the proposed capital gains tax cuts, most of those with accrued capital gains will be able to realize these gains at a 19.6 percent rate, rather than at a 28 percent nominal rate. True, the tax cut may lead to more short-run tax revenue, but it will almost surely mean less future revenue. In present value there is likely to be a significant revenue loss. Since every present value loss to the Treasury is a present value gain to the household sector, the household sector is likely to celebrate this event by consuming more.

VI. Assessing the Empirical Evidence on IRAs and Capital Gains Tax Cuts

Recall from the definition of private sector saving that, at a point in time when output and government consumption are given, the only way for the private sector saving rate to rise is for private sector consumption—household consumption—to fall. Thus the focus of any analysis of saving incentives should be whether the incentives serve to raise or lower private sector consumption. Unfortunately, studies of IRAs have focused not on consumption, but on some measure of private saving. Since "private saving" is defined as some economically arbitrary definition of disposable income less private sector consumption, using "private saving" to back out what happens to private sector consumption requires measuring precisely one's definitions of both private saving and

disposable income. An error made in measuring either magnitude will lead to an error in measuring private sector consumption, which is the magnitude of ultimate interest. Surprisingly, even researchers with direct information on consumption, such as Venti and Wise (1987), have studied how IRAs affect their notion of private saving, rather than directly observable private sector consumption.

One particular difficulty in measuring "private saving" for studies of IRAs is keeping track of liabilities. If one measures "private saving" as the change in net wealth between two periods, one must be extremely careful to include all changes in liabilities. If one measures "private saving" as the difference between "disposable income" and consumption, one must be extremely careful to include all negative income associated with the payment of interest on liabilities. The reason for stressing liabilities here is that increasing one's liabilities as a means of financing investments in IRAs may be quite common. Households may take out tax deductible home equity loans or simply pay off their existing mortgages at a slower rate than would otherwise be the case and place these funds into IRAs. I doubt that any of the studies of IRAs that have been based on private saving (which, unfortunately, appears to be all existing micro studies of IRAs) have the requisite liabilities data needed to accurately back out private sector consumption.

Turning to the empirical evidence, the studies by Venti and Wise (1987, 1989) and that of Feenberg and Skinner (1989) are the most supportive of the view that IRAs increase saving. The analyses of Venti and Wise are based on an exceptionally ad-hoc model of utility maximization. Rather than posit that households care about (have utility for) current and future consumption, Venti and Wise assume that households have utility for different forms of savings. While an indirect utility function of savings can potentially be derived from an underlying utility of consumption model, the functional form of utility of savings adopted by Venti and Wise does not appear consistent with any underlying

utility of consumption model. In addition, as Gravelle (1990) and Deaton (1988) point out, the functional form chosen by Venti and Wise may be inducing some of their highly implausible results.

A more recent study by Gale and Scholz (1990) starts with a well-defined model of intertemporal consumption choice and derives the implied indirect utility function for different forms of savings. Their results are directly opposite to those of Venti and Wise. They find that raising IRA limits would decrease national saving.

The Gale and Scholz analysis also controls for a problem that arises in the Feenberg and Skinner paper. Feenberg and Skinner report that IRA contributors experience larger increases in non-IRA assets over time than non-IRA contributors. They take this to mean that IRAs do not crowd out non-IRA saving; i.e., that households are not simply placing their non-IRA assets into IRA accounts. While their analysis provides some important facts about asset accumulation, a major weakness is their failure to control for heterogeneity as between IRA contributors and non-contributors. The reason IRA contributors accumulate non-IRA assets at a faster rate than non-IRA contributors may simply be that they have a stronger preference for saving than non-IRA contributors. Alternatively, they may be more adept than non-IRA contributors in borrowing in tax-deductible forms. It is not clear whether Feenberg and Skinner adequately control for borrowing through mortgages in their analysis.

The concern about heterogeneity is at the forefront of the Gale and Scholz study and is treated econometrically. While their study is the only micro empirical study to date that finds the IRAs reduce national saving, it is also the only micro empirical study to date that takes seriously the complexities of the IRA investment decision. While the Gale and Scholz study has some shortcomings of its own, it appears to be the only really reliable evidence to date on whether IRAs have increased or decreased U.S. national saving.

Unfortunately, there has not been a careful micro empirical study that can be used to assess the consumption impact of

changes in capital gains tax rates. A variety of micro empirical studies have, however, estimated the intertemporal elasticity of substitution which is the critical parameter determining the response of current consumption to increases in after-tax rates of return. This literature, which is reviewed in Auerbach and Kotlikoff (1987) indicates a very small intertemporal elasticity of substitution. As the next section indicates, a standard neoclassical simulation model that incorporates reasonable estimates of the intertemporal substitution elasticity leads to the prediction of crowding out of saving arising from reductions in the rate of capital income taxation. The results of such simulations directly contradict Administration estimates that capital gains tax cuts will spur additional long-run saving and economic growth. Auerbach (March 1990) has pointed out that even simple back of the envelope calculations suffice to show the implausibility of the Administration's estimate of the increase in savings due to the reduction in the rate of capital gains taxation.

Putting aside the question of the savings effect of the proposed capital gains tax cut, what should one make of the Administration's forecast that the reduction in capital gains taxation will raise revenues for the next 5 years? The Administration is probably correct to predict increased capital gains tax revenues in the first 1 or 2 years of the tax cut. After all, the Administration has been advertising the likelihood of a capital gains tax cut for quite a while now, and many investors are probably waiting until the tax rate is cut before they realize their gains. What this means is that revenue from this year and last year that the government should already have collected will show up next year or the year after if Congress passes a capital gain tax cut this year.

The important question is not whether revenues increase in the year or two after the tax cut, but whether they will be permanently higher—more precisely, whether the reduction in capital gains tax rates will raise the present value of capital gains tax revenues. Studies by the Joint Committee

on Taxation and Auerbach (1989) suggest that a capital gains tax cut will cost the Treasury revenue in present value (where the present valuation takes into account years far beyond 5 years after the tax cut). These estimates, which seem quite reasonable, suggest that a cut in the capital gains tax rate will not be self-financing and will, eventually, necessitate increases in the deficit. The next section uses the Auerbach-Kotlikoff simulation model to consider the impact of such deficit-financed reductions in capital income tax rates.

VII. Simulating Deficit-Financed Reductions in Capital Income Tax Rates

The Auerbach-Kotlikoff dynamic fiscal simulation model (henceforth, the AK Model) provides a vehicle for studying whether deficit-financed reductions in capital income tax rates will raise or lower national saving over time. The AK Model calculates economic transition paths over a 150-year period arising from changes in fiscal policy. The model has 55 overlapping generations. Each adult agent in the model lives for 55 years (from age 20 to age 75).

There are three sectors in the model: households, firms, and the government. Households (adult agents) maximize an intertemporal CES utility function of consumption and leisure. Fiscal policies affect households through their lifetime budget constraints which require that the present value of after-tax consumption expenditures not exceed the present value of after-tax labor earnings plus the present value of transfers such as Social Security. In the case of progressive taxes, tax rates in the budget constraint are functions of the size of the tax base. A second constraint on the household maximization is that labor supply at each age be nonnegative. The model includes a relative age-wage profile.

The utility function parameters chosen for the simulations reported here include an intertemporal substitution elasticity of .25, a static elasticity of substitution of .8, and a time preference rate of .015. These

and other preference parameters estimates are based on empirical studies cited in Auerbach and Kotlikoff (1987). While versions of the model consider children of the model's adult agents, in the simulations presented here, children are ignored, and the number of adults is assumed to grow at a constant 1.5 percent rate.

The production sector is characterized by a CES production function of capital and labor. In the simulations described below the Cobb-Douglas version is used with capital's income share equal to .25. Firms hire labor and capital competitively. The version of the model used here is that of a closed economy; hence, domestic investment is determined by national saving, and the capital stock equals total national wealth.

The government sector consists of a treasury that collects resources from the private sector to finance government consumption and an unfunded, "pay as you go" Social Security system. The initial steady state in the simulations reported in Tables 2, 3, and 4 features wage and capital income tax rates both of which equal 30 percent and a 15 percent social security payroll tax. In the initial steady state there is zero government debt.

The three policy experiments examined in the tables are reductions in the capital income tax rate from 30 percent to 29 percent that last for 4, 9, and 19 years. This represents a 3.33 percent reduction in the rate of capital income taxation, which is at the upper bound of estimates of the reduction in the effective capital income taxation associated with the Administration's capital gains tax cut proposal. While this reduction in capital income taxation is much smaller than the reduction that might arise for some households from expanding IRAs or introducing FSAs, the qualitative results described in Tables 2, 3, and 4 would be the same regardless of the size of the temporary reduction in capital income tax rates.

In each of the simulations the wage tax rate is held fixed throughout the transition at 30 percent. During the period of the tax cut the AK Model's treasury issues positive or negative debt to cover its loss or gain in revenue from the tempo-

rary capital income tax cut. At the end of the tax cut, i.e., after 4, 9, or 19 years, the AK model adjusts the capital income tax rate each year to maintain a zero deficit adjusted for growth. Thus, if the capital income tax cut were to stimulate enough additional national saving so as to produce more capital income tax revenues than are needed to finance government consumption, the model will have its treasury accumulate a surplus and, after the tax cut has terminated, interest on this surplus will be used to finance government consumption and permit a rate of capital income taxation that is permanently below 30 percent.

If, on the other hand, there is no Laffer Curve from the capital income tax cut, the model will accumulate positive government debt during the period of the tax cut; and once the tax cut is terminated, the capital income tax rate will have to rise permanently above 30 percent because of the treasury's need to finance not only its consumption, but also interest on the debt it issued during the tax cut.

Each of the three tax cut experiments leads in the long run to crowding out of savings and capital, lower real wages and higher real interest rates, and higher capital income tax rates. For example, in the case of the 19-year tax cut, the long run capital stock is 6.7 percent smaller, the real wage is almost 2 percent lower, and the real interest rate is 70 basis points higher than in the initial steady state. In addition, the long-run capital income tax rate is .339, which is almost 4 percentage points higher than its initial steady state value of .300.

While deficit-financed reductions in capital income tax rates are detrimental to the economy in the long run, the short-run effects mask the long-run problems. In the short run, the substitution effects (incentive effects) of temporarily lower capital income tax rates induce more saving and there is a temporary crowding in of capital. But the short-run increase in saving does not suffice to raise the capital income tax base enough to preclude the running of deficits. As a result, the deficit grows over time and once the period of the tax cut has come to an end, the capital income tax rate must be increased.

Table 2

Simulating Deficit-Financed Reductions in Capital Income Taxation

A 4 Year Cut in the Capital Income Tax Rate

<u>Year</u>	<u>Capital</u>	<u>Labor</u>	<u>NNP</u>	<u>Wage</u>	<u>Interest Rate</u>	<u>Capital Inc. Tax Rate</u>	<u>S/Y</u>
0 (Initial Steady State)	48.60	16.42	21.89	1.000	.1126	.300	.033
1	48.60	16.44	21.91	.999	.1127	.290	.035
2	48.63	16.43	21.91	1.000	.1126	.290	.034
3	48.64	16.42	21.90	1.000	.1125	.290	.033
4	48.63	16.41	21.89	1.000	.1125	.290	.032
5	48.61	16.41	21.89	1.000	.1125	.303	.032
6	48.59	16.41	21.88	1.000	.1126	.303	.032
7	48.56	16.41	21.88	.999	.1126	.303	.032
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20	48.35	16.42	21.87	.998	.1130	.304	.032
30	48.28	16.42	21.86	.998	.1132	.304	.032
90	48.22	16.43	21.86	.997	.1133	.304	.032
150	48.21	16.43	21.86	.997	.1133	.304	.032

Table 3

Simulating Deficit-Financed Reductions in Capital Income Taxation

A 9 Year Cut in the Capital Income Tax Rate

<u>Year</u>	<u>Capital</u>	<u>Labor</u>	<u>NNP</u>	<u>Wage</u>	<u>Interest Rate</u>	<u>Capital Inc. Tax Rate</u>	<u>S/Y</u>
0 (Initial Steady State)	48.60	16.42	21.89	1.000	.1126	.300	.033
1	48.60	16.45	21.92	.999	.1127	.290	.035
2	48.64	16.44	21.92	.999	.1126	.290	.034
3	48.66	16.43	21.91	1.000	.1125	.290	.034
4	48.68	16.42	21.91	1.000	.1125	.290	.033
5	48.68	16.42	21.90	1.000	.1124	.290	.033
6	48.67	16.41	21.89	1.000	.1124	.290	.032
7	48.64	16.40	21.88	1.000	.1124	.290	.031
8	48.61	16.39	21.87	1.000	.1124	.290	.031
9	48.55	16.38	21.85	1.000	.1125	.290	.030
10	48.49	16.39	21.85	.999	.1126	.309	.030
11	48.43	16.39	21.85	.999	.1127	.309	.030
12	48.38	16.39	21.84	.999	.1128	.309	.030
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20	48.05	16.41	21.83	.997	.1135	.310	.031
30	47.81	16.43	21.81	.995	.1140	.311	.031
60	47.61	16.44	21.80	.994	.1144	.312	.032
150	47.57	16.44	21.80	.994	.1145	.312	.032

Table 4

Simulating Deficit-Financed Reductions in Capital Income Taxation

A 19 Year Cut in the Capital Income Tax Rate

<u>Year</u>	<u>Capital</u>	<u>Labor</u>	<u>NNP</u>	<u>Wage</u>	<u>Interest Rate</u>	<u>Capital Inc. Tax Rate</u>	<u>S/Y</u>
0 (Initial Steady State)	48.60	16.42	21.89	1.000	.1126	.300	.033
1	48.60	16.45	21.93	.999	.1128	.290	.036
2	48.65	16.44	21.93	.999	.1126	.290	.035
3	48.68	16.44	21.92	1.000	.1126	.290	.034
4	48.71	16.43	21.92	1.000	.1125	.290	.034
5	48.73	16.43	21.92	1.000	.1124	.290	.034
6	48.74	16.42	21.92	1.000	.1124	.290	.033
7	48.74	16.42	21.91	1.000	.1124	.290	.033
8	48.74	16.42	21.91	1.000	.1123	.290	.033
9	48.72	16.41	21.90	1.000	.1123	.290	.032
10	48.71	16.41	21.89	1.000	.1123	.290	.032
11	48.69	16.40	21.89	1.000	.1124	.290	.031
12	48.66	16.40	21.88	1.000	.1124	.290	.031
13	48.63	16.39	21.87	1.000	.1125	.290	.030
14	48.58	16.39	21.86	1.000	.1124	.290	.030
15	48.53	16.38	21.84	1.000	.1125	.290	.029
16	48.45	16.37	21.83	1.000	.1126	.290	.028
17	48.36	16.36	21.81	.999	.1127	.290	.027
18	48.25	16.35	21.78	.999	.1128	.290	.026
19	48.12	16.33	21.75	.998	.1130	.290	.025
20	47.96	16.34	21.74	.997	.1133	.329	.025
21	47.81	16.35	21.73	.996	.1136	.330	.025
22	47.66	16.36	21.72	.995	.1140	.331	.025
30	46.74	16.41	21.68	.990	.1159	.333	.027
60	45.55	16.48	21.60	.983	.1185	.338	.030
150	45.34	16.49	21.58	.981	.1190	.339	.031

In the case of the 19-year capital income tax the capital stock exceeds its initial steady state value until the 9th year of the transition. The national saving rate and the supply of labor exceed their initial values for the first 3 years of the transition; and net national product (NNP) exceeds its initial value for the first 5 years of the transition. If one looked only at these indicators of the economy's performance during the first 3 years of the economy's transition, one might easily reach the conclusion that the policy was improving the economy's performance and would not necessitate future tax rate increases. An observer's sanguinity would not be greatly

dampened in these first 3 years by looking at the deficit. While there is a positive debt accumulated in the first three years it is small; the year 3 level of the debt measured as a fraction of the economy's capital stock is only .187 percent. Through time, however, the debt grows; in year 20 it is 3.97 percent of the economy's capital stock.

A good analogy for the transition arising from temporary tax cuts is that of a very slowly growing tumor. In the short run the patient may miss it entirely. Indeed, the patient may even feel better as the tumor may consume some organism causing some other ailment. But over time

the tumor will take hold and will have to be addressed.

The short-run crowding in and slow economic transition associated with tax cut policies that eventually crowd out savings and capital should be kept in mind when evaluating government revenue and related projections that consider only the next 5 or so years in the future. The simulations indicate that there is no Laffer curve for the economy to exploit with respect to capital income taxation. Reductions in personal capital income taxes effected either through expansion of IRAs, introduction of FSAs, or cuts in capital gains tax rates will, according to these simulations, eventuate ultimately in less capital per worker, lower real wages, and higher real interest rates. In the real world these policies will also be highly regressive.

VIII. Other Policy Options

What can the Federal government do to restore our national saving rate to at least the level of the 1970s? One answer is simply to inform the public directly that this is a national problem which each of us needs to address at an individual level. The government could do this by requiring all employers as well as the Social Security System to send workers annual statements indicating their accrued retirement benefits plus a calculation showing the amount of additional private saving required to reach an adequate level of total saving.

A second step the government could take is to adopt a value added tax. Virtually all economists agree that a consumption-oriented tax structure would produce more saving than our income-oriented tax structure. In addition to improving saving incentives, the redistributive effects of switching to a consumption-oriented tax base will also stimulate saving.

A third step is for the government to use the saving rate to target its fiscal policy. An increasing number of economists are questioning whether the reported deficit is a useful indicator of tight or loose fiscal policy. Under the guise of a balanced budget the federal government ran

a very loose fiscal policy in the 1970s when it expanded the Social Security System. Other policies, such as The 1986 Tax Reform Act, while having little or no implications for the reported deficit, are also viewed by many economists as a loosening of fiscal policy. Running a tight fiscal policy involves placing a bigger fiscal burden on current generations. This can be achieved in a number of ways, some of which will affect the reported budget deficit and some of which will not. The tightening of fiscal policy should be gradual, but it should continue until the U.S. saving rate again reaches a level suitable to the world's premier economic power.

In contrast to these steps, the Administration and many members of Congress favor a return to IRA-type policies as well as reductions in capital income tax rates. An impartial analyst considering the evidence would have to conclude that these policies have critical shortcomings that are as likely as not to exacerbate our national saving problem. With the national saving rate at a critically low level, this is hardly the time to experiment with saving incentives whose designs are flawed from the start.

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