

Economic Consequences of Tax Simplification

Proceedings of a Conference
Held in October 1985

Sponsored by:

*Federal Reserve Bank
of Boston*

Aaron
Auerbach
Blinder
Bosworth
Bradford
Clotfelter
Eisner
Gramlich
Hatsopoulos
Hendershott
Kopcke
McLure
Musgrave
Netzer
Pechman
Shoven
Slemrod
Steuerle
Summers
Sunley
Tobin

*Economic
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of Tax
Simplification*

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Contents

**Economic Consequences of Tax Simplification:
An Overview / 1**

Alicia H. Munnell

**Rationale Underlying
the Treasury Proposals / 29**

Charles E. McLure, Jr.

Discussion / 49

Henry J. Aaron

John B. Shoven

Emil M. Sunley

**The Effect of Tax Simplification
on Individuals / 64**

Joel B. Slemrod

Discussion / 92

Alan S. Blinder

David F. Bradford

Tax Reform and Capital Formation / 103

Richard W. Kopcke

Discussion / 140

George N. Hatsopoulos

Alan J. Auerbach

Robert Eisner

Tax Reform and Financial Markets / 153

Patric H. Hendershott

Discussion / 178

James Tobin

Barry P. Bosworth

**The Effect of Tax Simplification on Educational
and Charitable Organizations / 187**

Charles T. Clotfelter

Discussion / 216

C. Eugene Steuerle

**The Effect of Tax Simplification
on State and Local Governments / 222**

Dick Netzer

Discussion / 252

Edward M. Gramlich

An Overall Assessment — Is It Worth It? / 259

Richard A. Musgrave

Discussion / 285

Joseph A. Pechman

Lawrence H. Summers

Economic Consequences of Tax Simplification: An Overview

*Alicia H. Munnell**

Tax reform would qualify as a worthy conference topic at any time, but emerged as a particularly important subject in 1985. A Republican President in his 1984 State of the Union message directed the Secretary of the Treasury "to simplify the entire tax code" so that all taxpayers would be "treated more fairly." During the next 10 months the staff of the Treasury's Office of Tax Policy labored to fulfill that mandate, and in November the Secretary presented the President with the Treasury report, entitled *Tax Reform for Fairness, Simplicity, and Economic Growth* (hereafter Treasury I).

The main thrust of the Treasury plan was a substantial broadening of the income tax base combined with reductions in the marginal rates. Hence, a conservative Administration, fundamentally antagonistic to taxation and government spending, had embraced an approach espoused over several decades by liberals, who generally liked the income tax and supported government programs. With the emergence of this coalition, the time seemed ripe for meaningful tax reform.

The Treasury I proposals received wide endorsement from tax experts, but loud outcries were immediately heard from other quarters. In response, the Treasury staff went back to work and after six more months obtained the President's approval for a somewhat diluted report entitled *The President's Tax Proposals to the Congress for Fairness, Growth, and Simplicity* (hereafter Treasury II).

To garner support for Treasury II, the President made a television appeal to Americans to support the transformation of an "un-American" income tax system into one that is "clear, simple and fair for all." In an

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expression of bipartisan enthusiasm, the Democratic chairman of the House Ways and Means Committee responded immediately after the President's address and endorsed the tax principles embodied in the Administration's proposals.

In the months following the release of Treasury II and the initial euphoria, support for broad-based tax reform deteriorated. As the time approached to enact legislation, concern emerged on many fronts over the potential adverse economic consequences of including previously untaxed items in the tax base. Some cited the potential deleterious effects on individual saving and labor force activity, some the disruptive effects on financial markets, and some the adverse impact on investment. Others were concerned about the implications for institutions dependent on charitable contributions and the ramifications for the revenue-raising capabilities of state and local governments. These alleged adverse outcomes contributed to a further watering down of the already soggy Treasury II proposals.

The purpose of the Boston Fed's conference was to separate unfounded allegations from reasonable predictions, through a systematic and comprehensive analysis of the potential economic impact on the various sectors of the economy of Treasury I, Treasury II, and some of the other tax reform proposals. The hope was that clarifying the issues would improve future debate on tax reform. Second, even if comprehensive tax reform did involve some adverse consequences, the question was posed whether reform might still be "worth it."

Three major conclusions emerged from the conference. First, most participants viewed the need to raise more revenues as a much higher priority than reforming the tax system. Second, the supply-side effects from major revenue-neutral tax reform were judged, on the whole, to be relatively small. Third, tax reform of the extent proposed in Treasury I was judged to be definitely "worth it," but as the reform proposals became increasingly watered down the participants became more doubtful.

The Rationale for Tax Reform

In the United States, as in other developed countries, a person's income generally has been viewed as the best measure of ability to contribute to the cost of government. Although economic theorists have proposed many definitions of income, most have supported the Haig-Simons concept. This defines income, as an index of taxpaying capacity, as consumption plus an increase in net worth during a given period. Defining income in this broad manner ensures that taxpayers with equal economic resources are assessed equal amounts of taxes and those with

different capabilities are assessed different amounts.

Over time, the definition of income in the U.S. income tax has moved steadily away from the Haig-Simons ideal. Taxation of a given amount of income now varies widely depending on how it is earned and how it is used. As a result, much income escapes taxation and higher marginal rates are required to produce any given amount of revenue. Moreover, the tax system is highly vulnerable to variations in inflation and needlessly complex. These characteristics combine to make a tax system that is not only unfair but also distorts the allocation of economic resources.

The Treasury Proposals

In the introductory paper, Charles McLure, Jr. stated that the Treasury had four main objectives in its tax reform initiative. The first was *fairness*, particularly with respect to the taxation of individuals with the same total income. This notion of horizontal equity requires that all income be taxed equally regardless of its source or use. With respect to vertical equity, that is, the relative tax treatment of individuals with different levels of economic resources, the Treasury generally accepted the degree of progressivity currently in the system. The only exception was an effort to eliminate taxes assessed on families below the poverty level.

The second objective of the tax reform effort was *neutrality*, or minimizing interference with economic decisions in relatively efficient markets. Simplification, which was the third objective, consisted of two parts: simplification of factors that plague taxpayers as they prepare their returns, such as forms, instructions, and record-keeping, and simplification of loophole provisions that encourage tax planning and avoidance and distort decisionmaking. The fourth objective, *economic growth*, was initially thought to emerge naturally as the result of lower rates and a more neutral system.

To achieve these goals, Treasury I proposed to tax all real economic income uniformly and consistently at lower rates. Income rather than consumption was selected as the base primarily because of pragmatic concerns in the face of severe time and resource constraints. Moreover, the difficulties of taxing bequests under a consumption or expenditure tax raised the possibility that individuals might amass large untaxed estates. The taxation of real income was judged necessary to avoid inequities and distortions, such as those created during the 1970s by an income tax based on nominal income in a world of high and variable inflation. Furthermore, *all* real economic income must be taxed in order to have a fair and neutral tax system. Finally, to reduce the double taxation of corporate income, the Treasury proposed to partially integrate

the corporate and personal income tax systems by allowing corporations to deduct from their taxable income 50 percent of dividends paid.

Reform efforts were hampered right from the beginning, since the President was forced to remove the elimination of the home mortgage deduction from the list of possible options. This decision had two significant implications: first, it precluded access to a major source of revenue; and second, it made the goal of neutral tax treatment of all alternative investments unattainable.

Despite this limitation, Treasury I made important strides toward the objective of taxing all real income uniformly and consistently. The most significant changes included the taxation of a portion of health insurance benefits; the elimination of the deduction for state and local taxes; and limitations on the deductions for charitable giving. To make the tax system less subject to distortions from inflation, Treasury I also attempted to improve the measurement of income from capital by proposing explicit inflation adjustment for depreciation allowances, the cost of goods sold from inventory, capital gains, and interest income and expense. Under Treasury I, oil and gas and other extractive industries would also be taxed on the basis of their economic income.

The main change between Treasury I and Treasury II was a movement away from neutrality through the introduction of explicit incentives for growth. Indexing capital income for inflation was replaced by an accelerated depreciation schedule and more favorable treatment of capital gains for assets that appreciate dramatically. Treasury II also fell short of Treasury I in defining income comprehensively, by further limiting the taxation of health insurance benefits and restoring some deductions for charitable contributions. Despite this backtracking, McLure maintained that Treasury II still represented fundamental reform through a reduction of marginal rates, the elimination of deduction for state and local taxes, the beginning of taxation of health care benefits, and an increase in the personal exemption.

Discussion

The three discussants of McLure's paper were unanimous in their praise of his role as the chief architect of a truly fundamental tax reform proposal. Henry Aaron supported his distinction between the two kinds of simplification and noted that sometimes they reinforce one another but sometimes, such as in the case of the Treasury proposal to index interest, they are in sharp conflict. He agreed with McLure that the immunity of mortgage interest to reform efforts was the "Achilles' heel" of the proposed changes in the taxation of capital income and echoed McLure's dismay at the reversal of the Treasury I's proposal to repeal expensing of intangible drilling costs.

Aaron also questioned McLure's justification for his elimination of the deduction of state and local taxes. He acknowledged that deductibility is a blunt instrument for encouraging socially desirable spending and that targeted grants-in-aid are superior, but he was reluctant to sacrifice deductibility in face of the dramatic cutbacks in the grants programs.

John Shoven made two points with respect to the failure to tax owner-occupied housing. First, he questioned whether treating all corporate investments equally is necessarily desirable if residential real estate escapes taxation altogether. Second, he maintained that the problem with the treatment of housing is not the deductibility of mortgage interest, but the failure to include the value of imputed rent in taxable income. Disallowing mortgage interest deductions would just create a new distortion between those who have large mortgages and those who have large equity positions in their homes.

Shoven also questioned the Administration's decision to maintain the existing distribution of tax burden by income class, in that the current distribution was in part the result of the many tax shelters and legal abuses available to the wealthy. He concluded by accusing the Administration of false advertising with regard to tax reduction. The only way that 70 to 80 percent of households could be better off under a revenue-neutral tax reform package was through the failure to attribute the taxes paid by corporations to any individuals. Similarly, effective marginal tax rates are not lowered very much by eliminating the deduction for state and local taxes, since this is roughly equivalent to changing the level of government that collects the taxes.

Emil Sunley picked up on the issue of distribution neutrality and questioned whether the percentage reduction in the tax burden is the best measure. He suggested that one might also want to look at the percentage change in after-tax income which shows that the tax program dramatically favors higher income people. On the other hand, if the distributional impact of the increase in the corporate income tax were included, higher income individuals and families do not fare as well.

Sunley then suggested that critics of the Treasury II proposal for capital gains treatment may be unnecessarily pessimistic. In fact, the incentive to convert ordinary income into capital gains would be cut by more than half, since the differential between ordinary rates and capital gains rates would be narrowed substantially. Finally, Sunley made a plea for indexing depreciation and capital gains even if the indexing of debt may prove to be complex. He acknowledged that partial indexing will allow individuals to profit from inflation by borrowing to buy an asset, but he maintained that the inequity resulting from partial indexing would be superior to the ad hoc adjustments under the current system.

Much of the discussion focused on the issue of owner-occupied housing. Aaron disagreed with Shoven's statement that eliminating the

mortgage interest deduction would not necessarily be an improvement. He argued that since nearly everyone faces liquidity constraints, most people would not be able to buy homes without the favorable tax concessions. Hence, repealing the mortgage interest deductibility would prevent the majority of people from taking advantage of the preferential tax treatment of owner-occupied housing and would reduce the gap between the effective rate on housing and that on the other two-thirds of the capital stock.

Patric Hendershott rejected the equity implications of eliminating the mortgage interest deduction since it would mean that wealthy people would continue to get full benefits from investing in housing while low-income and middle-income people denied the deduction would be squeezed out of the market. Hendershott also reiterated the assertion that to achieve a "level playing field," in the absence of a tax on housing, requires not taxing any other forms of investment.

Towards the end of the session, the discussion moved from housing to the incidence of the corporate tax and the fact that this tax was not allocated among individuals in the distributional tables prepared by the Treasury. Joseph Pechman asserted that if the corporate tax is borne by stockholders (as was assumed by Treasury for classifying people by income class), then the tax reform proposals would appear much less favorable to the rich. Shoven disagreed, making the point that a large share of corporate equities are held by pension funds and the claims to these assets are distributed much farther down the income scale.

The Effect on Individuals

Joel Slemrod's paper shifted the discussion from alternative tax reform strategies to the economic effect of particular proposals—specifically, their direct effect on individuals. To do this, Slemrod assessed how individuals would fare under Treasury II's stated objectives of fairness, simplicity, and economic growth.

Fairness

Slemrod explored three alternative measures of fairness—vertical equity, horizontal equity, and what he called transitional equity. In terms of vertical equity, Slemrod concluded that it was difficult to dispute the Administration's claim of approximate distributional neutrality, even though no attempt was made to trace out the ultimate incidence of taxes paid by corporations.

On the subject of horizontal equity, Slemrod noted that preferential tax treatment in itself need not produce inequities, so long as the tax-

preferred activity is available to everyone and valued equally by all. But many of the preferential provisions in the current law do produce inequities, since they apply to activities not available to and not valued equally by all people. The Treasury I proposals to limit deductions for charitable contributions, tax a portion of fringe benefits, and repeal the deductibility of state and local taxes eliminate some horizontal inequities and move the tax system towards one where taxpayers who are equally well-off pay equal taxes.

Any tax reform creates transitional equity problems by altering returns on long-term commitments made under former law, leading to windfall gains and losses for a period of time. Treasury II addresses these potential inequities by gradually phasing in some provisions, which allows time for adjustment to new rules and reduces the present value of gains and losses. In addition, the proposed excess depreciation recapture rule under Treasury II also serves to limit windfall gains that would otherwise accrue to previously acquired capital.

Simplicity

Slemrod then turned to the second objective of the Administration's tax reform initiative—namely, simplicity. He noted that Treasury II addresses the problem of complexity directly by eliminating numerous special provisions. Similarly, reducing marginal tax rates lessens the incentive to reduce taxable income. On the other hand, collapsing the number of tax brackets from 14 to 3, although characterized by the Administration as a key element in simplification, actually has an insignificant effect on the complexity of the system. Once taxable income is computed, finding tax liability in the tax tables is a trivial operation which would not be simplified by having fewer brackets. Finally, several provisions in the Treasury II proposal, such as the attempt to expand the taxation of fringe benefits received by employees, would actually complicate the filing process. On balance, Slemrod concluded that the Administration's proposal would not significantly reduce the complexity of the system.

Economic Growth

Slemrod noted that the Administration's third objective—economic growth—took a back seat to neutrality in both Treasury I and Treasury II. Also, in the long run, the growth rate of an economy is determined by the rate of technological progress and growth of the labor supply and tax policy was unlikely to have a strong influence on these factors.

In the shorter run, however, growth could be enhanced by increasing the ratio of capital to labor and Treasury II contained several propos-

als aimed at stimulating saving and investment. Expansion of IRAs and the reduction in marginal tax rates could both change the marginal after-tax rate of return to saving. However, IRAs need not create new saving, since an individual can gain a deduction simply by transferring previously accumulated assets or by borrowing funds and, moreover, IRAs will never be effective at the margin for most people since they are subject to relatively low caps. Slemrod concluded that, based on existing estimates of interest elasticity, the reduction in marginal rates could be expected to increase saving by less than 2 percent.

On the investment side, Slemrod argued that the tax incentives to corporate investment would increase slightly, although this conclusion was difficult to reconcile with the projected increase in corporate revenues. Overall, Slemrod concluded that the taxation of investment is probably not changed very much under the Administration proposals, although the relative burden is shifted from nonresidential to residential capital and from corporate structures and inventories to equipment.

Increased labor supply is a major factor that could contribute to growth, but Slemrod's back-of-the-envelope calculations indicated that the reduction in marginal rates proposed in Treasury II would be expected to increase the supply of labor by 3 percent at most. Since true after-tax wage rates would not rise in proportion to the decline in marginal federal rates because of the elimination of the deductibility of state and local taxes, the labor supply response would be even smaller than initially calculated.

Slemrod's overall conclusion was that Treasury II, while not as radical or far-reaching as Treasury I, would represent an improvement over the current system. It would induce more efficient use of resources, and thus improve economic performance, increase equity and reduce tax evasion. On the other hand, Treasury II would not reduce the complexity of the tax system, would not increase incentives to save and invest, would not increase the supply of labor significantly and would, like any major tax reform, introduce some transitional inequities.

Discussion

Slemrod's discussants found themselves in basic agreement with his conclusions. Alan Blinder began by reinforcing the case presented by Slemrod for equal tax rates on different sources of income, since he, like Slemrod, viewed neutrality as the real thrust of Treasury I and II. He noted that although optimal tax theory does not automatically prescribe equal tax rates, it does say that it is always optimal to tax different factor inputs at equal rates. Moreover, if there is equal ignorance about the loss associated with deviating from the optimal, then equal taxation is the best policy. Finally, once unequal tax rates are sanctioned, politics will

ensure that the deviations have more to do with political pressures than with cross-elasticities of demand.

Blinder argued, however, that fairness cannot be achieved by neutrality alone but also requires increasing marginal rates. He applauded the fact that Treasury II awarded disproportionately larger reductions to the poor, but he attributed its generosity to the rich to "an excessive attachment to flatness."

On the simplicity issue, Blinder felt that Slemrod understated the potential contribution of more equal tax rates on different income sources to reducing the complexity of the current law. Equalizing tax rates would reduce significantly the incentive to transform income from one form to another and thereby dramatically simplify the system.

On the subject of growth, Blinder acknowledged Slemrod's point that some short-run growth gains could result from raising the ratio of capital to labor, but questioned whether increasing the saving rate beyond that produced by market forces should be given high priority. Blinder suggested that such a policy objective would be called for only if the income tax seriously distorted choices away from saving, but concluded that the evidence suggested such distortions were relatively small.

Generally, Blinder agreed with Slemrod's overall conclusion that Treasury II, although not as elegant as Treasury I, would make things better rather than worse than the current system and economists should support it enthusiastically.

David Bradford only reluctantly came to the conclusion that Treasury II would represent a clear improvement over the current system. He was concerned about whether the windfall gains and losses arising from such massive tax reform were really compensated for by the improvement in efficiency and apparent equity of the tax system. He cited the examples of the large windfall loss that would be experienced by the owners of timber, which would no longer be treated as an asset eligible for long-term capital gains treatment, and the windfall gains that would accrue to those who have large retirement savings, which will be drawn down at lower tax rates than anticipated. Bradford also questioned the seriousness of many alleged inequities, since he argued that so long as taxpayers have the option of choosing each other's portfolios, differences in their tax liabilities do not imply unfairness.

Bradford's conclusion was that current tax reform efforts should be aimed at replacing the current income tax with consumption-oriented taxation using cash-flow accounting. This approach would produce genuine simplicity as well as equity and efficiency. It would also eliminate the need for indexing capital income, without which inflation will continue to create serious distortions under the current system.

During the general discussion two participants made comments

about the equity effects of comprehensive tax reform. Alan Auerbach questioned the ability to measure windfall gains and losses once the role of expectations is considered. He hypothesized that, with the constant revisions in the tax code, tax provisions represent just one more uncertainty that people take into account when making their decisions. Lawrence Summers focused on the relative reduction in burden afforded the rich under the various tax reform proposals. If the total reduction included not only the reduction in taxes they pay, but also the reduction in efforts to avoid taxes, the gains to the rich would be even greater than those presented in the official calculations.

The Effect on Capital Formation

Moving from the household to the business sector, Richard Kopcke undertook the formidable task of measuring the potential influence on business capital spending of Treasury I, Treasury II and two other reform plans—Bradley-Gephardt and Kemp-Kasten. All four plans would reduce the corporate income tax rate, repeal the investment tax credit, and repeal the dividend exclusion under the personal income tax. Unlike the Treasury proposals, however, neither Bradley-Gephardt nor Kemp-Kasten includes a deduction at the corporate level for dividends paid. The two congressional plans differ from one another primarily in their treatment of depreciation, capital gains and the maximum corporate income tax rate.

Simulations under the Cash-Flow and Neoclassical Models

In analyzing the impact of these four reform proposals, Kopcke employed two different representations of investment behavior: the cash-flow and the neoclassical models. The cash-flow model emphasizes liquidity constraints and uncertainties, while the neoclassical model emphasizes the after-tax rate of return on investment over the life of the project. He simulated the level of investment spending over the period 1981 to 2000 for each of the reform proposals and for the current accelerated cost recovery system (ACRS).

To make the problem tractable, Kopcke made several standardizing assumptions. First, although ACRS was enacted before the alternative proposals were conceived, the simulations introduced all of the plans in 1981 to avoid giving ACRS the benefit of a head start. Since under this scheme businessmen never benefited from the ACRS depreciation schedules, the recapture provisions of Treasury II were not included in the study. Second, in all simulations real GNP grew at 3 percent per year, and inflation, after-tax real interest rates, dividend/price ratios on

common stock, and the relative prices of investment goods were held constant after 1984. Corporate profits before taxes and corporate dividend payments increased at the same rate as nominal GNP. Thus, none of the simulations allowed for feedback or multiplier effects. If one tax plan produced more investment spending than another, this additional investment was prevented from stimulating a more rapid expansion of economic activity by the 3 percent restraint on real GNP growth. Finally, because of the sensitivity of the results to inflation, the simulations were presented for three alternative rates of price increase.

The results using the cash-flow model indicate that only Treasury II would generally increase investment compared to ACRS over the 20-year period. Its lower corporate income tax rate, indexed depreciation allowances, and 10 percent dividend exclusion more than compensated investors for the loss of the investment tax credit and highly accelerated depreciation allowances. Treasury I depressed capital formation at first, but eventually produced rapid investment, once the gradual introduction of the substantial dividend deduction was complete. The Kemp-Kasten proposal produced a greater rate of capital formation than Bradley-Gephardt, but neither matched the two Treasury plans. It should be noted that all reform proposals depressed investment in both durable equipment and nonresidential structures relative to ACRS for the first 10 years of the simulation period.

When the simulations were based on the neoclassical model, Treasury I, Treasury II and Kemp-Kasten all outperformed ACRS in terms of growth in the stock of producer durables and nonresidential structures. In contrast to the cash-flow model, where the postponement of depreciation allowances initially tended to reduce cash flow and investment spending commensurately, under the neoclassical model investors responded immediately to future allowances. Consequently, in the neoclassical simulation, Kemp-Kasten and the two Treasury plans supported more capital formation than ACRS throughout the 20-year period, because investors foresaw from the very beginning the value of future depreciation allowances and dividend deductions.

Discussion

Kopcke's three discussants all disagreed with his conclusion that comprehensive tax reform would stimulate investment; they differed dramatically, however, in the reasons for their disagreement and the vehemence of their concerns.

George Hatsopoulos argued that all four tax reform proposals would, for several years, retard capital formation and accelerate the decline in the U.S. international competitive position. He based his conclusion first on the critical fact that all the proposals increased business

taxes substantially during the next several years. The reduction in tax rates on earnings from existing capital would be more than offset by higher taxes on new capital. Hatsopoulos agreed that eventually three of the four proposals may reduce business taxes and improve capital allocation efficiency, but he concluded that the present value of such benefits was minuscule compared to the short-term damage.

His second line of attack was aimed specifically at Kopcke's simulations. First, he dismissed the cash-flow model as irrelevant to business decisionmaking. Second, he faulted Kopcke's calculation of the cost of capital, a key variable in the neoclassical model. Kopcke departed from the traditional approach of discounting by a single after-tax cost of funds, which combines the cost of equity and the after-tax cost of debt, and used two different discount rates in his calculation. Kopcke employed a high discount rate on real economic returns, due to their comparatively high degree of risk, and a much lower discount rate for tax benefits and interest payments, which he viewed as much more certain. Noting that a firm cannot acquire tax benefits without simultaneously taking on an investment, Hatsopoulos concluded that the use of separate discount rates does not accurately reflect the alternatives and constraints facing business managers. In short, Hatsopoulos implied that by using too low a user cost-of-capital figure, Kopcke failed to discount accurately future investment gains.

Hatsopoulos then focused his remarks on the possible impact of tax-reform-induced changes in capital formation on the ability of the United States to compete successfully in the world economy. According to Hatsopoulos, inadequate incentives in the United States for saving and capital formation, not unfair trade practices, have allowed nations such as Japan to surpass the United States in productivity growth. He suggested that a study which applied the U.S. tax system to the Japanese economy would predict much lower rates of capital formation for that country.

Auerbach stressed that considerable uncertainty necessarily attends any simulated responses to major tax revisions. Although the cash-flow and neoclassical models may have predicted investment better than any other model, they still do not do very well; these models have significantly underpredicted the strength of recent investment spending.

Moreover, Auerbach saw problems in Kopcke's treatment of some of the proposed changes in the tax code. For example, Kopcke ignored the Treasury II windfall tax on excess depreciation, following the logic that his comparisons began in 1981 before any excess depreciation under ACRS would have occurred. This omission, however, made the cash flow under Treasury II look better in the simulations than it does to actual investors who would lose \$56.5 billion by 1989 under this provision.

Auerbach concluded his discussion by raising the issue of one of the

costs of transition to a more neutral tax code, namely, the waste of substantial tax revenue on windfall gains to existing capital assets. He encouraged tax reform proponents to consider carefully the construction of suitable transition schemes.

Eisner also raised a number of questions concerning the neoclassical model. Often variables such as interest rates are taken as exogenous, the funds available, regardless of the profitability of the project. While the cash-flow model does predict business investment fairly well, Eisner noted that the typical positive relation between investment and cash flow arises largely because both profits and investment are pro-cyclical.

Eisner also raised a number of questions concerning the neoclassical model. Often variables such as interest rates are taken as exogenous, causing serious forecasting problems if they are in fact endogenous. Eisner illustrated this problem with the prediction by many "neoclassical model devotees" that the introduction of ACRS in 1981 would lower the user cost of capital and spur business investment; here, interest rates were apparently taken as exogenous. However, capital costs rose despite the more favorable tax treatment due to higher market interest rates resulting from monetary and fiscal policy. The absence of an expected capital gains term in the neoclassical model employed by Kopcke also troubled Eisner, for without including and specifying such a term, the effect of corporate tax rate changes on the rental cost of capital is ambiguous. Eisner also argued that dividend deductibility is not likely to encourage as much new investment as Kopcke supposed, since capital gains, not dividends, are the more significant reward to investors providing equity capital.

Eisner concluded that Treasury I would have little effect on aggregate investment, although it would represent a significant step toward neutrality in the tax treatment of different types of investment. Treasury II, on the other hand, would probably eventually be more favorable than ACRS to business investment, because of the combination of inflation adjustments and more rapid depreciation than Treasury I. He questioned, however, whether these new incentives would do much for investment or simply make businesses and their owners richer.

General discussion initially focused on the worth of staying with one tax code for a period of, say, five years, as opposed to making frequent changes. John Makin argued that one reason that capital formation is not at a higher level is that business leaders are cognizant of the recent tendency for the tax code to undergo frequent significant revisions, and therefore discount future benefits at a much higher rate than one might suspect. He went on to propose that a five-year moratorium on changes, whatever the tax code, would tend to stimulate capital formation.

Summers then pointed out that the anticipation of tax reform dis-

torts intertemporal decision-making. If one really expects, say, Treasury II to be passed in the near future, the present becomes a very attractive time to invest, as one can take advantage of the investment tax credit today and of lower corporate tax rates tomorrow.

Summers also referred to the issue of international competition first raised by Hatsopoulos. He noted that, by the national income account identity, the trade deficit is the difference between national investment and national savings. If, as Slemrod claimed, tax reform would not increase national savings, then the effect of reform on investment closely approximates the impact on the trade deficit. Thus, measures which stimulate investment also worsen the trade balance.

The Effect on Financial Markets

Patric Hendershott introduced the next topic with an ambitious paper in which he estimated quantitatively the effects of the four major tax reform proposals—Treasury I, Treasury II, Bradley-Gephardt, and Kemp-Kasten—on interest rates, asset prices, and capital stocks.

Interest Rates

Hendershott began his analysis of interest rate effects by noting that rates are determined jointly by the supply of and demand for funds to finance real capital investments. Changes in some tax reform provisions, such as cuts in marginal corporate and personal tax rates or interest indexation, lower interest rates by shifting downward both the supply and demand curves. Other changes aimed directly at real investment, such as eliminating investment tax credits and revising depreciation allowances, lower the demand curve only. The precise decline in interest rates depends on the amount by which the two curves shift and on the size of the interest-rate elasticity of investment demand, domestic saving and net foreign saving.

Hendershott first calculated the shift in the demand curve by estimating the decline in the pre-tax interest rate that would, under each proposal, hold constant the stocks of real capital desired by individuals and corporations. Turning to the supply side, he estimated on a disaggregated basis the interest rate at which savers would be willing to hold different types of capital. Quantitatively, Hendershott determined that the supply curve would shift down by roughly 3 percentage points under Treasury I and about 1½ percentage points under the other three proposals. For the demand curve, Hendershott estimated that the downward shifts would be roughly 3 points again for Treasury I, 2 points for Bradley-Gephardt, 1 point for Treasury II and no change for Kemp-

Kasten. The larger shifts for Treasury I are attributable to its interest indexation feature, while the smaller or zero demand shifts for Treasury II and Kemp-Kasten are the result of more generous depreciation allowances than under current law. Putting the shifts in the two curves together and allowing for a dampening effect of net foreign saving, the net decline in interest rates under each of the four proposals was 2½ percentage points for Treasury I, 1½ points for Bradley-Gephardt, 1 point for Treasury II and ½ point for Kemp-Kasten.

Financial Flows

Hendershott then turned his attention to how tax reform would affect financial flows. All four proposals would sharply restrict issues of tax-exempt securities for nongovernmental uses, which have accounted for roughly 60 percent of long-term tax-exempts, and all the proposals except Treasury I would modestly reduce home mortgages. The most dramatic change in financial flows, however, would occur under Treasury I in response to the interest indexation provision. Interest rates would decline sharply and, because home mortgage interest would still be fully deductible, the cost of debt financing of owner-occupied housing would also fall substantially. As a result of more housing and a higher loan-to-value ratio, home mortgage issues would increase substantially. In response to this reallocation of real capital towards houses and to a decline in business loan-to-value ratios, the quantity of other taxable issues would fall. This fall would be mitigated, however, by a shift from tax-exempt financing to regular taxable financing for nongovernmental purposes. Finally, the interest indexation provision in Treasury I would favor financial institutions with the greatest excess of interest income over interest expense.

Hendershott concluded with a brief look at the impact of tax reform on capital stocks. He found that the cut in the corporate income tax rate would raise the after-tax cash flows from existing capital and increase stock prices by roughly 5 percent under Kemp-Kasten and by 10 percent under the other three reforms. Under Treasury I, the 50 percent dividend exclusion would raise stock prices by another 15 percent.

Discussion

James Tobin questioned how one evaluates the welfare effects of the large shifts among different types of capital, since the existing allocation and those resulting from the four proposals represent second-best regimes. Treasury I comes closest to eliminating the major sources of inefficiencies, but it is also likely to hinder business investment for many years. Similarly, both Treasury I and Treasury II improve the allocation

within the business sector but accentuate the misallocation of saving between residential and nonresidential investment. How does one balance one effect against another in order to assess and rank the various proposals?

Second, Tobin faulted Hendershott and the rest of the participants for not addressing the effects of tax reform on the risks of capital accumulation. By lowering tax rates, the Treasury assumes a smaller share of the risk associated with capital investment, as well as a smaller share of the returns from such investment. Tobin insisted that the welfare effects of the shift in risk-bearing between investors and the general public are as relevant as those resulting from changes in expected returns.

Third, Tobin lamented the large windfall gains and losses that arise from the various tax reform proposals. He noted the contrast between policymakers in 1962 who tried to stimulate investment through provisions such as the investment tax credit targeted to new investment only and the current Administration which lowers taxes on the entire existing stock of capital. Tobin suggested trying to capture some of the windfalls through a transitional capital gains tax.

Finally, Tobin turned to the prospects for long-run growth. Tax reform has the potential for affecting growth by its effect on the nation's long-run propensity to save. Since the current proposals for reform would reduce the wedge between pre-tax marginal productivity of capital and the after-tax return received by savers, he believed this effect would be positive. He concluded by expressing concern over the explosive growth of public debt relative to GNP and national wealth, due to the budget policies of the current Administration. Tobin saw this as a grave threat to the nation's propensity to accumulate wealth, and lamented the fact that this problem has taken a back seat to the push for tax reform.

In his discussion, Barry Bosworth applauded the analysis of induced changes in interest rates brought about by tax reform as an innovative alternative to the traditional approach of assuming constant after-tax rates of return and calculating the wedge between the return earned on investments and that received by savers. Although he viewed the two approaches as complementary, Bosworth noted that Hendershott's analysis brought out several points not highlighted by the wedge analysis. Bosworth went on to list several issues not addressed in the paper.

First, most analyses of the tax reform plans, including Hendershott's, simply ignore the sensitivity of the tax system to inflation. Treasury I deserves more praise for attempting to make the system relatively neutral with respect to inflation.

Second, the analysis paid inadequate attention to the methods by which investment is financed. The impact of inflation on investment, for example, depends crucially on the extent to which debt finance is used.

Without a model which incorporated endogenous changes in the finance method, Bosworth felt one could not determine what would happen to the tax wedge under different reform plans.

Finally, Bosworth argued that too much emphasis is usually placed on domestic investment, and too little consideration is given to net foreign investment, an alternative productive use of domestic saving. From a welfare perspective, policymakers should be interested in national saving, not domestic investment. National saving should then be allocated between domestic and foreign investment so as to maximize returns to Americans. While the potential impact of tax policy on saving seems very limited based on the experience of the last five years, Bosworth contended that it may be too early to draw conclusions, since higher after-tax returns have different effects on older cohorts who have previously accumulated wealth and on younger ones who are just beginning to save.

In the general discussion, Summers suggested that one other possible explanation for the failure of the private savings rate to respond to increased savings incentives over the last five years would lie in the recent institutional developments which have made it easier for people to borrow. Since borrowing has increased, it is reasonable to suggest that savings would have fallen even more because of easier consumer credit but for the effect of the higher real after-tax returns.

The Effect on the Nonprofit Sector: Educational and Charitable Organizations

In the following session, Charles Clotfelter examined the likely impact of tax reform on charitable giving and thus on the educational and other nonprofit institutions eligible to receive tax-deductible contributions. He focused primarily on individual giving since it constitutes 80 percent of the total.

Individual Giving

The most important way in which the four major tax reform proposals would affect charitable giving is through the sharp reduction in marginal rates, which significantly increases the after-tax cost of giving. In addition, the proposals have some provisions aimed specifically at charitable contributions. Treasury I would repeal the above-the-line charitable deduction for nonitemizers, limit deductions to contributions in excess of 2 percent of adjusted gross income, and limit deductions for appreciated assets to the lesser of inflated basis or market value. Treasury I would affect charitable giving indirectly by reducing the number of item-

izers through the elimination of numerous existing deductions. Treasury II would also repeal the charitable deduction for nonitemizers and reduce the number of taxpayers who itemize. It drops the 2 percent floor, however, and relegates the constructive realization of appreciated gifts to the minimum tax. Bradley-Gephardt would allow all taxpayers to deduct contributions at the basic rate of 14 percent, while Kemp-Kasten would retain full deduction for all taxpayers, though at significantly lower marginal rates.

Clotfelter simulated the impact of these four proposals on charitable giving, using both constant elasticity and variable elasticity assumptions. In both cases, Bradley-Gephardt showed the largest decline (23 percent) and Kemp-Kasten the smallest (13 to 15 percent). Clotfelter then used survey data to calculate the likely impact by type of organization. The data showed that wealthy people tend to give to educational and cultural institutions, while middle and lower income groups favor religious organizations. Due to the large reduction in top marginal rates, the proposals generally produce the largest percentage declines in gifts to higher education and to cultural institutions.

Appreciated Assets

Clotfelter then analyzed the possible effects of the Treasury I and Treasury II proposals to eliminate or reduce the current favorable treatment for gifts of appreciated assets. Under current law, some capital gains escape taxation completely, which reduces the progressivity of the tax code. Furthermore, taxpayers tend to overvalue donated assets, which creates persistent difficulties for tax administrators.

Treasury I addresses the problem by allowing donors to deduct no more than the inflation-adjusted basis of appreciated property, which is equivalent to constructive realization of the capital gain in the Treasury I environment where only real gains are taxed. Treasury II introduces a similar provision into the minimum tax, where unrealized gains on such gifts would be counted as a preference item. This feature offsets the exclusion of capital gains on such assets for taxpayers with preference items in excess of \$10,000. Clotfelter's simulation results indicated that these reforms would significantly raise the price of giving appreciated assets.

Clotfelter concluded that the impact of tax reform on charitable giving would be sizable. Reductions in long-run giving of 15 percent and more were predicted for the four major tax reform plans and even larger reductions would be likely for institutions that depend on gifts from high-income taxpayers, such as colleges and universities.

Discussion

Eugene Steuerle made four cautionary comments. First, he reiterated Clotfelter's conclusion that the empirical results in this field should be interpreted with great care. Research to date explains only a little about incentives to give; large unexplained variances in giving across individuals still remain. Moreover, the consensus of elasticities is derived primarily from the results of cross-sectional analysis; time series data and certain survey questionnaires appear not to support the high elasticities found in these studies.

Second, even if the numerical results were totally correct, further analysis would be required to determine what the numbers meant in terms of social costs and benefits.

Third, Steuerle argued that the existing literature generally failed to establish efficiency and/or equity targets. This omission made it difficult to evaluate specific proposals, such as floors on giving or limitations on gifts of appreciated property. Changes in these provisions were often accepted with little thought about what they were trying to achieve.

Finally, Steuerle offered the proposition that whereas broad-based, low-rate tax reform may reduce charitable giving, failure to achieve major tax reform would produce a weaker, not a stronger, charitable sector. Without tax reform, the ongoing erosion of the income tax, in favor of payroll and excise taxes, would be likely to continue. Since these alternative taxes contain no incentive to give, charitable contributions would be hurt significantly.

Gerard Brannon opened the general discussion by suggesting that it would be possible to avoid the predicted declines in charitable giving associated with reductions in marginal rates by allowing an augmented deduction, say \$1.15, for each dollar of contribution. In fact, the favorable treatment of appreciated property may be an example of this type of stimulus—albeit extremely inequitable. Brannon argued that the important question was not the form the subsidy should take but rather just how large a subsidy for charitable giving should be incorporated in the tax code.

Summers tossed out the notion that perhaps the favorable treatment of appreciated property was just the natural response to a tax system that did not tax unrealized capital gains at death. If people do not pay tax on capital gains when they leave their assets to their children, why should they have to pay a tax on these gains when they give their assets to charity?

Aaron raised the question of just how sensitive people are to relatively small changes in incentives, and wondered if it were realistic to assume a linear relationship between incentives and behavior. Clotfelter agreed that responses to small changes in incentives would be negligible, but contended that the use of a linear function in the simulations

probably did not distort the results since the aggregate impact came mainly from the large changes that affected the middle and high income taxpayers.

Pechman suggested that a variable price elasticity of giving was probably more realistic than a constant elasticity. He cited as evidence the underprediction of changes in giving among lower and middle income persons in response to the 1981 tax cut, presented in Clotfelter's paper.

The Effect on the Nonprofit Sector: State and Local Governments

Treasury I, Treasury II and Bradley-Gephardt all include repeal of the deduction for state and local taxes as one of the main ways to finance rate reduction in their tax-reform package. Kemp-Kasten proposes repeal of the deductibility of sales and income taxes, but retains the property tax deduction. All four of these plans also severely restrict the possibilities for tax-exempt borrowing by state and local entities. The merit of these proposed changes was one of the more hotly debated issues at the conference.

Elimination of Tax Deductibility

Dick Netzer began his paper by arguing that if all taxes imposed at the state and local level were used to buy ordinary private goods or "club goods," then deductibility would be both horizontally inequitable and inefficient. On the other hand, if state and local taxes were used solely for the provision of pure public goods, then equity would require that individual taxable income be measured net of these involuntary payments and efficiency considerations would argue for deductibility, since these goods would be undersupplied in the absence of a subsidy. According to Netzer, about 10 to 20 percent of state and local tax-financed expenditures produced interstate benefit "spillovers," although these percentages may be somewhat greater at the margin. Netzer concluded that the existence of some spillovers suggests the possibility of a partial deductibility or the deductibility of selective taxes as desirable policy.

Netzer then turned to the question of the effectiveness of deductibility in encouraging aggregate state and local spending and the potential impact of eliminating the deduction. Using a price elasticity of -0.5 , a number around which Netzer found an "uneasy" consensus, assuming that the median voter was an itemizer, and calculating that elimination of deductibility would raise the price by about 18 percent, Netzer concluded that revenue from taxes currently deductible would decline by 9

percent. Since deductible taxes account for only 27 percent of total state and local revenues, the expected decline in total state-local spending from all sources would be roughly 2 percent. Hence, Netzer concluded that effects on aggregate revenues do not provide a convincing case for continued deductibility. Netzer, therefore, surmised that the case for deductibility must rest on a national interest, if any, in the composition of state and local taxes or in the disparities among jurisdictions that would be created by ending deductibility.

Netzer investigated the possible shifts in the composition of revenues that might occur in response to eliminating the deduction. On the positive side, a substitution of sensibly designed user charges for currently deductible taxes would probably improve efficiency. On the other hand, greater reliance on selective excise taxes with narrow revenue bases would allow greater substitution of nontaxed for taxed services and thereby create the potential for welfare losses. Similarly, greater use of corporation income and business sales taxes would most likely impair efficiency. A reduction in the use of the property tax would slightly reduce the progressivity of the tax system, while a shift from a tax on housing to one on business-owned assets would lead to some loss of efficiency. On balance, composition considerations led Netzer to favor narrowing, rather than eliminating, deductibility.

Netzer then turned to the effect that ending deductibility would have on different jurisdictions. Removing the current subsidy for high-tax states would be desirable social policy if it simply eliminated spending that produced no interstate benefits. However, Netzer found that financial crises at the state and local level almost inevitably led to cuts in the area of public assistance and social services. Based on this evidence, Netzer feared that the downward pressure on expenditures in higher tax states caused by the end of deductibility would produce a similar pattern of spending reductions.

Netzer also argued that the end of deductibility would increase sharply the differential in tax burdens among jurisdictions. This rise would be likely to cause some locational shifts over time as individuals responded to the incentive for the affluent to move to income-segregated communities. For this reason as well as the likely decrease in redistributive expenditures, Netzer concluded once again that he favored restricting, rather than eliminating, deductibility.

Elimination of Tax-Exempt Borrowing

On the issue of tax-exempt borrowing, Netzer concluded that while a convincing case could be made for eliminating tax exemption entirely, the Treasury I and Treasury II proposals, which eliminate the exemption only on private purpose and advance refunding borrowing, were poorly

designed and most likely ineffectual. Netzer opposed the former because it would be impossible to determine the dividing line between public and private purpose borrowing and because any restrictions imposed would be easily avoided. He noted that some private purpose projects, such as airports, may be more closely tied to the national interest than public projects such as municipal office buildings. He also opposed the recommended limits on advance refunding bonds, calling the proposal a pointless restriction on adept state and local debt management.

Discussion

Edward Gramlich, in his comments on Netzer's paper, agreed with the author's objectives and most of his technical analysis, but came to quite different conclusions on both issues. He favored completely doing away with the deductibility of state and local taxes, and while preferring the complete elimination of the tax preferences for state and local borrowing, would accept the Treasury reforms as a second best. Gramlich emphasized the enormous revenue loss associated with the current tax provisions—\$35 billion for deductibility and \$20 billion for tax-preferred borrowing—and argued that revenues of this magnitude were sorely needed to offset the large budget deficits.

Gramlich noted that deductibility was one of the provisions in the tax code most favorable to the rich. The fact that many liberals argue for retaining this deduction must mean that they see indirect benefits accruing to the lower-income population. As Gramlich reviewed Netzer's three broad social offsets, however, he came away unpersuaded.

With regard to the aggregate level of state and local spending, Gramlich agreed with Netzer that a small decrease would occur as a result of eliminating deductibility. However, Gramlich noted that in low-income places such as Detroit, where relatively few voters itemize, virtually no reductions at all would occur.

On the subject of the composition of state and local revenues, Gramlich also found no significant social offset. He believed that Netzer overemphasized the potential inefficiencies in any new user charges imposed by states and localities and the likelihood in a highly competitive world that nuisance taxes would be imposed on businesses.

Finally, as far as the effect on interjurisdictional tax disparities, Gramlich agreed with Netzer's contention that tax prices are probably higher for rich people who live in poor areas and these prices would rise if deductibility were eliminated, creating an incentive for them to move. Gramlich contended that the incentive was relatively small, however, since the real quantity of public goods consumed is higher in the rich areas.

Unlike Netzer, Gramlich found merit in the Treasury's proposed limitation on tax-exempt borrowing. He acknowledged the difficulties in defining which issues should be classified as private-purpose bonds, but contended that a partial restriction on borrowing preferences, although difficult to enforce, would be better than doing nothing.

The general discussion began with Auerbach reiterating Netzer's concern that if deductibility were eliminated, many state and local taxes would be simply reclassified as business taxes so as to maintain deductibility. Bradford picked up on this point and advocated that the elimination of deductibility should extend to business taxes as well.

The heart of the discussion, however, was focused on the merits of deductibility. Aaron argued that the externalities produced by a government service will likely have an impact beyond arbitrary divisions such as city or state borders. Summers added that state and local services need to be subsidized, since no theory suggests that voting will necessarily produce the optimum amount. He cited the example of education, where children are the most direct beneficiaries, yet they do not vote. Moreover, it is unlikely that the preferences of the children are fully reflected in the voting of their parents, since so many couples are divorced with spouses living in separate jurisdictions.

Gramlich agreed that state and local spending had substantial externalities and deserved to be subsidized, but argued that deductibility favored primarily high-income communities and was an inefficient tool for encouraging desirable public spending. Instead, Gramlich advocated the use of targeted grants to support these services. Others agreed that grants-in-aid would be a more efficient approach, but were concerned about eliminating even a crude tool such as deductibility in an era when grants programs were being slashed. The practicality of improving the grants programs turned out to be the main area of difference between those who supported and those who opposed the elimination of deductibility.

Richard Musgrave concluded the discussion by suggesting that deductibility might have some merit in its own right as a tool for encouraging state and local spending. He noted that consideration is generally given to state and local effort, as well as need, when deciding the level of federal assistance and grants; in a similar fashion, tax deductibility may be a desirable form of federal assistance based on the fiscal effort of states and localities.

An Overall Assessment of the Tax Reform Effort

This session brought together Richard Musgrave, Joseph Pechman and Lawrence Summers, whom moderator Robert Solow characterized

respectively as "The Silver Fox of Public Finance, The Canny Old Hand of Taxation, and The Young Flash," to evaluate the current tax reform efforts.

Key Features of Reform

Musgrave began by commenting on the key features of this tax reform effort. First, the focus has been on the income tax, which he found not surprising since this levy has been the mainstay of the federal tax system ever since World War II. Musgrave noted that the expenditure tax approach, to which economists have devoted so much time in recent years, had little influence on the proposals.

Second, with regard to the pattern of tax reform, Musgrave noted that the key element has been to broaden the tax base and raise the same level of revenue with lower rates. Musgrave was pleased that, despite the questions raised by optimal tax theory, broad-based taxation remains a desirable goal. The other main feature of the pattern of reform has been to eliminate horizontal inequities in the context of retaining the existing vertical distribution. While Musgrave acknowledged that this approach permits progress toward agreement, he suggested that it does not make much sense to accept as a standard the vertical pattern of tax liabilities that has resulted from massive horizontal inequities. A final element to the pattern of the tax reform has been revenue neutrality, which has separated the reform problem from the need to increase revenues. Musgrave found the need for additional revenues as primary at this time and wondered whether tax reform was not being used by some as a purposeful diversion.

The Individual Income Tax

Musgrave then turned his attention to the specifics of the reform proposals. According to 1985 tax expenditure data, exclusions from the tax base amount to 78 percent of total revenues. As ambitious as it was, the base broadening under Treasury I totaled only 13 percent of actual revenues. The reason that Treasury I fell so far short of full revenue potential was that it left entirely or largely untouched the mortgage interest deduction, pension contributions under employer plans, social security benefits, and employer contributions to health insurance. Despite the limited gains in expanding the base, Musgrave acknowledged that Treasury I made some strides in reducing horizontal inequity.

Similarly, in discussing capital gains, Musgrave characterized Treasury I as being very bold in its attempt to tax realized capital gains in full, but noted that the proposal failed to even discuss the problem of unrealized gains or the question of what happens to the original base of an

asset when it is transferred at death. Musgrave lamented that none of the tax reform proposals even mentioned gift and estate taxes, which he felt should take on greater importance in a situation where the top marginal rates of the income tax are being reduced substantially.

On relieving the tax burden on the poor, Musgrave contended that the Treasury proposals do not signal a drastic change in the appropriate treatment of low-income people. Rather, the increase in the exemption and zero bracket amounts merely returns the situation to what it was in 1979.

With regard to marginal rates, Musgrave reiterated the point made earlier that the reduction from 14 to 3 brackets did little to simplify the tax code. He thought that the reduction did have substantial strategic value, however, since it insured that the top bracket, which extends fairly well down the income scale, cannot be too high. On balance, Musgrave found little in the way of simplification in any of the major tax reform proposals. He asserted that the only way to achieve real simplification is through a flat rate consumption tax, but felt that this was too high a price to pay.

The Corporate Income Tax

Turning to the corporate income tax, Musgrave stated that the revision of the depreciation rules might be the major accomplishment of this tax reform effort. He also contended that accelerated depreciation in Treasury II is probably a better mechanism for encouraging investment than the investment tax credit, which would be repealed under all four major reform proposals. He acknowledged that the investment tax credit has the advantage of applying only to new investment and of being very visible, but felt this approach suffered in its favoring of short-term over longer-term investment projects.

Musgrave praised the Treasury I proposal for including a 50 percent dividends paid credit, which moves the tax system toward the traditional goal of integrating the corporate and individual income taxes. At the same time, he voiced the concern that this proposal might have a detrimental effect on the saving rate by reducing the pressure for retention of earnings as a means for avoiding shareholder taxation.

Summing up, Musgrave concluded that the main gains of a tax reform along the lines of Treasury I are the improvements in horizontal equity, which encourage people to feel better about the tax system and perhaps even about the public sector. With regard to the supply effects, he concluded that they would probably be small—an increase of less than 2 percent in the household saving rate, little change in labor force participation and perhaps a 3 percent increase in the supply of durable equipment by the end of the decade. The main problem, however, is

that the tax reform debates divert attention from the much more important problem of increasing revenue.

Discussion

Pechman, as the first discussant of Musgrave's paper, arrived at only a slightly more positive assessment of the current tax reform efforts. He admitted the original principles of reform will have been seriously compromised by the time legislation emerges from Congress, but he nevertheless concluded that the most likely changes would be positive. He particularly supported the increase in the personal exemption and standard deduction to restore tax-free status to persons below the poverty line. He endorsed the redistribution of approximately \$25 billion of taxes from individuals to corporations. He also approved of lowering rates from 50 percent to 35 percent with the revenue recovered from eliminating loopholes, but, like Musgrave, found little virtue in the reduction of the number of tax brackets from 14 to 3. Finally, he praised the efforts to improve the equity of the system through limitations on tax-exempt borrowing, pruning personal deductions, repeal of energy tax credits and the like.

On the other hand, Pechman pointed out the major areas where political considerations have already eroded some of the significant improvements originally proposed by the Treasury. For example, pressure from the financial community has resulted in severe retrenchment from the original Treasury I proposal to tax real capital gains at ordinary income tax rates. Another area of retreat from true broad-based taxation was the treatment of depreciable assets. Finally, Pechman criticized the backtracking on personal deductions, such as state and local taxes and charitable contributions.

On balance, Pechman concluded that although serious reform has been badly compromised, the public discussion has been educational and will help some future President and Congress to enact real change. If pressed, he would support, although somewhat reluctantly, the legislation emerging in Congress.

In contrast, Summers concluded that the current tax reform efforts were undesirable. Citing the excessive number of tax bills during the last eight years, Summers made a plea for a 36-month period during which the tax code would be left untouched. He further argued that proposed changes do not represent significant improvement over the current code. Repealing state and local tax deductibility was, in his opinion, undesirable in view of the growing demand for improved public education, the erosion of the nation's infrastructure and marked declines in real AFDC benefits. Summers saw little advantage in cutting rates and broadening the tax base, since often the individual's tax burden remains

unchanged by these offsetting adjustments.

Summers viewed proposed reforms in the area of depreciation as particularly pernicious. The Treasury proposal, argued Summers, reduces the burden on old capital by lowering the corporate tax rate and providing dividend relief and raises the burden on new capital through the elimination of the investment tax credit and lengthening depreciation schedules. He saw this as both unfair and anti-growth. He also challenged the claim that the Treasury proposal is a step toward more neutral treatment of capital, since it was based on the misconception that current law treats capital-intensive industry preferentially. Summers also found it difficult to believe that this proposal improves neutrality when it does little to change the nearly tax-free status of owner-occupied housing, while increasing the effective taxation of business investment.

Summers challenged the notion that the tax system unfairly confers benefits on certain industries and individuals through preferences. As long as people get the tax benefits they originally expected to receive when they purchased an asset whose price and return reflect those tax benefits, then they are not systematically beating the system or receiving unfair rewards; only unexpected changes in the tax treatment of assets create inequities.

Summers summarized his position by calling for another round of TEFRA-like legislation where substantial revenues are raised by closing a laundry list of loopholes. These additional revenues should then be used as part of a sincere effort to attack the budget deficits.

Towards the end of the session, Carl Shoup expressed the view which seemed to be shared by many participants that while Treasury I would have been "worth it," the watered down Treasury II proposals and the even more diluted congressional options would not.

Musgrave then added a few final remarks. He countered Summers' benign neglect argument by suggesting that the present may still have been the right time for tax reform as it brought opponents and advocates of the income tax together. Musgrave disagreed with the suggestion voiced frequently throughout the conference that free choice renders horizontal inequity meaningless, claiming that because individual preferences differ, preferential tax treatment may still be inequitable, even in the presence of identical economic capacity. He concluded by proposing that economists concern themselves solely with first-best solutions, and leave the choice between second, third, and fourth-best solutions to politicians.

Conclusion

Subsequent events have shown that, despite its initial promise, 1985 was not to be the year for major tax reform. Its demise can probably be attributed to the fact that the uneasy coalition for reform consisted of parties with very different motives. Nevertheless, comprehensive restructuring of the nation's tax system reached a level of debate never before realized and the authors of the Treasury proposals deserve enormous credit for this achievement.

The conference clarified numerous issues surrounding the tax reform effort. First, none of the proposals would really simplify the tax system significantly. Particularly, the reduction in the number of tax brackets would have no impact on simplification. Second, economists can say little about neutrality since the existing allocation of resources and those resulting from the alternative tax proposals are all second-best regimes. It is particularly difficult to assess proposals that improve the allocation of resources within the business sector but accentuate the misallocation between residential and nonresidential investment.

Third, economists have limited tools for assessing vertical equity. The basic problem is the lack of a clear standard, so that judgments are necessarily subjective. On the practical side, the uncertainty about the incidence of the corporate income tax makes it impossible to measure the distributional burden of a reform that shifts from personal taxes to corporate taxes. Nevertheless, everyone agreed that relieving the tax burden on low-income individuals and families was a particularly attractive feature of all the proposals.

Fourth, no revenue-neutral tax change will affect economic growth significantly. All four proposals would probably hurt investment initially, but if the tax code were left untouched the level of capital 20 years hence would probably be somewhat greater. None of the proposals would have much of an impact on saving or labor supply decisions.

The main vice of all the proposals is that they entail substantial transitional costs through the creation of large windfall gains and losses. Transitional capital gains taxes can reduce some of the inequities but only at the cost of greater complexity. Moreover, frequent revisions of the tax code create enormous uncertainty that probably inhibits investment and growth.

The main virtue of all the plans would be improvement in the actual and perceived fairness of the system. The closing of obvious tax shelters and the broadening of the base through the elimination of deductions would improve horizontal equity. This is not an inconsequential achievement, since it would reduce evasion, enhance respect for the public sector, and probably make it easier to raise additional income tax revenues in the future to finance federal deficits.

Rationale Underlying the Treasury Proposals

Charles E. McLure, Jr.*

In his 1984 State of the Union message, President Ronald Reagan gave Secretary of the Treasury Donald Regan the following mandate:

Let us go forward with an historic reform for fairness, simplicity and incentives for growth. I am asking Secretary Don Regan for a plan for action to simplify the entire tax code so all taxpayers, big and small, are treated more fairly. . . . I have asked that specific recommendations, consistent with those objectives, be presented to me by December 1984.

During the following ten months the Office of Tax Policy at the Treasury Department worked to fulfill that mandate, and Regan issued its report to the President, entitled *Tax Reform for Fairness, Simplicity, and Economic Growth* (hereafter Treasury I), in late November.

Academic economists and lawyers specializing in the study of taxation, whether liberal or conservative, were virtually unanimous in their praise of the general contours of the Treasury report; they expressed little doubt that the reforms proposed would go far in satisfying the objectives set out by the President and give the country a much improved tax system. But the outcry that arose from other quarters indicated clearly that the enthusiasm for Treasury I was far from universal. Six more months elapsed before the new Secretary of the Treasury James Baker obtained Reagan's approval of a much watered-down report entitled *The President's Tax Proposals to the Congress for Fairness, Growth, and Simplicity*.

This paper describes the rationale underlying the tax reform proposals of Treasury I. The first section outlines the need for tax reform and

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the second the basic structure of the reforms proposed in Treasury I. The third section comments briefly on options not followed and the fourth section provides greater detail on the reasoning underlying some of the major reforms and discusses some of the changes made between Treasury I and the President's proposals. The final section provides some concluding observations on the two sets of proposals.

The Need for Tax Reform

Under current law a given amount of income can be taxed very differently, depending on how it is earned and how it is spent. Most cash wages are taxed, but most fringe benefits are not. Interest income on bank accounts is taxed, but that on life insurance policies and state and local bonds is not. Rental income is taxed, but the imputed income on owner-occupied homes is not; even so, interest on mortgage interest is fully deductible by the homeowner. Capital gains are taxed at preferential rates and only when realized—or not at all, when appreciated property is transferred at death. The investment tax credit and accelerated depreciation produce *ex ante* marginal effective tax rates on income from new investments that vary widely across assets and industries, but are generally far below statutory rates and even negative for some equipment. On the other hand, one particular form of income, that from corporate equity investment, is subject to double taxation, first at the corporate level and again when distributed to shareholders.

Moreover, the U.S. income tax is highly vulnerable to inflation. Fictitious capital gains are taxed, the real value of depreciation allowances depends on the rate of inflation, effective tax rates on real interest income have recently been far above the statutory rate and can easily exceed 100 percent, and the after-tax cost of borrowing can easily be negative. Not only does taxation vary across types of investments, it does so in ways that depend capriciously on the rate of inflation.

These differences in the way various sources and uses of income are taxed create several undesirable effects. Most obviously, it is simply not fair that the income tax paid by families with a given amount of income should vary so greatly, just because of the source and use of the income. Horizontal equity demands that two families with the same income should pay roughly the same amount of income tax.

The current tax system also distorts the allocation of economic resources. Fringe benefits—and consumption that can most easily be taken in the form of fringe benefits—are artificially favored over cash wages. Tax-preferred investment vehicles and investment opportunities are favored over fully taxed ones, resulting in misallocation of funds toward the former and away from the latter. Homeownership is favored

relative to other forms of consumption and investment. The allocation of capital within the business sector is distorted by various tax preferences. Tax preferences, the favorable treatment of capital gains, and the deductibility of interest expense can be combined to create tax shelters that result in allocation of capital to unproductive investments, as well as undermining equity and the perception of fairness. Use of the corporate form—and production that must be undertaken in that form of business organization—is discouraged. The dependence of effective tax rates on the rate of inflation creates uncertainty, as well as encouraging borrowing, discouraging saving, and creating distortions in investment patterns.

Some of the distortions inherent in current law are the result of explicit policy decisions; others are better characterized as accidental. In any event, Treasury I was based on a belief that resource allocation will, by and large, be better if the tax system is neutral in its impact on economic decisions and is not used to implement social and industrial policy.

On balance, much more income escapes the tax collector's net than is caught twice—or once, where no real income exists. As a result, marginal tax rates are substantially higher than would be required if all income were taxed uniformly and consistently. The high rates accentuate any non-neutralities and inequities in the tax system, as well as discouraging work effort, saving, investment, invention, innovation, risk-taking, and so forth.

The current tax system is complex and it causes complexity. To some extent complexity is unavoidable in the income tax law of a complex economy. But to a large degree the tax system is needlessly complex because it is used to further so many nonfiscal objectives. Moreover, it is useful to distinguish between complexity in tax forms, instructions, and recordkeeping, on the one hand, and a more pernicious form of complexity. Tax preferences create complexity in the form of opportunities for tax planning and the distortion of business decisions, and these, in turn, create complexity of the first type. In a world without tax preferences, business decisions could be based on business considerations, without regard for tax considerations, there would be little need for tax planning, and tax compliance and administration could be simpler.

A final concern motivating the proposals of Treasury I was the growing perception that the tax system is unfair. To some extent, this perception is based simply on the recognition that tax burdens at given income levels do vary dramatically and that many high-income individuals are not paying their fair share of taxes. But this perception seems to be manifested often in the seemingly puzzling demand for "tax simplification," rather than "tax reform." In fact, tax simplification may actually just be another name for tax reform, if properly understood. Taxpayers

are not necessarily just saying that *their own* taxes are too complicated when they cry for simplification, though that sentiment is widespread. Rather, they appear to want simplification *for others*, in order to reduce the opportunities *for others* to take advantage of tax-reducing gimmicks.

The perception of unfairness provides an important reason not to implement social and industrial policy through the tax system, even if such policy makes good sense. Since the beginning of the republic governments have spent money in ways that some have questioned. While this may have made many think their tax dollars were being wasted, it did not throw the tax system itself into disrepute. Tax expenditures, the use of tax breaks to achieve nonfiscal objectives, have quite different and more pernicious effects, for they create the kind of horizontal inequities—not to mention vertical ones—that undermine taxpayer morale, a most precious commodity in a system based on voluntary compliance.

In summary, then, the proposals of Treasury I were based on a concern for horizontal equity among similarly situated taxpayers, for neutrality in the allocation of economic resources, for lower tax rates and greater economic incentives, for simplification, especially where opportunities for tax planning are concerned, and for the perception that the tax system is fair. It was expected that a more neutral tax system and lower marginal rates would be more conducive to economic progress. The President's proposals, by comparison, contain a much less comprehensive definition of real economic income and more explicitly favor capital formation and innovation, at some cost in terms of equity, neutrality, and simplification.

The Broad Contours of Treasury I

The overriding objective of Treasury I was to tax, as nearly as possible, *all real economic* income more uniformly and consistently and at lower rates. The discussion of the three italicized words, which are key to the proposals, can be brief, given the discussion of the previous section.

All income must be taxed, if the tax system is to be fair, economically neutral, and simple, in the sense of avoiding opportunities for tax planning. But no income should be taxed twice, as corporate equity income distributed as dividends now is. Nor should fictitious income be taxed, be it nominal capital gains or the inflation premium in interest income. Conversely, deduction should not be allowed for the inflation component of interest expense. Inflation adjustment should also be made in the calculation of depreciation allowances and the cost of goods sold from inventory. Without these adjustments, the income tax will not be based on real income and it will not be fair or neutral.

Finally, economic income should be the basis for taxation that is to

be fair and neutral. This rule has many ramifications. First, fringe benefits should be taxed, as well as cash compensation. Second, income should be recognized for tax purposes when earned, rather than merely when received; if that cannot be fully achieved, the timing of deductions for expenses should at least match that of the income the expenses produce. Third, depreciation, depletion, amortization, and other deductions for expenses associated with wasting assets should, to the extent possible, track the decline in value of such assets.

A further objective of Treasury I was to increase the tax threshold by enough to approximate the official poverty level, and thereby eliminate tax liability on families living in poverty.¹ This was to be done primarily through an increase in the personal exemption; however, the earned income tax credit would be indexed and the zero bracket amount (ZBA) would be increased, especially for heads-of-households, those single persons who support dependent relatives.

A change in the overall progressivity of the tax system was *not* an objective of Treasury I. Raising the tax threshold would, of course, increase the progressivity of the tax system in the very lowest income brackets. But beyond the point at which this effect phases out, the Treasury I proposals would be distributionally neutral.² Whereas on average the reduction in individual income tax would be 8.5 percent, the reduction for the brackets above \$20,000 would lie in the narrow range of 6.4 to 9.3 percent. Of course, *within* these income brackets there would be substantial redistribution of tax burdens. For example, in all income classes above \$15,000 per year, more than 60 percent of all families would experience a tax decrease. But substantial numbers—20 to 36 percent of families in the various income classes—would experience tax increases. Particularly interesting is the fact that in the two income classes above \$100,000 per year more than 15 percent of taxpayers would have tax increases in excess of 2 percent of income. By comparison, in those same two income classes, 27 percent (for the \$100,000 to \$200,000 class) and 49 percent (for those with incomes above \$200,000) would have tax decreases in excess of 2 percent of income. This is a clear manifestation of the fundamental proposition underlying Treasury I: under current law different sources and uses of income—and therefore families with similar incomes—are taxed very differently.

¹The "25 percent" rate reduction enacted as part of the Economic Recovery Tax Act of 1981 shifted the rate schedule *down*; thus it provided no relief for those at the bottom of the income scale who had been hurt most by the bracket creep of the 1970s that had, in real terms, shifted the rate schedule *to the left*. Treasury I and the President's proposals would shift the schedule *to the right*, thereby removing poverty-level families from the tax rolls.

²Figures on distributional effects cited in this paper refer to family economic income, as used in Treasury I and described therein. See U.S. Treasury Department (1984, Volume 1, pp. 57-61).

Treasury I contained a substantial shift of tax burdens from individuals to corporations. To some extent this was the result of a political calculation: if the proposals were revenue neutral for corporations and for individuals, considered separately, there would be about as many losers as winners among individuals, and therefore little popular support for reform. But there was also an important economic reason for the shift: the fear that the gap between a corporate rate of 28 percent and a top personal rate of 37 percent would be great enough to induce taxpayers to use artificial business structures to avoid tax.³ Of course, the increase in corporate taxes may have done as much to create opposition—especially highly vocal opposition—as was gained by the shift of revenues.

Options Not Followed

An understanding of the rationale for not proposing certain things in Treasury I may be as important as understanding why certain provisions were proposed. This section discusses three of these: the choice of income rather than personal consumption as the tax base; the rejection of a value-added tax; and the tax treatment of housing under the income tax.

Taxing Personal Consumption

Many observers believe that it would be desirable to shift reliance from income taxation toward the taxation of consumption. This can be achieved in at least three more or less distinct ways. The first of these would be to substitute a full-fledged personal cash-flow tax for the income tax. The second would be to impose a value-added tax (VAT) or other form of sales tax, and the third would be to use ad hoc approaches to favor saving and/or investment under the income tax. Unfortunately, the relative advantages of the three approaches seem to lie in inverse order to their likelihood of being employed.

Recent years have seen the development of considerable academic support for a personalized tax based on consumption, rather than income. Many proponents of a tax on consumed income, especially economists, emphasize intertemporal neutrality in the choice of when to consume and equity defined in terms of lifetime endowments. Probably more important than these are the considerable administrative advantages of a consumption tax based on cash flow. Questions of the timing of recognition of income do not arise, because the tax is based on cash flow. Similarly, inflation adjustments are not necessary in the measure-

³Simple aesthetics also played a part in the choice; a rate structure for individual taxpayers of 15-25-35 is simply more attractive than 16-28-37!

ment of income (though they are needed for bracket limits and other figures fixed in nominal terms), since cash flow inherently occurs in dollars of the current period.

Despite these manifest advantages—which are highlighted by the complexity of the Treasury I proposals for inflation adjustment and the time value of money—the tax on consumed income was not proposed, in part because the technical experts at the Treasury Department were not convinced that by December 1 they could solve all the problems it might entail. With severely limited staff resources and a tight deadline, it would be impossible to proceed very long on a dual track to develop detailed proposals for both a comprehensive income tax along traditional lines and a novel tax on consumed income. Thus it was necessary to be confident early in the tax-reform process that there were no “show-stoppers”—problems that could not be solved—if all staff resources were to be devoted to the tax on consumed income. For better or worse, that confidence did not exist. Among the potential showstoppers were the following: transition, international issues, and the treatment of bequests.⁴

The current income tax involves payment of tax as income is earned, with tax-free consumption or bequest. A tax on consumed income, by comparison, involves no payment of tax as income is earned, as long as income is saved, but taxation at the time of consumption; the treatment of bequests is a controversial issue to be discussed below. The transition problem derives from the fact that it would not be fair—or politically feasible—to levy the personal consumption tax on retirement consumption out of savings accumulated under an income tax. Nor would it be a simple matter to formulate a workable transition provision—which might need to be in effect for several decades—that would exempt consumption from the preexisting after-tax savings of most taxpayers of middle age or older, but without exempting all such wealth, no matter what its size.

International issues take at least two forms: international tax relations and tax evasion. A switch to a tax on consumed income would necessitate renegotiating all foreign tax treaties now in effect. No other country has a tax on consumed income. How to mesh a tax on consumed income with the income taxes of other countries is far from obvious. Nor could the process of renegotiating tax treaties be concluded quickly. It is useful to note that neither Sweden nor the United Kingdom, both of which have been studying the consumed-income tax for roughly a decade, has yet adopted such a tax.

Under an income tax, evasion involves mischaracterization or hid-

⁴For a somewhat more detailed description of the problems posed by constraints on staff and time, see McLure (1985a). See U.S. Treasury Department (1984, Volume 1, Chapter 9) for a more detailed discussion of the potential “showstoppers.”

ing of income flows. By comparison, under a tax on consumed income, tax can be evaded if saving can be documented artificially. It appeared that international capital flows provided unacceptable opportunities for this type of fraudulent behavior. (For example, funds borrowed abroad, but not reported, could be brought into the United States as "saving."⁵)

One particularly attractive version of a cash-flow tax is based on the desire to tax lifetime income endowments in a way that does not depend on when during the taxpayer's life income is earned and when it is spent.⁶ Under this version, bequests would be included in taxable consumption of the decedent as well as being part of the endowment of the heir. Such a tax could easily be as progressive as the current income and transfer taxes, even if levied at relatively low rates.

Under a very different view, the cash-flow tax would not apply to bequests; rather, its base would be only consumption. The existing distribution of taxes by income class could be achieved, if at all, only by levying extremely high marginal rates on consumption—rates that are unlikely to be enacted. Under this approach, the tax liabilities of wealthy families would exceed those of upper middle-income families only to the extent of differences in levels of consumption. Dynasties would be perpetuated and inequalities in the distribution of income would grow. The defects of this second approach and the uncertainty of how bequests might ultimately be treated makes one pause before proposing a tax on cash flow.

One particular form of tax on consumption, that proposed by Hall and Rabushka, merits special attention. Their ingenious proposal suffers from a fundamental political drawback in addition to those just discussed: because of its flat rate, which is essential for administrative reasons, it would involve a massive redistribution of tax burdens from those at the top of the income scale to those in the middle.⁷

Value-Added Tax

A combination of a value-added tax (or retail sales tax) and a comprehensive income tax levied at lower rates could constitute an attractive package. The VAT is relatively neutral, it is generally regarded as being fair, and it avoids the tax bias against saving inherent in the income tax. Moreover, it would take some of the pressure off the income tax, allow-

⁵This problem is over and above the transitional difficulty resulting from the possibility of repatriating wealth previously held offshore.

⁶See Aaron and Galper (1985).

⁷See Hall and Rabushka (1985). Hall and Rabushka (1983) indicate that at a 1979 level of income of about \$250,000, taxes would fall by almost one-third. By comparison, at an income level of about \$28,000, they would rise by about one-third. For further appraisal of the Hall-Rabushka tax from the perspective of a value-added tax, see Carlson and McLure (1984).

ing lower rates and making remaining distortions and inequities less important. The income tax, on the other hand, could retain conceptual and economic integrity, thereby avoiding the distortions and inequities of current law.

This stands in marked contrast to the use of ad hoc incentives for savings under the income tax. The investment tax credit and accelerated depreciation can easily produce negative tax rates on equity income, and the use of debt financing makes matters worse. Activities that would not be undertaken in the absence of taxation become attractive in such a world. Moreover, the perception of fairness and taxpayer morale suffer.

Even though an entire volume of Treasury I was devoted to the discussion of a value-added tax and other forms of general sales tax, such a tax was never a viable alternative. President Reagan had stated repeatedly, and most prominently during the debates with Walter Mondale, that he would consider a tax increase only as a last resort. Within the context of revenue neutrality imposed by this promise, a value-added tax would be admissible only as a partial replacement for the income tax. Given the substantial administrative and compliance cost of introducing a VAT, not to mention other considerations, this did not seem to be a reasonable policy to propose.⁸

This is not to say that a value-added tax or federal retail sales tax should not have been proposed. My own view is that the continuation of substantial budget deficits endangers the macroeconomic health of the entire world, as well as contributing to the strength of the dollar that hampers the competitiveness of much of American industry. Moreover, I doubt that the will exists to cut enough from the budget to make much of a dent in the currently projected deficits. If we are not willing to make those cuts, then we must reconcile ourselves to paying the taxes necessary to cover our budgetary excesses—and the sooner we start, the better. My preference would be to introduce a sales tax as soon as possible—which may not be for several years, because of the time required to put such a system in place—using a temporary surcharge on a greatly reformed income tax base to buy the time necessary.

The Home Mortgage Deduction

It is unfortunate—if politically inevitable—that President Reagan was forced into removing the home mortgage deduction from the table of tax reform. Because net imputed income on owner-occupied housing is not subject to tax, but property taxes and mortgage interest are deductible, net imputed income is, in effect, subject to a negative rate of tax. Taxing income from other investments at a positive rate therefore

⁸See also U.S. Treasury Department (1984, Volume 1, Chapter 10, and Volume 3).

results in the misallocation of capital toward housing. The inability to reduce the deduction for mortgage interest means that it is absolutely impossible to achieve a level playing field among alternative investments, except by leveling down to an effective tax rate of zero or below. This is, in a sense, what happened in 1981 when the investment tax credit (ITC) and the accelerated cost recovery system (ACRS) were employed to redress the favoritism previously shown toward housing. (Of course, the abatement of inflation further benefited business investment, relative to owner-occupied housing.) But reducing the taxation of business income in this way, rather than through rate reduction, has further adverse effects. A much more satisfactory approach would be to begin to move toward elimination of the deductibility of mortgage interest, perhaps over a period of 15 to 20 years.⁹

The Proposals

Achieving the objective of taxing all real economic income uniformly and consistently would require changing a large number of provisions of U.S. tax law. This section describes briefly the reasons for some of the more important and more controversial proposals of Treasury I and (where different) the tax reform package submitted by President Reagan.

Fringe Benefits

Treasury I would have taxed many fringe benefits that are currently tax free to the employee, but deductible by the employer. The most important of these was the proposal to tax health benefits in excess of \$70 per month for a single person and \$175 per month for a family.

Fairness, economic neutrality, and the desire for rate reduction underlie the proposal to tax fringe benefits. It is not fair, for example, that some taxpayers must pay for health care with after-tax dollars, while others receive the same (or better) care as a tax-exempt benefit. Moreover, the tax-free status of most fringe benefits causes them to be overconsumed, relative to other goods and services. There is little question, for example, that much of the growth in health benefits can be traced to their favorable tax status. Finally, of course, there is substantial revenue in the area of fringe benefits. Taxing benefits would allow significant reductions in marginal rates.

In principle, all health benefits should be included in a comprehensive definition of taxable income. There may, however, be important policy reasons for not going so far, as well as persuasive political rea-

⁹For a further discussion of this issue, see McLure (1985b).

sons. There may, for example, be social benefits from employer provision of basic health insurance, and retaining tax incentives for benefits below a ceiling can be justified as a means of forestalling demands for national health insurance.

The Treasury I approach in the health care area represents a compromise between the competing objectives of equity, neutrality, and rate reduction, on the one hand, and the social benefits of employer-provided health insurance on the other. It would hit only the most generous schemes, where the distorting effects of the bias in current law are most obvious, and would, considered by itself, make the income tax more progressive.

The approach to the taxation of fringe benefits adopted in the President's proposals has little attraction beyond a modest amount of rate reduction and the achievement of a small crack in the armor of resistance to the taxation of fringe benefits. Only the *first* \$10 per month of health benefits for a single person (\$25 for a family) would be taxed, and virtually all other fringe benefits would remain tax-exempt. This approach would improve slightly equity between those taxpayers who do have health coverage, and those who do not, but its distributional effect within the covered group would be perverse. And, of course, being inframarginal for most taxpayers, the approach in the President's proposals has almost no benefit in terms of redressing the incentives for over-utilization of this form of compensation.

State and Local Taxes

State and local taxes are spent largely to provide services that benefit those who pay the taxes. As a result, there is little more reason that they should be deductible than there is that other (private) consumption expenditures should be tax-preferred. The deduction implies that on average for every dollar spent at the state and local level some 15 to 20 cents is, in effect, paid by residents of other states. This, in turn, creates a tendency for the public sector to be over-expanded at the state and local level.

The deduction for state and local taxes also has distributionally perverse effects. Both the likelihood of itemizing and the value per dollar of itemized deductions rise with income. Moreover, though the correlation is far from perfect, the states with the highest amounts of deductible taxes per capita tend to have the highest levels of income.

Defenders of the deduction for state and local taxes commonly argue that many state activities have important spillovers of benefits across jurisdictional boundaries and that much of state and local spending is for redistributive purposes. These arguments are not persuasive. First, the deduction for all state and local taxes is an extremely blunt and

inefficient instrument for the encouragement of the relatively small portion of subnational expenditures that do have important spillovers at the margin. Targeted grants are more appropriate for this purpose. Nor is the distribution argument persuasive. A common tenet of the literature on the assignment of taxes and expenditures in a federal system is that taxes levied at the state and local level should reflect benefits of public services, with redistribution being left to the federal government.

Nor is it compelling to argue that repeal of the deduction for state and local taxes would cause competition among these governments. Economists have long seen competition as the benefactor of the consumer, by ensuring efficiency, cost consciousness, and consumer sovereignty. The same arguments can be made for competition among governments.¹⁰

The proposal to allow deduction for only some state and local taxes is also not attractive. The federal government should interfere as little as possible in the decisions of state and local governments, absent a compelling reason for interference. Differentiating between state and local taxes would induce artificially excessive reliance on the revenue sources remaining deductible.

Charitable Contributions

The proposals of Treasury I would affect charitable contributions in four important ways. Most important, rate reduction would lessen the incentive for charitable giving. Beyond that, the deduction for non-itemizers would be repealed, itemized deductions would be allowed only for contributions in excess of 2 percent of adjusted gross income, and deductions for gifts of appreciated property would be limited to the taxpayer's (inflation-adjusted) basis in the property. President Reagan proposed only repealing the deduction for non-itemizers, in addition to reducing rates, but would apply the individual minimum tax to the excess of market value over basis in the case of gifts of appreciated property.

Contrary to much of what has been written, the authors of Treasury I did not view charitable contributions as just another tax preference to be eliminated in the name of fairness and neutrality. Rather, they recognized explicitly the social value of allowing tax benefits for philanthropy. There are, however, conflicting objectives in the world of tax reform. Elimination of the deduction for non-itemizers was proposed in the name of fairness, simplicity, and rate reduction; it was also believed that adverse effects on giving by non-itemizers would not be significant. In the case of the floor for itemized deductions the argument was basically

¹⁰See, for example, Brennan and Buchanan (1983).

simplicity, as well as rate reduction in the context of revenue neutrality. For the taxpayer who could predict at the first of the year that he or she would exceed the floor, the incentive effects would be the same at the margin (except insofar as rates are reduced) as if there were no floor. Incentives would be reduced for those below the floor, but taxpayer compliance would be simplified. Finally, the argument on gifts of appreciated property was one of fairness; taxpayers should not be allowed a deduction for amounts never recognized as income.

Measurement of Capital Income

In the current income tax, measurement of income is based on historical costs of assets and on nominal interest income and expense. As noted earlier, this makes the equity and neutrality of the tax system vulnerable to inflation because effective tax rates depend on the rate of inflation. Moreover, during inflationary times there are political pressures for ad hoc adjustments to income measurement to compensate for the adverse effects of inflation—but not usually for the beneficial ones. This helps explain the liberalization of the taxation of capital gains in 1978 and 1981 and the political appeal of the accelerated cost recovery system (ACRS) and the investment tax credit (ITC) enacted in 1981.¹¹ Of course, when inflation abates, as it has since 1981, such compensatory provisions can be overly generous and create further inequities and distortions.

Inflation adjustment. Treasury I attempted to cut through this problem by providing explicit inflation adjustment for depreciation allowances, for the cost of goods sold from inventory, for capital gains, and for interest income and expense. With explicit allowance having been made for inflation, there would be no need for ad hoc surrogates for inflation adjustments. Thus Treasury I proposed that depreciation allowances be based on the best available estimates of economic depreciation and that the preferential taxation of capital gains be eliminated. Moreover, like the two major Congressional contenders in the tax reform arena (the Bradley-Gephardt and Kemp-Kasten proposals), it proposed repeal of the investment tax credit, which, in combination with ACRS, produces negative effective tax rates on income from investment in equipment at current levels of inflation. In present value terms the real value of depreciation allowances would be roughly as great for most types of assets under RCRS (the real cost recovery system proposed in Treasury I) as under ACRS (but not as generous as the combination of ACRS and the ITC) at rates of inflation of roughly 5 to 6 percent or higher.

¹¹See McLure (1984).

Inflation adjustment of interest income and expense is arguably the most important of the proposals for dealing explicitly with inflation. The failure to index interest has pervasive and pernicious effects in undermining the equity and neutrality of the tax system. Moreover, current law contains no ad hoc surrogates for the inflation adjustment of interest, as it does for capital gains, depreciation allowances, and cost of goods sold from inventories. Nevertheless, interest indexing was not included in the President's proposals, because it would increase the complexity of taxpayer compliance, cause a loss of revenue,¹² and (as proposed in Treasury I) provide a windfall for financial institutions (by exempting a portion of their "spread" from tax). Unfortunately, few non-economists realized how crucial interest indexing is to the uniform and consistent taxation of all income.¹³

Depreciation allowances. While retaining the provision for inflation adjustment for depreciation, the President's proposals also provided for acceleration of such allowances. But they did so in a way that would be relatively neutral, since the effective tax rate on income from equipment would be uniform across assets—and slightly below that on income from structures.¹⁴

Aside from the obvious political pressures to do so, there are compelling economic reasons for providing more generous depreciation allowances than under Treasury I. Owner-occupied housing, as noted above, is taxed at negative effective tax rates. Thus resource allocation may actually be made worse by taxing income from all other sources at effective rates approaching the statutory rates. But it is important to recognize that once one retreats from the anchor of economic depreciation, opportunities for tax shelters and tax planning—and the distortions and inequities they entail—reappear.

Capital gains. The Treasury I decision to eliminate the partial exclusion of long-term capital gains was based in substantial part on the desire for simplification. Much of the tax code is devoted to the distinction between long-term capital gains and ordinary income, and much tax planning and tax shelter activity involves the recharacterization of ordinary income as capital gains. Eliminating this distinction would therefore greatly simplify the tax law and reduce the latitude for tax

¹²Some economists realized, however, that by inducing a drop in interest rates, indexing would result in an even greater saving in interest on the national debt.

¹³As proposed, interest indexing did contain a major flaw: it did not extend to interest on mortgages on the principal residence of a taxpayer. Hendershott (1985) has emphasized the misallocation that could result from this omission, particularly at high rates of inflation. In principle—if not in political reality—this defect could easily be remedied. See also McLure (1985b).

¹⁴This slight preference for investment in equipment, relative to structures, was motivated by the belief that any externalities from investment were likely to be greater for equipment, plus recognition that structures are often debt-financed.

planning based on the distinction between long-term capital gains and ordinary income.

It was recognized from the outset that eliminating the preferential treatment of long-term capital gains could have potentially adverse effects on innovation, entrepreneurship, the supply of venture capital, general capital formation, and economic growth, even if inflation adjustment assured that only real gains were subject to tax. For most "vanilla" investments, those that do not yield extraordinarily high returns, the combination of inflation adjustment and taxation of gains as ordinary income would be as favorable as the current law's exclusion of 60 percent of nominal gains, except at very low rates of inflation. The more compelling case for preferential treatment involves entrepreneurs—and perhaps suppliers of venture capital—who have little basis in an activity that becomes highly profitable. For them, inflation adjustment would not compensate for the loss of the partial exclusion of current law, and some preferential treatment may be justified on externality grounds. In the preparation of the President's proposals, an attempt was made to devise a scheme that would allow preferential treatment only for gains realized on the sale of corporate shares in new ventures, but this was ultimately abandoned as administratively infeasible, in favor of continuation of a general preference for all long-term capital gains.

Dividend Relief

The deduction of one-half of dividends paid, proposed in Treasury I, was intended to reduce the discrimination against income from corporate equities. That, in turn, would reduce the disincentives for equity financing relative to debt financing, increase the attractiveness of new issues of shares relative to retained earnings, and reduce discrimination against products of the corporate sector. The deduction would be available only for dividends paid out of fully taxed income, but under Treasury I that constraint generally would not be a serious one, since most corporate income would be taxable.

The Treasury I proposal broke with common international practice in that it called for a dividend-paid deduction, rather than a shareholder credit, as the vehicle for dividend relief.¹⁵ The shareholder credit or imputation system is commonly preferred because under international convention the credit can be withheld from foreign shareholders with-

¹⁵In the formulation of Treasury I, considerable attention was devoted to allowing a deduction only for dividends paid on new issues of stock, along the lines of the proposal in the ALI report on subchapter C. (See Andrews, 1984.) Such an approach would have the allocative advantages of allowing relief for all dividends, but at only a fraction of the cost; moreover, it would avoid bestowing windfall gains on owners of existing shares.

out violating tax treaties. By comparison, levying an equivalent withholding tax on dividends paid to foreigners would violate such treaties. In addition, nonprofit organizations would automatically benefit from the dividend-paid deduction, whereas under the shareholder credit approach such organizations would not benefit, in the absence of refunds.

The treatment of dividends under Treasury I (and the President's proposals) was predicated on a desire to extend the benefits of dividend relief to both foreign shareholders and tax-exempt organizations in order to create equality in the tax treatment of debt and equity investments. Given the large number of IRAs, Keogh plans, etc., that are tax-exempt and potential claimants for refunds, the dividend-paid deduction is clearly the simpler approach. There is an expectation that treaty partners who have imputation systems will extend their benefits to U.S. shareholders, not that the United States will impose a withholding tax in order to deny the benefits of dividend relief to foreign shareholders.

Oil and Gas

Under Treasury I the oil and gas and other extractive industries would be taxed on economic income, like other sectors of the economy. This would be done by 1) repealing the option to use percentage depletion and 2) eliminating the provisions that allow immediate expensing of intangible drilling costs (IDCs) by independents. Thus all costs of creating an asset would be capitalized and written off through either depreciation or cost depletion. As with other provisions in Treasury I, these proposals were motivated by a concern for equity, economic neutrality, and simplification, as well as rate reduction. The President's proposals would retain current-law treatment of intangible drilling costs, ostensibly on the grounds of national security, but would tighten the treatment of IDCs under the minimum tax.

The Administration position on IDCs is among the most damaging to the case for tax reform. First, retaining expensing of IDCs has a high cost in terms of both horizontal and vertical equity, neutrality, and simplification (because it would leave intact an important vehicle for tax shelters). Moreover, failure to deal adequately with this highly visible and symbolic issue has caused many to doubt the commitment of the Administration to meaningful tax reform. The appeal to national defense—and, implicitly, to energy independence—is not compelling. One can only wonder how much more nearly independent of foreign suppliers the United States would now be if it had not previously accepted national defense arguments for such misguided policies as import quotas, percentage depletion, and expensing of intangible drilling costs, which are designed to “pump America dry first.”

Minimum Tax

The tax base under Treasury I would have approximated economic income closely enough that a minimum tax would not be needed. By comparison, the President's proposals retain many forms of preferential tax treatment: for example, for the oil and gas and other extractive industries; for investment in depreciable assets; and for long-term capital gains. This being the case, it was thought necessary to retain a minimum tax for both corporations and individuals.

The minimum tax is evidence of a schizophrenic view of tax preferences. On the one hand, preferences are retained, presumably because of some overriding social reason not to tax all income uniformly and consistently. But there is strong resistance to allowing any one taxpayer to make too much use of tax preferences, and thereby eliminate (or almost eliminate) tax liability, no matter how justified the individual preferences may appear to be. The policy problem, thus, is to decide how much use of tax preferences is too much.

The minimum tax in the President's proposals would add an important new wrinkle to the existing structure, aside from tightening the tax treatment of intangible drilling costs and subjecting to minimum tax the difference between basis and market value in the case of charitable gifts of appreciated property. This is the proposal to apply the minimum tax to 20 percent of interest expense, to the extent that depreciation is accelerated (as measured by the excess of depreciation allowances over those under RCRS). The idea behind this proposal is that while accelerated depreciation is a legitimate preference designed to stimulate investment, combining it with debt financing goes too far, in the sense of increasing the likelihood of negative effective rates and the ability to pay no tax.

The "Windfall Recapture" Tax

The President's proposals included a novel provision not found in Treasury I or, indeed, in any prior legislative proposal for tax reform, the so-called "windfall recapture" tax. The rationale for the recapture tax is relatively straightforward. Those who have taken advantage of accelerated depreciation under current law have accumulated substantial "deferred tax accounts" which will be reversed or "unwound" once assets pass the "break-even point" at which depreciation for tax purposes no longer exceeds book depreciation. Reduction of statutory tax rates would create a substantial windfall; for example, for a corporation the deferred income would be taxed at 33 percent, rather than 46 percent. The purpose of the windfall recapture tax is simply to prevent this windfall, by subjecting to tax 40 percent of income deferred via accelerated depreciation between January 1, 1980 and the middle of 1986.

This proposal has been criticized as renegeing on the investment incentives offered under ACRS and as an unfair capital levy. Both claims are, in principle, unfounded. A properly constructed windfall recapture tax would only prevent the windfall that would otherwise result from the combination of rate reduction and prior acceleration of depreciation allowances. The Administration proposal can be faulted only for using an exceptionally slow measure of depreciation as its benchmark (that employed in calculating earnings and profits), for requiring repayment of the windfall tax over a period shorter than economic depreciation would require, and for applying to depreciation on real estate expected to be "unwound" at capital gains rates.¹⁶

Concluding Remarks

The proposals of Treasury I were intended to comply with a Presidential mandate to design a tax system that would be fair, economically neutral, simple, and conducive to economic growth.¹⁷ As such, they generally were mutually consistent and had internal integrity. By comparison, current law is a collection of provisions for capriciously preferential and punitive taxation of various sources and uses of income; not surprisingly, it lacks consistency and integrity.¹⁸

The President's proposals lie somewhere between current law and Treasury I. There are far fewer deviations from uniform and consistent taxation than current law, but more than in Treasury I. Adoption of the President's proposals would represent fundamental reform in several respects—markedly lower rates, elimination of the deduction for state and local taxes, a foot in the door on the taxation of health care, elimination of percentage depletion, and so forth. But the plan would fall quite short of Treasury I in several important respects—a uniform and consis-

¹⁶For more on this, see Stretch and Sunley (1985) and Aaron (1985).

¹⁷Actually, the President did not mention economic neutrality in his 1984 State of the Union Address. But in 1981 he used the following words that are totally consistent with the neutrality objective:

The taxing power of government must be used to provide revenues for legitimate government purposes. It must not be used to regulate the economy or bring about social change. (President Ronald Reagan, to a Joint Session of Congress on the Program for Economic Recovery, February 18, 1981.)

¹⁸I sometimes employ the following analogy: Treasury I would have produced a tax law that is basically "round," albeit with a few lumps and bulges (resulting, for example, from retention of preferential treatment of owner-occupied housing and municipal securities). By comparison, current law resembles a bag full of balls, boxes, and sticks; rather than being round, it is nothing but a collection of bumps, lumps, and bulges. Needless to say, converting the current system to the model of Treasury I would require fundamental reform, as the President recognized in issuing his January 1984 mandate to the Treasury Department.

tent definition of income, including especially fringe benefits; comprehensive inflation adjustment; economic depreciation; taxation of capital gains as ordinary income; elimination of expensing for intangible drilling costs; no need for a minimum tax.

There may have never been much hope that Treasury I would be adopted in its entirety. It may have been too comprehensive for the American political system to swallow, even if advocated by a strong and popular president. Whether the President's less ambitious proposals, which were born in political compromise, will fare any better remains to be seen. Early evidence suggests that any change in the tax system that emerges from the political process may bear even less resemblance to fundamental tax reform.

One hopes that Treasury I has changed the nature and level of debate on tax reform, both here and elsewhere, as well as perhaps providing a menu for piecemeal adoption. After the publication of Treasury I, questions such as these were being debated as seldom before: Should we use the tax system to implement social and industrial policy? Can the playing field be truly level so long as owner-occupied housing retains its uniquely favorable tax treatment? Does it make sense to accelerate depreciation allowances without making compensating changes in the tax treatment of interest expense? Should we adopt inflation adjustment, refuse to do so and risk a repeat of the experience of the 1970s, or avoid this choice by moving to a tax system based on cash flow? What will happen in international markets if we tax all income uniformly and consistently? What are the economic effects of moving to a more neutral tax system? Should we move as quickly as proposed, even if the proposals make sense, or should we go more slowly? It is to be hoped that economic research and conferences such as this will help to provide some of the answers to these and similar questions and contribute to the eventual adoption of truly fundamental tax reform.

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Discussion

*Henry J. Aaron**

My comments on Charles McLure's paper are divided into three parts. I begin by underscoring a number of points he makes that are particularly praiseworthy—which in plain language means I agree with him. Then I turn to a few points with which I disagree. Finally, I address the choice Treasury made between trying to move toward a personal income tax or nearer to a cash-flow tax.

Praiseworthy Points

McLure lays great stress on the distinction between two kinds of tax simplification. The first kind makes the tax form short and simple. The second kind results when tax rules are changed to reduce incentives to engage in transactions motivated by the desire to avoid taxes. The first form of simplification makes life easier for the day or so per year most of us spend preparing our taxes. The second form of simplification makes our life easier 365 days a year by freeing us from the need to take taxes into account in making economic decisions. Although most people want their own forms to be simple (the first kind of simplification), many also want other people not to be able to engage in tax avoidance transactions, even socially meritorious ones (the second kind of simplification). McLure stresses that since tax avoidance by others reduces taxpayer morale, the case for the second kind of simplification is enhanced.

Sometimes these two kinds of simplification reinforce one another—elimination of the distinction between long-term and short-term

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capital gains, for example. But sometimes they are in sharp conflict—the Treasury’s proposals to index interest, for example. The admitted addition to complexity on the tax form that this provision would have entailed would have been more than offset by the transactional simplification that could have been achieved. The decision to drop this proposal, allegedly because of its complexity, is especially regrettable, ironically because that decision sacrificed one of the great opportunities for simplification.

McLure correctly bewails the untouchability of the mortgage interest deduction. The failure—necessary, perhaps, but no less regrettable for that reason—to include owner-occupied housing in the reform was, as McLure in effect acknowledges, the Achilles’ heel of the proposed changes in capital income taxation. The step-by-step dismantling of Treasury I’s indexing proposals, first at the hand of Treasury in fashioning the President’s proposal; then by Treasury in response to the demands of the Ways and Means Committee that the President’s plan should not lose revenue; and now, it would appear, at the hands of the Ways and Means Committee, is the major disappointment in the evolution of the tax reform proposal.

McLure reserves his strongest language for the reversal of Treasury I’s proposal to repeal expensing of intangible drilling costs, to which I can only say, “Amen.” As obiter dicta he also joins all sane economists in warning of the dangers of the deficit, and he links arms with the overwhelming majority of economists, who doubt that spending cuts will eliminate the deficit, in calling for a tax increase “the sooner the better,” as McLure puts it, which I believe is at least a few minutes sooner than “as a last resort.”

Finally, McLure says exactly the right things, in my view, about fringe benefits, charitable contributions, capital income taxation, double taxation of dividends, and the windfall tax.

Points Requiring Further Discussion

In a few areas, I believe, McLure has not stated the issues correctly. His criticism of the minimum tax is so muted that it sounds as if the minimum tax is simply Congress’s way of never having to say “I’m sorry” for enacting a tax preference—a device for telling taxpayers that it likes them to do certain things that avoid tax, but only if they don’t avoid too much tax. McLure does not emphasize what an administrative nightmare a minimum tax is, particularly one that would yield any significant amount of revenue. Moreover, if marginal tax rates really do influence behavior, the minimum tax would vastly complicate private decisions. Effective marginal rates associated with one transaction

would depend not only on the volume of that type of transaction, but also on the volume of other transactions that generate preference income or that influence the limit on preference income before minimum tax triggers in. This way lies insanity.

The section on deductibility of state and local taxes is marred, in my opinion, by serious overstatement and imprecision. McLure states: "State and local taxes are spent largely to provide services that benefit those who pay the taxes. As a result, there is little more reason that they should be deductible than there is that other (private) consumption expenditures should be tax-preferred."

This statement is surely false, or it condemns virtually all grants-in-aid. In 1982, 35.6 percent of state and local spending was devoted to education, 9.3 percent to health and hospitals, and 13 percent to public welfare. The preceding quotation from McLure's paper would suggest that the benefits from each of these outlays stop abruptly at the edge of the jurisdiction that pays for them or, alternatively, that the current system of grants correctly compensates for spillovers. Thus, the benefits of education (for which there are virtually no federal grants-in-aid), the preceding quotation would suggest, stop abruptly at the edge of the jurisdiction that pays for them. In Massachusetts, for example, this quotation would suggest that the benefits of education extend for the most part only to the city line, not to other cities in the state, because municipalities bear most of the cost of education in Massachusetts. In Georgia, however, the benefits of education are mostly statewide, because that state pays most of the cost of education. In neither case, however, do any of the benefits of education accrue to people who reside in other states, because they pay nothing for them. Or at least they wouldn't if the deduction of state and local taxes were repealed.

I submit that this way of looking at the interconnectedness of citizens in the contemporary United States is an anachronism, a throwback to a country not linked by jets, televisions, and computers, to a country that had not yet fully achieved nationhood, to a nation in which a citizen might well describe himself first as, say, a Virginian and second as an American. It is a deification of the human instrumentality of state and municipal boundaries to suggest that I am less affected by the education policies of Bethesda, Maryland because I live in Washington, D.C. than I would be if I lived in Baltimore. Is Charles McLure less affected by education policies in the District of Columbia than by those in San Diego? Would citizens of Houston, Texas be less influenced by health policy in El Paso than they are now if Texas exercised its constitutionally guaranteed right to split into five states? Are citizens of Chicago less influenced by education policies in Gary, Indiana, 20 miles away, than they are by what is done in Cairo, Illinois, 370 miles away?

I hope that you will agree that the answer to all of the preceding questions is "no" and that the questions are not even close. I will tell you that I receive no more direct benefits from the District of Columbia Hospital, which mostly serves low-income people and for the support of which I willingly pay income and property taxes, than I receive from Los Angeles County Hospital, which serves a similar clientele and for which I directly pay nothing. The deductibility of state and local taxes is one device for recognizing that commonality of interest, not the best possible one by a long shot, but not one I would willingly abandon completely until the medicaid program or something like it is vastly improved and extended. If these questions have any force, then the rationale for repealing deductibility of state and local taxes cannot be based on McLure's contentions.

There is a rationale for viewing deductibility with a good deal of suspicion. But the resulting question is close. As McLure later correctly states, "the deduction for state and local taxes is an extremely blunt instrument for [he then adds, incorrectly in my view] the encouragement of the relatively small portion of subnational expenditures that do have important spillovers at the margin." He praises targeted grants as more appropriate in offsetting spillovers.

I couldn't agree more. Had the current Administration succeeded in instituting such a grant system, its case for repeal of deductibility would be overwhelming. Instead, they scaled back the imperfect system we had, notably in the field of education, and they have significantly curtailed the liberality of health grants. The relevant question today is not whether deductibility is inferior to a well-conceived program of matching grants; everyone here would agree that it is. Rather, the question is whether, given the highly flawed and shrinking system of grants we have, deductibility helps marginally in dealing with spillovers. Crude though it is, deductibility is in my judgment better than nothing. Its crudity argues for curtailment, perhaps along the lines of the compromise proposed by the chairman of the Ways and Means Committee.

Deductibility certainly does needlessly encourage citizens in some bedroom communities to have too many or excessively lavish municipal swimming pools. But we insufficiently encourage citizens of Worcester or Wilkes-Barre or Jersey City or rural counties in Arkansas to educate their children well or to provide good health care to the indigent. Repealing deductibility of state and local taxes will solve the swimming pool problem, but, in the absence of a well-developed system of grants, it will make the education and health problems worse. Is that a good trade? In short, whose spillovers are McLure and a good many other economists talking about? Those of a nation in which news and people took days or weeks to get from one place to another? Or those of a nation in which spillovers mock a geographer's boundaries?

Income or Cash-Flow Tax?

McLure describes the way in which Treasury made an early decision to stick with the annual income tax, rather than take the great leap to a cash-flow tax. From a political standpoint I think the Administration made the right decision, despite the growing consensus among economists that a cash-flow tax—either of the consumption type or of the lifetime income type—has important advantages over the annual income tax. The selling job required to win acceptance of a cash-flow tax would have been even more formidable than that needed to pass what was actually proposed. And the burden of that selling job, as we are now observing, may well be more than our political leaders can shoulder.

But the reasons McLure states for rejecting the cash-flow tax are really not very strong. The Treasury seems to have backed away from the cash-flow tax with all the reluctance of an anorexic told to skip dessert. McLure classifies the problems of a cash-flow tax in three categories: transition, international issues, and bequests. In each case, he says, there were apparently unsolvable problems that were sufficiently serious to stop the show. But he doesn't present any.

The principal transitional problem is how to avoid double taxation of old wealth acquired out of taxed income. A simple cash-flow tax would impose yet another tax when, and if, the wealth is spent. McLure states that it would not be a simple matter to formulate a workable transition provision. He is right that it is difficult, but misleading, I think, in suggesting that it is not possible. Harvey Galper and I developed a transitional rule that I believe avoids this problem and requires no more recordkeeping than does the current tax on long-term capital gains. I won't deny that we are clever fellows, but so are McLure's former colleagues at Treasury. Where there's a will. . . .

International problems take two forms, international tax relations and tax evasion. McLure states that adoption of a cash-flow tax would require renegotiation of all tax treaties. Maybe so, but some of the leading tax lawyers in Washington disagree. They suggest that although problems of policy in the United States will be numerous, there would be few treaty obstacles to a new personal and corporate income tax in which income is defined on a cash-flow basis. Before any of us take as gospel the contention that a switch to a cash-flow tax would be a Sisyphean diplomatic labor, we should insist on being shown chapter and verse.

The other international problem is evasion. Proceeds of foreign loans could be deposited as "saving" in the United States. That is a problem, a problem of fraud, and enforcement resources would have to be devoted to minimizing it. But so are fraudulent tax shelters. So, in literal fact, is the deduction of interest expense by anyone who holds

tax-exempt securities. And the diversion of income through tax-haven countries, while often avoidance rather than evasion, reflects the fact that we have responded to many problems under the current income tax by legalizing avoidance, rather than persisting in quixotic attempts to stop it. Thus, we enact provisions to promote saving, such as IRAs and 401ks, and then blink at the current deduction of interest expense on loans while interest on these and other accumulations is exempt. In short, the current tax system, and even the one that would emerge after tax reform, is suffused with what McLure calls showstoppers that are at least as bad as the foreign borrowing problem he cites. Better, it would seem, the showstoppers you know—the practices that you know you can't do anything about and have therefore legalized—than the showstoppers you don't know. My point is a simple one—the current tax system is suffused with provisions that would be regarded, properly, as showstoppers in a proposal for reform.

On the subject of bequests, I have more sympathy with McLure's objections to cash-flow taxes. Most cash-flow taxes are of the consumption variety and would increase the opportunities of taxpayers whose taxes run to dynastic accumulation to indulge their particular form of consumption. McLure expresses concern that if such propensities were unhindered by some tax on unconsumed income, excessive concentrations of wealth would be likely to result. Such concentrations could be limited by a serious attempt to tax gifts and bequests. Not all intergenerational transfers could be subjected to tax, but we would get most of the large ones if we were willing to go to some administrative trouble. The will is conspicuously lacking, and McLure doesn't want to risk losing the tax we now have on unconsumed income. Given that perspective, his support for raising additional revenue from a value-added tax, rather than from higher taxes on personal income, seems a bit inconsistent. His concern should push him in the direction that Harvey Galper and I have taken, support of a cash-flow tax that treats gifts and bequests, like consumption, as a taxable use of resources. As soon as the detached climate of Stanford has permitted him to shed the regrettable Washington habit of abandoning good ideas because they aren't immediately saleable, I hope that he will join us.

Discussion

John B. Shoven*

Charles McLure is to be congratulated for his role as the chief architect of a truly fundamental tax reform proposal. No previous proposal for comprehensive reform, not even the ambitious *Blueprints For Basic Tax Reform* (1977), has had to come to grips with all of the details which must be dealt with in order for a plan to be realistically considered for implementation. Treasury I has been scrutinized by the press, by lobbyists, and by all sorts of analysts. It is remarkable how far it has gotten, or, perhaps more accurately, what it has started. Clearly this is the proposal that got tax reform moving in this country, and it still is providing the outline for much of the debate. My role as a discussant is to evaluate the paper, which in this case amounts to evaluating the proposal. It is easy to fault the proposal on certain particulars, and I will do so, but let me be clear that I believe it would have been difficult to build a superior comprehensive plan.

The first issue I will mention with respect to Treasury I is the choice of a tax base. The proposal aims to tax a comprehensive measure of real economic income. In making this choice, it is somewhat old-fashioned. The tax base favored by most academic public finance economists today is expenditure. The expenditure tax is touted as having at least three advantages. First, the philosophy of taxing people according to their withdrawals from the social product (i.e., consumption) rather than the value of their contribution to it (income) is attractive. Second, an expenditure-based tax system would not distort the choice between saving and consumption in that it would offer investors the full return on their investments. This may indicate that the economy would allocate resources more efficiently with an expenditure tax than with an income

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tax. The analytical and simulation work in this area tends to support this efficiency advantage of the expenditure tax. Third, a tax based on expenditure can avoid the complicated issues of defining real capital income and adjusting the tax base for inflation. Thus, it holds out the promise of a considerably simpler tax system. These advantages have been asserted in numerous academic articles and were clearly presented in *Blueprints for Basic Tax Reform*.

Treasury I and Charles McLure in his paper state that the transition issues in a switch to an expenditure tax may be such that the whole thing is undesirable. Further, McLure is concerned about the possibility that some "showstopper" would crop up in the implementation of an expenditure tax which would stop tax reform in its tracks. The problems were not presented in detail, and it strikes me that if a proposal that public finance economists have been pushing for the last 10 years suffers from some fatal flaws, then the defects should be fully analyzed.

One can overstate the degree to which Treasury I was pure with respect to the income tax concept. While it attempts to tax real corporate income, it leaves the personal tax base far from true economic income. It makes no attempt to include the imputed income from owner-occupied housing, and it proposes an expansion of Individual Retirement Accounts. These features are consistent with expenditure taxation, not income taxation. Despite this, the direction in which Treasury I tries to go is clear, and it is towards an income tax.

Before going further, I want to register my complaint about the constraints which were imposed on the Treasury Department in the design of its tax reform proposal. First, it was to be revenue neutral. While I cannot claim to be certain of the consequences of running deficits as large as we are, it seems irresponsible to me to rule out a tax increase as a means of reducing the deficit. Even ignoring the connections between our fiscal posture and the dollar's strength and the foreign trade deficit, it should be made clear by our profession that the choice is not between high taxes and low taxes, but between higher taxes now and higher taxes in the future. If we continue to accumulate debt at the current rate, a tax increase will ultimately be necessary just to service our increasingly foreign-held obligations. Second, I thought it was ironic that the same document that pointed out the many tax shelters and legal abuses available to the wealthy would also claim that distributional neutrality was virtue. The current distribution of tax burdens by income class is, after all, partially a product of those very same abuses. Charles McLure, of course, cannot be criticized for playing by the rules, but I hope it is within bounds for me to complain about them.

Treasury I gets mixed marks when it comes to the treatment of capital income. The proposal to partially integrate the corporate and personal income tax systems by allowing corporations to deduct 50 per-

cent of dividends paid should have received loud applause. This is a direction of reform which public finance economists such as Shoup, Musgrave, and Pechman have been advocating for years. Business was slow to endorse this feature of the plan, perhaps because of management fears of pressures to pay out a larger share of earnings, and therefore it has been scrapped in the political compromises of the last year.

The strong point of Treasury I regarding capital formation is that it proposes roughly equal taxation of different types of investment assets. Equipment, plant, land, and inventories would face very similar effective tax rates. This is in sharp contrast to the situation under the current law, where most studies show that equipment is strongly favored. However, neutrality between corporate investments does not imply that Treasury I is completely neutral in the treatment of all investments, or even that it is more neutral than the current law or Treasury II, the President's tax proposals.

One large problem is the failure to tax owner-occupied housing, which constitutes a very significant portion of the nation's capital stock. The point is that treating all corporate investments equally is not necessarily desirable if residential real estate is going to escape taxation altogether. The paper, in my opinion, is wrong in suggesting that removing the deductibility of mortgage interest would have been an improvement. The problem with the treatment of housing, at least from an income tax perspective, is not the deductibility of mortgage interest but the fact that the economic income flow is untaxed. Disallowing mortgage interest deductions would just create a new distortion between people who have large mortgages and those who are able to accumulate a large equity position in their homes. If one can use his own funds to acquire a house, then the implicit interest would still remain free of tax, even in a situation where mortgage interest had been declared not deductible. Only mortgaged homeowners would face a higher cost for housing investments. If it is decided that it is impossible for practical purposes to tax the imputed income of homeowners, then the rest of the design of the tax system should take account of this fact. That might imply that renters should be given tax breaks to put them on a more even footing, and might argue that corporate investments should be lightly taxed so that they can compete on more even terms with housing for funds.

If we look at neutrality in terms of the intertemporal allocation of resources, it is not clear that Treasury I looks good. This, of course, is the natural consequence of judging an income tax proposal on expenditure tax criteria. Using a cost of capital approach in the Hall-Jorgenson tradition, King and Fullerton (1984) found that the total wedge between what an investment earns and what the investor receives amounted to roughly 35 percent in 1980. The methodology includes both the corporate and

personal income taxes, and takes account of the investment tax credit and depreciation and inventory accounting. In two subsequent articles, Fullerton (1985) and Fullerton and Henderson (1984) found that the ERTA bill in 1981 reduced the wedge between investment and investor to 23.6 percent. However, 1982's TEFRA bill increased the wedge to 30 percent and Treasury I would have brought it up to 43 percent. The President's tax proposals of May 1985 would have imposed a tax wedge on investments in the corporate sector of 35 percent, exactly where it was before the Reagan administration took office. The plan currently being considered in Congress probably imposes a wedge somewhere between that of Treasury I and Treasury II. Certainly the Administration and the country seem to have completely changed direction on the taxation of capital income. It might be valuable to note that Shoven and Tachibanaki (1985) used the same methodology and computed the wedge faced by Japanese investors. While the results were different for different years, the figures ranged from 7 to 20 percent, or substantially less than the wedge faced by American investors.

There has been some false advertisement of both the Treasury I and the Treasury II plans. Most blatant are the tables and statements asserting that 75 to 80 percent of households would be better off under the proposed tax plans. These figures are the result of plans that reduce individual taxes and raise corporate taxes and the fact that Treasury did not attribute the taxes that corporations pay to individuals. This ignores the most fundamental rule of tax incidence, namely that someone must bear the burden of all taxes. I also feel that the Treasury should not get credit for the rate reductions that it achieves by making state and local taxes non-deductible. The effect of eliminating the deductibility of state and local taxes is to increase the burden of the state-supplied public goods. The effective marginal tax rate faced by households is not reduced by what amounts to a change in the level of government that is collecting the tax. Finally, in the area of false advertising, the Administration acts as if removing those with below poverty level income from the tax rolls is the ultimate generosity. Of course, in earlier times such programs as negative income taxes and cashable credits have been considered, and they would have done far more than the plans now being considered for the poor.

Let me conclude by evaluating Treasury I on the three standards in its title: fairness, growth, and simplicity. In taxing a broader range of incomes symmetrically and in closing down many unproductive tax shelters, Treasury I greatly improves horizontal equity. It deserves high marks in the area of fairness. In terms of promoting growth, the case that it would improve the situation is not compelling. While different corporate investments would be taxed more similarly, this is achieved at a higher tax rate which puts them at an even greater disadvantage relative

to owner-occupied housing. The whole reform process began with the goal of simplifying the tax system. Here, too, I think less was achieved than claimed. The fact is that taxing real economic income is inherently complicated, and the inflation adjustments that Treasury I makes are not simple. In fact, I think it is largely their complexity which has caused them to gradually disappear from the plans that have followed Treasury I.

Despite those shortcomings, Treasury I was a major accomplishment. It was a detailed proposal to tax real income in a fair manner. It is the only proposal which got serious about adjusting the definition of income for inflation, and it did eliminate the unevenness in the tax treatment of different corporate investments. And, it really went after abusive tax shelters which threaten to undermine the public's confidence in the tax system. These are considerable accomplishments, indeed. Treasury I will long be considered a landmark event in the history of tax reform in the United States.

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Discussion

*Emil M. Sunley**

Charles McLure focuses on the Treasury tax plan submitted to the President in November 1984 (Treasury I) and the President's tax reform proposals announced last May (Treasury II). The broad outlines of the two proposals are similar. Both retain the income tax as the major source of federal tax revenue. Both shift the income tax toward corporations and away from individuals. Both would raise roughly the same amount of revenue as current law. Both include a top marginal rate of 35 percent for individuals and 33 percent for corporations.

Once one gets beyond these major similarities, Treasury II, as McLure concludes, is but a shadow of Treasury I. The original Treasury plan will remain a standard for comparing proposals for comprehensive income tax reform. The profession owes Charlie a debt of gratitude for his critical role in formulating Treasury I.

Let me comment on three issues.

Distributional Neutrality

Treasury I was designed to be roughly distributionally neutral across income classes, except that the lowest income class gets a larger reduction when measured as a percentage reduction in tax. Treasury II provides the largest percentage reductions at both the bottom end and the top end of the income scale.

But is the percentage reduction in tax the best standard for distributional neutrality? One might want to look at the percentage change in after-tax income. Using this standard, one concludes that the tax pro-

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gram tilts dramatically toward families and individuals with higher incomes. However, if one also considers the distributional impact of the increase in corporate taxes, higher income families and individuals do not come out all that well.

Capital Gains

Treasury I would have taxed capital gains in full while permitting the basis of the asset to be adjusted for inflation. Treasury II abandons this approach.¹ Instead, the exclusion for net long-term capital gains would be reduced from 60 percent to 50 percent. Some tax reformers have criticized Treasury II as being only a one-sixth cutback in the preference for capital gains. This is not the appropriate way to judge the capital gains proposal. Under current law, a taxpayer in the 50 percent tax bracket gets to keep at the margin 50 cents of each dollar of ordinary income and 80 cents of each dollar of capital gains. Thus if income is characterized as capital gains instead of ordinary income, the amount of after-tax income is 60 percent greater. Under Treasury II, if the income is characterized as ordinary income the taxpayer keeps 65 cents on the dollar, given the proposed 35 percent top marginal rate. If the income is characterized as capital gains, the taxpayer would keep 82.5 cents, or 27 percent more. The incentive to convert ordinary income into capital gains is cut by more than half, even though the exclusion is cut by only one-sixth.

Indexing for Inflation

Treasury I included proposals for comprehensive indexing of the tax system for inflation. Capital gains, inventories, depreciation and debt would all have been indexed.

Treasury I had a shortcut approach for indexing debt. Instead of indexing each debt instrument, a portion of net interest paid would not be deductible and a portion of net interest received would be excluded from taxable income. The portion depends on the rate of inflation and on an assumption that the real before-tax rate of return is 6 percent. If inflation is 5 percent, then the portion would be 5/11ths (5 divided by six plus five). If the rate of inflation is 7 percent, then the portion is 7/13ths (7 divided by 6 plus 7).

¹Treasury II does include a proposal for full taxation of capital gains with an inflation adjustment as an option beginning in 1991.

This shortcut approach for indexing may work on average. But it clearly does not work if a business both borrows and lends. Consider a commercial bank that borrows at 10 and lends at 12, making a spread of 2. If the maturities are matched, the bank is fully protected from inflation. Under Treasury I, however, the bank would be able to exclude a portion of net interest income.

The exact approach for indexing would be to adjust both the interest paid and the interest received. Assuming inflation is 5 percent, then 5/10ths of the interest paid should be deductible and 7/12ths of the interest received should be taxable. The spread would still be 2.

This exact approach probably is too complicated and was rejected by Treasury. Once Treasury realized that the shortcut approach did not work in garden-variety situations, it was forced to drop the indexing of debt.

Many would contend that it is inappropriate to index capital gains or depreciation unless debt is also indexed. Otherwise taxpayers will borrow to buy an asset, gaining a tax advantage from inflation. Interest paid will be fully deductible while only a portion of the gain will be taxed and the depreciation deductions will be magnified by inflation indexing. This would result in an appearance of inequity.

But is it any worse than current law which permits a full deduction for interest paid and provides ad hoc inflation adjustments for depreciation and capital gains? These ad hoc inflation adjustments—accelerated depreciation and exclusion for capital gains—may be right for some level of inflation. They are too generous for lower rates of inflation and not generous enough for higher rates. Indexing depreciation and capital gains would be superior to the ad hoc adjustments even if interest paid remained fully deductible.

Treasury II Compared to Ways and Means Proposal

McLure focuses on Treasury I and Treasury II. These proposals have been partly passed over by events. The Ways and Means Committee has begun marking up a tax reform bill working from a staff option developed by the Joint Committee on Taxation. This option includes many of the proposals put forth by the President, but there are significant differences from Treasury II. Let me describe them.

First, the staff option would improve the distribution of the tax burden. This would be accomplished by reducing the exclusion for net long-term capital gains to 40 percent, making the top tax rate on capital gains 21 percent. Also, the proposed \$2,000 personal exemption would be scaled back to \$1,500, reducing the tax benefits at the highest income levels. At the same time, the standard deduction would be increased so

that families and individuals with incomes below the poverty line would generally not be taxed, as under Treasury II.

Second, the staff option would not repeal the itemized deduction for state and local taxes. Instead, the staff option proposes to permit deductions for income and real property taxes with the deduction limited to \$1,000 or the excess of these taxes over 5 percent of adjusted gross income, if greater. Though this does not sound like simplification, it may represent the kind of compromise necessary if a tax bill is to be enacted.

Third, the staff option adopts the approach of Treasury I and places a per employee cap on the value of employer-provided health benefits. The cap would be \$120 per month for individual coverage and \$300 per month for family coverage. Though the cap is higher than in Treasury I, McLure would agree that the staff option establishes the correct principle, in contrast to the proposed floor in Treasury II.

Fourth, on the business side, the staff option drops the President's proposal for a windfall recapture tax on excess depreciation and phases in the dividends-paid deduction. The option also drops indexing of depreciation and stretches out the allowable depreciation deductions for new investment. The top corporate tax rate would be 35 percent. The effect of these changes is to lower the tax burden on old capital and increase the tax burden on new capital, compared to Treasury II. Moreover, on an overall basis, the staff option shifts the burden of the corporate tax more toward corporations than Treasury II.

The Effect of Tax Simplification on Individuals

Joel B. Slemrod*

In the past year tax reform has leapt from the obscurity of public finance textbooks and journals onto the front page of every newspaper in the United States. The lightning rod of public attention has been the proposal for major tax reform advanced by the Reagan administration in May 1985, which followed by six months the release of a set of reform proposals by the Treasury Department. The principal focus of the public debate has been a taxonomy of which individuals and corporations would pay higher taxes under the proposed plan, which would pay lower taxes, and how large the changes in tax liability would be.

The goal of this paper is to shift the focus of the debate from the taxonomy of tax reform to the economics of tax reform and, in particular, to its likely impact on households. Primary attention will be paid to the proposed changes in individual income taxation not considered elsewhere in this volume and to certain critical areas of impact—labor supply, saving and investment, and housing. *The President's Tax Proposals*, which will likely be the starting point for legislative action, will be the principal subject, although some aspects of the earlier Treasury proposal will be considered, both because it represents a more radical approach to tax reform and because many of the alternative approaches suggested there may eventually find their way into the policy debate. Other proposals for fundamental tax reform will not be considered.

The organizing principle of this paper is drawn from the objectives presented in the title of the Treasury's tax reform study *Tax Reform for Fairness, Simplicity, and Economic Growth*, (hereafter, Treasury I), and re-

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tained in modified order in the President's proposals. Following a brief discussion of revenue neutrality, the next three sections assess the President's tax proposals, (hereafter, Treasury II), in the context of its three stated objectives. The following section briefly discusses the effect of tax reform on tax evasion, and the final section offers some concluding comments.

The design of a tax system must inevitably include trade-offs in the achievement of the goals of fairness, simplicity, and economic growth. Because value judgments enter any assessment of fairness and because success in meeting any of the goals is difficult to quantify precisely, economics cannot be expected to offer an exact solution as to how these trade-offs should be resolved. An important objective of this paper is to identify the trade-offs involved in the adoption of a fundamental tax reform such as that proposed by the President. Another major goal is to place the tax reform debate in the context of modern public finance theory, in order to provide some rigorous framework for a discussion of the important issues.

Revenue Neutrality

The Treasury II tax plan is designed to be revenue neutral during the five years after its projected introduction, from 1986 to 1990.¹ There is, however, reason to doubt whether the plan is revenue neutral in the longer run. The analysis accompanying the plan invites such doubt by projecting the steady-state revenue implications to be a 7 percent decrease in individual income tax revenues and a 9 percent increase in corporation income tax revenues. Based on the 1990 current law revenue yields of the two taxes, these changes amount to a \$26.2 billion annual shortfall, or 4.2 percent of total income tax revenue.²

The long-term revenue shortfall in the face of approximate short-term revenue neutrality is largely due to the expiration of the excess depreciation recapture rule in 1989; the delayed revenue loss of the depreciation allowances, which are significantly more back-loaded than current law; and the modified accounting rules for production costs, which force deductible expenses to be capitalized rather than expensed and thus gain revenue in the early years of the transition and lose revenue later.³

¹The Treasury II short-run revenue estimates show a \$12 billion shortfall over the period 1986 to 1990, or less than 1 percent of estimated revenues. The Joint Committee on Taxation has estimated a \$25 billion shortfall over this period.

²Note, though, that the estimates do not consider the potential revenue gain from improved economic performance or from improved compliance with the tax system.

³Offsetting these provisions are other aspects of the plan whose revenue pickup accelerates. An example is the revenue increase from the repeal of the tax exemption for pri-

This long-term revenue shortfall is important for much of the analysis that follows in this paper. Estimates of the investment incentive effects, in particular, rely on forward-looking calculations of the effective tax rate, and thus are not affected by a temporary, essentially lump-sum, tax such as the excess depreciation recapture rule. Thus, the efficiency implications of the proposed tax system tend to look better than they must inevitably be in the long run if taxes were to be raised to make up the 4.2 percent revenue shortfall. If the revenue shortfall is not made up with increased taxes, then an analysis of the tax plan must deal with the consequences of increased deficits in the years after 1990.

Fairness

Economic theory has not provided policymakers much guidance about the proper distribution of the burden of taxes among income groups. The modern theory of optimal income tax progressivity has sharpened our understanding that decisions about progressivity must trade off the social value of a more equal distribution of welfare and the disincentive effects of high marginal tax rates.⁴ The resolution of this trade-off must ultimately rest on a value judgment about which economists have no comparative advantage. Economic analysis can, though, be valuable in assessing the nature of the trade-off involved in any particular policy and in assessing the true incidence of a tax system.

Vertical Equity

The Treasury II proposal was designed so that the 7 percent reduction in total individual income tax revenues would be "distributionally neutral," by which is meant that the percentage reduction in tax liability would be spread approximately uniformly across income classes. In fact, the percentage reduction in tax burden is U-shaped by economic income class. Mainly because of the increase in the threshold income below which no tax is due and the expansion of the earned income credit, the tax reduction for families with less than \$20,000 in economic income is 18.3 percent, significantly more than the average decline of 7 percent.⁵

vate-purpose municipal bonds, which applies to bonds issued after January 1, 1986. In this case the revenue gain is roughly proportional to the stock (as opposed to the flow of new issues) of private-purpose tax-exempt bonds which would have been issued after 1986. This revenue gain thus increases sharply with time.

⁴See Slemrod (1983) for a review of the recent literature on optimal income tax progressivity.

⁵If, though, the tax reduction is measured as a proportion of total federal taxes including the social security tax, the percentage reduction for low-income families is not exceptionally high.

In addition, the reduction for taxpayers with family economic income over \$200,000 amounts to 10.7 percent. Of course, the tax reduction in absolute dollar terms is much greater than average for higher-income taxpayers.

Even if these figures were accepted as a reasonable measure of the vertical distribution of the tax burden, they of course would not show that the proposed tax system is (vertically) equitable. Rather, they would show that the proposed system is about as equitable as the current system, no more and no less. Even this assessment, though, is subject to several qualifications.⁶

First of all, these measures make no attempt to trace the ultimate incidence of the taxes paid by corporations. Because the drop in individual income tax revenues is offset by a large increase in corporation tax revenues, the distributional pattern of the whole income tax burden depends critically on one's assumptions about the incidence of the corporation income tax.⁷ This remains an unresolved issue, although in the context of a general equilibrium model with a fixed capital stock there is substantial agreement that the tax burden is spread among capital owners in general. If this is true, then the progressivity of the tax proposal is greater than the analysis indicates, since capital income is more concentrated among the wealthy than is labor income. Once capital accumulation is introduced in a dynamic model, the possibility arises that taxes on capital income are in the long run borne by workers due to their adverse effect on capital accumulation and the steady-state capital-labor ratio.⁸ In this case, the Treasury's analysis may not be too misleading. This controversial issue is simply sidestepped in the official analysis by ignoring the burden of all corporation income taxes and assuming the ultimate burden of all individual income taxes falls on the taxpayer who is liable for the tax payments.

The issue of the ultimate incidence of taxation is important not only for questions of labor versus capital income taxation but also for several

⁶Regardless of the qualifications that follow, the Treasury should be commended for analyzing the distribution of tax burdens on the basis of a constructed measure of family economic income, as opposed to a more accessible but less meaningful measure such as the adjusted gross income concept reported on tax returns.

⁷See Pechman (1985) for a calculation of the overall incidence of the tax system using various assumptions about the ultimate distribution of the burden of the corporation income tax.

⁸The possibility that the increased corporation income taxes will be passed on to workers is less likely under Treasury II than under the original Treasury plan, since in the former a substantial fraction (61 percent) of the increased revenues in the first four years of the plan come from the recapture tax on past accelerated depreciation. This is essentially a capital levy which does not affect the incentive to invest in new capital goods, excepting cash-flow repercussions. As mentioned above, this leaves open the question of how the long-run revenue shortfall will be made up.

other provisions of the proposal. Consider, as an example, the proposed limitation of the tax-exempt status of employer-provided health insurance. If the induced reduction in demand causes a decline in the price of medical services, the tax increase is less than fully borne by the consumers of medical services and partly passed on to the suppliers of medical services.⁹ Similarly, an increase in the effective tax rate on investment in real estate will be partially reflected in an increased rental price of housing relative to other prices.¹⁰ Changes in the tax system are also likely to affect the pattern of pre-tax rates of return earned by different kinds of assets. For example, the expected rate of return on tax-exempt securities is lower than that on taxable securities. The rate of return differential can be thought of as an implicit tax borne by owners of tax-exempt securities. Reduced marginal tax rates are likely to cause this differential to shrink, thus lowering the implicit tax on owners of tax-exempt bonds.¹¹ In an important sense, some of the tax reduction is spread from the owners of taxable bonds, whose before-tax relative rate of return likely falls, to the owners of tax-exempt securities. Neither this change in implicit taxes nor the induced changes in relative prices discussed above are considered in the analysis of the distribution of tax burdens presented in Treasury II.

The message of the preceding discussion is that a precise assessment of the distributional impact of a major tax reform is a complex matter.¹² A list of important caveats to the Treasury II claim of approximate distributional neutrality can be offered although, in the absence of a more complete analysis, no strong argument can be made to dispute this claim.

Horizontal Equity

The principle of horizontal equity states that taxpayers who are equally well-off in the absence of taxation should remain equally well-off

⁹Such a reduction in demand was much more likely under the Treasury I proposal, which would have eliminated the tax preference for health insurance at the margin. The Treasury II proposal features a small inframarginal tax.

¹⁰The ultimate incidence of eliminating the deductibility of state and local taxes is another important issue, and is addressed in another paper in this volume.

¹¹Note that the Treasury II proposal features not only a reduction of marginal tax rates but also several other provisions that affect the supply and demand for tax-exempt bonds, in particular the elimination of private-purpose issues. Thus, the net effect of the proposal on the rate of return differential is more problematic than indicated in the text.

¹²In fact, there are even more conceptual problems. Assessing the distribution of tax burdens by examining the pattern of average tax rates by income class in a given year can be misleading. After all, our ultimate interest should be the effect of taxation on the lifetime well-being of households. A snapshot of one year's tax burden distribution will misrepresent the lifetime distribution of tax burdens if, as is likely, there is a life cycle to income and tax payments.

when taxes are imposed. Many of the special features of the present income tax have been justified in the name of horizontal equity. For example, the deductibility of extraordinary medical expenses has been defended on the ground that income overstates one's true utility in the presence of large involuntary medical expenses. Many other features of the law have been criticized as being the source of horizontal inequity, including the tax exemption of fringe benefits and the deductibility of charitable contributions.

Not all instances of preferential tax treatment result in horizontal inequity, however. If a tax-preferred activity is available to everyone and valued equally by all, then the long-run effect of preferential tax treatment is only to induce resources to move into the activity. For example, a subsidy to the purchase of television sets would not be horizontally inequitable if all equally well-off people had identical tastes for television.

Many examples of preferential tax treatment are sources of persistent horizontal inequity because they apply to activities which are not valued equally by all equally well-off taxpayers or are not available on an equal basis to all taxpayers. For example, the deduction for charitable contributions favors those who derive satisfaction from charitable gifts, and the tax advantages accorded to housing favor those who prefer housing services over other forms of consumption.

Several provisions of the Treasury II proposal are designed to eliminate sources of apparent horizontal inequity. The taxation of a limited amount of employer-provided health insurance and the repeal of the \$5,000 exclusion for employer-provided death benefits are defended as correcting the current inequity toward individuals who are not covered by employer plans and who must therefore pay for health care with after-tax dollars.¹³ Repealing the deductibility of state and local taxes eliminates the tax benefits that accrue only to itemizers residing in areas with high taxes, which presumably finance services valued by the residents.¹⁴ There are many other examples. Note also that any horizontal inequities which remain would also be of smaller magnitude if the level and dispersion of marginal tax rates were reduced.

The Treasury II proposal has serious repercussions for the relative tax burden on families of different size and number of earners. The personal exemption allowance is nearly doubled to \$2,000, the two-earner credit is eliminated, full IRA eligibility is extended to non-

¹³Some of the horizontal inequity would be eliminated if the wages of individuals not covered by employer plans were higher than otherwise due to the tax disadvantage. Because the value of the exemption depends on the marginal tax rate, any given wage increase cannot equalize after-tax returns for workers in all tax brackets.

¹⁴The advantage of deductibility may, to some extent, be offset by higher land prices in high-tax areas.

working spouses, and the child-care credit is changed to a deduction. The net impact of these is a shift in the tax burden away from "traditional" families (i.e., large, one-earner families). Whether this is a move toward or away from horizontal equity depends on, among other things, whether children are viewed as an involuntary expense like extraordinary health care expenditures (in which case a large exemption for children is desirable) or as a voluntary choice about how to spend one's income (in which case no exemption allowance is called for).

Transitional Equity

One unavoidable side effect of tax reform is that it alters the return to long-term commitments made on the basis of the former tax law. Consequently, assets that lose preferential tax treatment will likely experience capital losses, while assets with a reduced tax burden will likely experience capital gains. Individuals who have made long-term commitments, such as career or locational choices, on the basis of previous law may be capriciously rewarded or penalized.

In many cases, these gains and losses cannot be justified as recovery of tax benefits unfairly received or as compensation for excess taxes unfairly paid. Once the current law has been in place for several years, the benefits of preferential tax treatment may be reflected in the price of the asset or activity. For example, preferential tax treatment of real estate undoubtedly generated capital gains for landowners when the provisions were enacted. Subsequent purchasers of land and real estate have had to pay a higher price that reflected the tax advantages, and therefore are unlikely to have earned an extraordinary after-tax rate of return on their investment.¹⁵ Revoking the tax preferences would cause a capital loss to all owners of real estate, whether or not the current owners received a capital gain when the provisions were enacted.

The Treasury II tax plan is certainly not immune from this "transitional equity" problem of windfall gains and losses. Real estate and housing would likely fall in value, as would shares in financial institutions, while shares of service and high-tech firms would probably increase in value. The return to high-income itemizers of locating in high-tax states will fall if sub-federal tax deductibility is eliminated.

The Treasury II proposal attempts to reduce transitional inequities by gradually phasing in several provisions. This allows time for adjustment to the new rules and reduces the present value of induced gains and losses. For example, the tightening of the interest deduction limita-

¹⁵This is another example of how preferential tax treatment may not result in horizontal inequity. It presumes that all equally well-off people have equal access to real estate investments.

tion would be phased in over a 10-year period, so that 10 percent of newly included interest would be subject to the limitation in the 1986 tax year, 20 percent in the 1987 tax year, and so on; in addition, the new limit of \$5,000 would be applied beginning in 1988. In many cases the changes are "grandfathered," that is, applied only to new commitments.

The proposed excess depreciation recapture rule can be thought of as an attempt to limit the transitional inequity of moving to a lower rate system. Under accelerated depreciation, expenses taken early in the productive life of assets were deductible against a high tax rate. In the absence of such a recapture rule, a capital gain would result since the income would be taxed at a lower rate, one that is below the rate that was expected when the investment was made.¹⁶

Simplicity

By almost any standard the present income tax system is quite complex and absorbs a large amount of resources to operate. The Office of Management and Budget has determined that the 260 different federal tax forms comprise 78 percent of all federal reporting requirements.¹⁷ Slemrod and Sorum (1984) have estimated that the total resource cost of taxpayers' time and monetary expenditure on complying with federal and state individual income taxes amounted in the tax year 1982 to between \$17 billion and \$27 billion. This comprised approximately 2 billion hours of taxpayers' time (or about 20 hours per taxpayer spread over a tax year) and more than \$3 billion of expenditure on professional assistance. The total cost of administering the income tax system should also include a large fraction of the IRS budget (\$6 billion in fiscal year 1985) and the cost borne by third parties (for example, employers operating the tax withholding system, financial institutions filing transactions reports, etc.). The total resource cost of income tax collection could now easily be in the \$30 billion to \$40 billion range.

The Treasury II proposal addresses the problem of complexity directly by eliminating scores of special provisions and reducing some structural sources of complexity, and addresses it indirectly by reducing marginal tax rates. However, some of the proposal's provisions would add to the complexity of the tax system. In what follows we assess the

¹⁶Note that the recapture rule does not apply to other analogous windfall gains that would result from the Administration's plan, such as the taxation of retirement benefits at a lower rate than expected and the taxation at lower tax rates of the income from oil and gas investments that were expensed under the higher tax rates of current law. It is also not clear that it accurately achieves its stated purpose. See Stretch and Sunley (1985) and Aaron (1985).

¹⁷These figures are cited in Hall and Rabushka (1985), p. 30.

likely net effect of the Treasury II proposal on the system's complexity.

First of all, the collapsing of 14 tax brackets (15, for single filers) to three, although promoted by the Administration as a key element of simplification, is actually an insignificant change in the complexity of the system. Once taxable income is computed, finding tax liability from the tax tables is a trivial operation and would not be simplified by having fewer brackets. This change, though, may improve the perceived simplicity of the system.

Marginal tax rates may affect the resource cost of collecting taxes because they affect the incentive of taxpayers to invest in finding ways to reduce their taxable income. After all, the return to reducing taxable income by a dollar is exactly the marginal tax rate.¹⁸ Thus, a general reduction in marginal tax rates should cause a substitution away from the use of taxpayer's own time and expenditure in the tax return filing process. However, preliminary empirical research reported in Slemrod (1984) suggests that there would be only small resource cost savings from moving toward a lower structure of tax rates.¹⁹

By eliminating the deduction for state and local taxes, it is estimated that the fraction of taxpayers who itemize their deductions would decline from 37 percent to 33 percent.²⁰ This decline would reduce a large part of the record-keeping burden for about four million taxpayers.²¹

Several provisions of the Treasury II proposal are designed to reduce record-keeping requirements directly. In this category lie the repeal of the political contribution credit, Presidential campaign checkoff, adoption expense deduction, and two-earner deduction.²² Employee business expenses and other miscellaneous deductions are to be summed and allowed as an adjustment to income only to the extent that they

¹⁸This applies to legal tax "avoidance" as well as illegal tax "evasion." The latter is discussed in the next section of this paper.

¹⁹This conclusion, though, rests on the assumption that taxpayers' sources of income remain unchanged when the rate structure changes. This assumption could result in an underestimate of the cost of saving from a lower rate structure if the new system discourages involvement in relatively high compliance cost activities such as self-employment or investment in real estate.

²⁰Because the Treasury I proposal also limited the deduction for charitable contributions and indexed deductible interest payments, the fraction of itemizers was estimated to decline under that plan to 22 percent. Note, however, that the interest indexing provisions in the Treasury I proposal, by encouraging households to fully mortgage their principal residences, would have had the effect of increasing the fraction of itemizing households toward the fraction of homeownership households, or 65 percent. See the discussion of this effect in footnote 47.

²¹Because expenditures for tax assistance are a deductible expense, reducing the fraction of itemizers will also increase the net cost of a dollar of professional tax assistance for former itemizers. This is another reason why the reduced itemization reduces the resource cost of compliance.

²²According to the IRS, the Treasury II proposal would reduce the number of lines in the 1040 tax return from 65 to 55.

exceed 1 percent of a taxpayer's adjusted gross income. Other simplifying reforms include the repeal of income averaging and the several provisions designed to reduce the incentive to invest in tax shelters.

Several provisions in the Treasury I proposal would serve to complicate the tax filing process. The attempt to expand the taxation of fringe benefits received by employees will inevitably lead to additional calculations and problems of appropriate valuation. The inclusion in taxable income of all unemployment compensation and cash payments for disability is another complicating provision, as is the expansion of the alternative minimum tax.²³

Both the Treasury I and the Treasury II proposals are accompanied by a suggestion that the Internal Revenue Service consider initiation of a return-free system, under which the IRS would calculate the tax liability of eligible taxpayers who elect this option, using information that it already receives from third parties under current law. The IRS estimates that this program could eventually be extended to more than 50 percent of all taxpayers.²⁴

The resource cost saving from instituting this program depends on two factors. The first is what fraction of eligible taxpayers would voluntarily cede their responsibility for tax assessment to the IRS. The IRS estimates that, for the program to be worthwhile, at least half of all taxpayers (or nearly all of those eligible) would have to participate.²⁵ There is no direct evidence about what fraction of taxpayers would actually participate in such a program, although the recent adverse publicity accorded to the IRS raises doubts about the willingness of taxpayers to trust the IRS with their tax affairs.²⁶ The second factor is the relative efficiency of self-assessment versus IRS computation of taxes. If they are equally efficient, then this plan would merely reallocate resource costs from the private to the public sector, but not reduce them. To the extent that the IRS can more effectively collate the sources of income and exemption amounts, then resource savings could result.

²³The Treasury I plan called for the indexing of capital income for inflation, which would have required additional calculations of all recipients and payers of interest (except as relating to home mortgage interest payments) and of taxpayers who realized capital gains and losses.

²⁴Under the Treasury I proposal, the return-free system could have applied to as many as 66 percent of all taxpayers.

²⁵This figure was obtained from a personal communication with IRS staff.

²⁶If the IRS statement of tax liability was binding even in the case of their understating true tax liability, then one might expect taxpayers to elect the return-free option in the hope that the IRS errs in their favor. However, as the system is envisioned, the taxpayer would still be responsible for checking the statement of tax liability and reporting any errors to the IRS. It may, though, be worthwhile for a taxpayer to elect the return-free option in order to discern which, if any, sources of income might be unknown to the IRS.

Economic Growth and Resource Allocation

This section has two purposes. The first is to review the role of taxation in promoting the efficient use of resources and economic growth, and to assess the President's tax plan in this light. The second purpose is to analyze the effect of tax reform on certain areas of particular interest: saving and investment, labor supply, and housing.

Neutrality and Growth

Although economic growth as a goal of tax reform occupies a prominent position in the title of both the President's and the Treasury's tax proposals, in the body of the accompanying analyses it tends to take a back seat to another goal, that of economic neutrality.²⁷ Neutrality refers to one of the principles of an ideal tax system defined by Musgrave and Musgrave (1976) as "minimizing interference with economic decisions in otherwise efficient markets." The idea is that, in the absence of taxes, the market allocates resources efficiently. Taxes inevitably cause inefficient resource allocation,²⁸ but a neutral tax system is one which minimizes the extent of this tax-induced inefficient resource allocation. Three dimensions of neutral tax treatment are relevant: neutrality among goods at any given time; neutrality among factors of production; and neutrality among consumption of goods in the present versus consumption in the future.

As of about 1960, the prevailing wisdom among tax economists was that the ideal tax system was a comprehensive income tax. This tax was considered to be neutral because it did not distort relative prices (except as between leisure and other goods), and was felt to be consistent with the principle of horizontal equity. Unfortunately, the modern theory of optimal taxation upset the comfortable notion that the most efficient tax system is necessarily one that alters the relative prices of goods as little as possible. Optimal tax theory first addressed a one-period world. Ignoring intertemporal considerations, the theory demonstrated that comprehensive income taxation is efficient only for a restricted class of preferences.²⁹ More generally, it is efficient to differentially tax goods and sources of income.

The practical significance of static optimal tax theory has proven to

²⁷This is especially true of the Treasury I proposal. For example, the overview volume of the Treasury's report lists 13 goals of tax reform. Economic neutrality is placed first, while economic growth is discussed third from last, just before "trade-offs."

²⁸Taxes such as poll taxes (called lump-sum taxes because they do not depend on any economic decision) are not distortionary, but are rarely used because they violate other principles of an ideal tax, especially equity.

²⁹In the presence of a nonlinear income tax schedule, uniform taxation is optimal only if no good is a relative complement to leisure compared to any other good. See Atkinson and Stiglitz (1976).

be limited. Its critical weakness, as Deaton (1984) and others have convincingly argued, is that econometric investigation is unlikely ever to be decisive in specifying the characteristics of an optimal tax structure. In the absence of such evidence, uniform taxation of goods remains the standard for judging neutrality, although its theoretical underpinning is problematic.³⁰

The same theory of optimal taxation has been somewhat kinder to the notion of uniform factor taxation as a standard of neutrality. Diamond and Mirrlees (1971) demonstrated that under very general conditions production efficiency (i.e., uniform relative factor prices faced by all producers) is desirable as long as all commodities and pure profits can be taxed. Thus, any policy which imposes different effective tax rates on the same factor when used in different sectors is a source of inefficiency to the economy. Furthermore, differential taxation of different kinds of capital goods is, under general conditions, a source of inefficiency.

What of economic growth, and its desirability? First of all, it is important to keep in mind that, in the long run, the rate of economic growth is determined by the rate of technological progress and growth of the labor supply. Tax policy that increases the rate of saving and investment may increase the growth rate for several years as the economy moves toward a higher capital/output ratio, but the impact on the growth rate will eventually disappear as the new steady state is approached. A more appropriate issue is the desirability of increasing saving and investment, with the goal of attaining a higher capital/output ratio.³¹ Optimal taxation theory can be usefully applied in an intertemporal context by simply labeling consumption in different periods as separate goods. From this perspective, income taxation is not neutral because taxation of capital income essentially increases the price of consumption undertaken in the future. Furthermore, uniform taxation of goods corresponds to the case of a consumption tax or zero taxation of capital income. The condition under which this tax structure is optimal is identical to the one discussed above, that neither present nor future consumption be a relative complement to leisure. No convincing evidence has yet been found to either support or reject this characterization of preferences, so that the proper tax treatment of capital income has not been established even in the context of simple models of the economy.³²

³⁰Preferential tax treatment can be justified on efficiency grounds if there are positive externalities associated with an activity.

³¹This statement is not meant to discount the importance of the appropriate tax policy toward research and development. The Treasury II tax plan, though, contains no major changes in this area.

³²An inefficiently low capital stock may also arise in models with overlapping generations and no bequests. In this case, one objective of tax policy may be to induce capital formation. This may imply preferential taxation of capital income. See King (1980) for a discussion of these issues.

Several recent studies have attempted to measure the welfare cost of tax-induced resource misallocation in the United States and the gain from specific policies designed to reduce this misallocation. Ballard, Shoven, and Whalley (1985) calculated, using 1973 data, that the annual value of the efficiency cost is in the range of 13 to 22 percent of revenues raised, or from 4.0 to 6.7 percent of GNP. Because the Treasury II proposals do not, of course, completely eliminate this welfare cost, these figures are usefully considered as an upper bound on the potential gain from improving the efficiency of the tax system. Gravelle's (1985) analysis of the Treasury II proposal, though, concluded that the capital income taxation provisions alone would, by reducing both the differential tax treatment of different assets and of capital used in different sectors, improve the efficiency of resource allocation enough to increase GNP by 1.1 percent. Gordon and Slemrod (1983) estimated that the elimination of local property tax deductibility could, by greatly reducing the subsidy to municipal expenditures, cause efficiency gains of as much as 0.9 percent of GNP.

All of these quantitative results depend critically on certain modeling choices which remain controversial among economists.³³ However, they are illustrative of the magnitude of the possible efficiency gains from reform of the tax system. Improved resource allocation does not have a natural constituency, but it is a source of improved national well-being nevertheless. As important as ensuring that the size of the pie grows or that it is distributed fairly is ensuring that the ingredients are present in the right proportions.

Efficient resource allocation is a valuable perspective for the topics that follow—the impact of tax reform on saving and investment, labor supply, and housing. Although still a controversial position, a large and growing fraction of economists argue that U.S. saving, investment, and capital stock are too low, and that the tax system should be changed to increase them. Aggregate labor supply is clearly too low compared to its level under a first-best (lump-sum) tax system, but whether it is too low compared to its optimal second-best level is a complicated issue, depending on unknown characteristics of preferences and entwined with resolution of optimal tax progressivity. Due to preferential tax treatment, the share of capital allocated to housing is above its efficient level.

Saving and Investment

Several aspects of the Treasury II proposal would affect the incentive to save and invest in U.S. productive assets. In a closed economy, the

³³For example, both the Gravelle study and the Gordon and Slemrod study assume unitary elasticities of demand for final goods and inputs. If actual elasticities are lower (higher), then the calculated efficiency gains are overestimated (underestimated).

combination of these impacts determines the change in the flow of saving and investment (which must be equal) and the change in the level of interest rates. In a world with international capital flows, the impact on national saving and domestic investment can differ. This section discusses the proposal's impact on incentives to save and invest, the net effect of these changed incentives, and how the presence of internationally mobile capital affects these conclusions.

Two aspects of the Treasury II proposal have potentially important implications for the incentive to save because they may affect the marginal after-tax rate of return to saving. They are the expansion of Individual Retirement Accounts (IRAs) and the reduction in marginal tax rates.³⁴

Under the Treasury II proposal, married couples with total compensation of \$4,000 or more would be entitled to an annual \$4,000 IRA contribution regardless of how much of the total compensation was generated by either spouse.³⁵ Under current law, a couple with one working spouse is limited to a \$2,500 contribution per year. To what extent this provision will stimulate saving depends on the rate-of-return responsiveness of saving and on whether the expansion of IRAs will in fact increase the rate of return at the margin of new saving.

Because households can reduce their current tax liability without any increase in saving by transferring previously accumulated assets into the IRA, any IRA scheme may not be an incentive to new saving. This problem applies particularly to the initial years after implementation of an IRA plan, when there is a large amount of accumulated wealth to transfer into IRAs. The proposed expansion of the limit on annual contributions for one-earner families will hasten the transition period that elapses before the program can become effective at the margin for these families.

Note, however, that because households can borrow (with deductible interest) and place the borrowed funds in their IRAs, it is possible that no new saving occurs due to IRA accounts. Feldstein and Feenberg (1983) discount the importance of this possibility, claiming that few households have the opportunity to borrow without collateral and noting that IRA funds cannot legally be accepted as collateral. However, borrowing against home equity could provide funds for the IRA and prolong the transition period. In any event, the limitation on the deductibility of interest payments in the Treasury II proposal would reduce the attractiveness of borrowing in order to invest in an IRA account.

³⁴The indexation of interest payments and receipts, proposed in the Treasury I plan, would also have had major implications for saving and investment.

³⁵Treasury I proposal expanded the limit to \$2,500 per spouse.

Even in the long run and ignoring the possibility of borrowing, an IRA program with a cap on annual allowable contributions will not be effective at the margin for households whose desired annual saving exceeds the cap. By increasing the limit from \$2,250 to \$4,000 for married couples with one earner, the proposal would potentially expand the population for whom the IRA is effective at the margin in the long run. However, based on a study of 1972 tax return and financial data, Feldstein and Feenberg concluded that an IRA plan less generous than current law (and much less generous than the Treasury II proposal) would apply at the margin for most savers.³⁶ This finding implies that the proposal to further expand the IRA limit would probably not be effective at increasing the marginal rate of return to saving for more than a small fraction of households.

The lowered marginal tax rates of the Treasury II proposal will tend to increase the after-tax rate of return to saving for given pre-tax rates of return. This is offset to some degree by the increased effective state and local income tax rates for itemizers who lose tax deductibility, and by the elimination of some tax-preferred methods of saving, such as private-purpose municipal bonds. The precise relationship between reduction in marginal tax rates and the corresponding increase in the marginal after-tax return to saving is complicated because the income from many forms of saving is already effectively tax-exempt or tax-preferred.

Determining the magnitude of the aggregate saving response to higher rates of return is also problematic. As is well known, econometric estimates of this response vary widely. Much applied work has utilized Boskin's (1978) estimate of an interest elasticity of saving equal to 0.4, although the methodology underlying this estimate remains highly controversial. Continuing in the tradition of using Boskin's estimate as a benchmark for quantitatively assessing saving responses, the reduction in marginal rates itself could be expected to increase saving by less than 2 percent, holding the interest rate constant.³⁷

Assessing the impact of the proposal on corporate investment demand is another difficult task. On the one hand, the analysis accompanying the Treasury II proposal estimates that the corporate-level effective tax rate on equity-financed investment would fall from 35 to 26 percent if all its provisions were enacted. (This decline reflects an increase in the

³⁶They also concluded that such a plan would quickly exhaust the available assets of most taxpayers, making the transition period very short.

³⁷The average federal marginal tax rate (weighted by wages and salaries) falls from 23.6 to 19.1 percent. Adjusting for the loss of sub-federal tax deductibility yields about a 4.4 percent increase in the after-tax rate of return, which implies a 1.76 percent increase in saving for an interest elasticity of 0.4. This calculation assumes that the after-tax rate of return on a taxable saving instrument bears the same relationship to the actual marginal after-tax return to saving as it did over the period of Boskin's study.

crease in the effective tax rate on investment in equipment and a reduction in the effective tax rate on investment in structures and inventories.) On the other hand, the revenue projections show increases in corporation tax revenues of about 25 percent over the period 1986 to 1990.

Some reconciliation of these two apparently contradictory statements is possible. Nearly \$60 billion in revenue is raised between 1986 and 1989 by the excess depreciation recapture rule, which does not affect the incentive to make new investments. Furthermore, the change to a more back-loaded system of capital cost recovery allowances accelerates revenue that will later be lost as larger depreciation allowances are taken in the later years of capital goods' productive lifetimes.

Nevertheless, the Administration has estimated that, when "fully effective," the corporation income tax would raise 9 percent more revenue than under current law. How this is compatible with a sharp decline in the corporate-level effective tax rate on new investment is a most difficult question to answer. Part of the answer is that the effective tax rate calculations do not consider some revenue-raising provisions that do not apply generally to investment, but do apply at the margin of some new investment. For example, the revised accounting rules for multiperiod construction will increase effective tax rates for certain investment activities, but are not considered in the effective tax rate calculations. Another part of the answer is that the effective tax rate on debt-financed investment is not reduced by the plan. Finally, the estimates of steady-state corporation tax revenues may have erred on the high side, a conclusion suggested by the finding of the Congressional Budget Office (1985) that the corporate tax proposals will lose rather than gain revenue in the long run.

My tentative conclusion is that the tax incentive to corporate investment probably increases slightly, but not substantially.³⁸ This conclusion also applies to noncorporate, nonresidential investment. Furthermore, the taxation of noncorporate residential capital income almost certainly increases, as is discussed in more detail in the section on housing of this paper. Overall, the taxation of investment is probably not altered much in either direction, although there is a shift in the relative burden of taxation from nonresidential capital to residential capital, and from corporate structures and inventories to equipment.

The upshot of slightly increased incentives to save and not much change in the incentives to invest would be, in a world closed to international capital flows, slightly lower interest rates and a slightly higher rate of saving and investment. With internationally mobile capital, any increased saving would be spread among investment opportunities

³⁸Fullerton (1985) also concludes that the overall effective rate of taxation on corporate capital would not be affected significantly by the President's tax plan.

throughout the world, and neither interest rates nor aggregate domestic investment would be affected significantly.

Labor Supply

The most striking fact about the Treasury II tax reform plan for assessing its impact on labor supply is the apparent large reduction in marginal tax rates. The average statutory marginal tax rate would be reduced for all income classes, with the largest reductions for families with incomes over \$30,000. The overall average of marginal tax rates would decline by 19 percent, from 23.6 percent to 19.1 percent.³⁹ A straightforward back-of-the-envelope calculation of the likely labor supply response to the decline in marginal tax rates is a useful starting point. Assuming no aggregate income effect, compensated labor supply elasticities of 0.2 for males and 1.2 for females,⁴⁰ and a two-thirds share of total labor income going to males, one obtains a predicted increase in labor supply of 3.1 percent.⁴¹

This calculation is, though, fraught with pitfalls because the aggregate labor supply response depends critically on the means by which the level of statutory marginal tax rates is reduced. Three different sources are relevant: a reduction in the total taxation of labor income, a broadening of the tax base, and a less progressive tax system.

A large fraction of the reduction in marginal tax rates is made possible by the 7 percent reduction in individual income tax revenues, which is offset in the short run by an increase in corporation income tax revenues.⁴² A shift from labor income taxation to capital income taxation tends to stimulate labor supply only in the context of a static model. In a multi-period model, such a shift does not unambiguously increase labor supply because although it increases an individual's real after-tax wage in terms of present consumption goods, it decreases the real after-tax wage in terms of future consumption goods. The labor supply response depends on individuals' preferences.

Some of the reduction in marginal tax rates is made possible by broadening the tax base. However, in the case of base broadening, a

³⁹The average marginal tax rate calculations are weighted by wage and salary income.

⁴⁰These labor supply elasticities are taken from Stuart's (1984) study of the welfare cost of the tax system, and are based on his survey of the literature. Hausman (1981) e.g., has argued for a higher compensated labor supply elasticity.

⁴¹A 19 percent decline in marginal tax rates, from 23.6 to 19.1, is equivalent to a 5.9 percent increase in the after-tax wage rate. With a two-thirds share of labor income going to males, the aggregate compensated labor supply elasticity is 0.53. Applying an elasticity of 0.53 to the 5.9 percent increase in wages yields 3.1 percent.

⁴²Note that if, as discussed above in the section on horizontal equity, the increase in corporate tax revenues is only a temporary phenomenon, then the proposal is not revenue neutral in the long run.

decline in the statutory marginal tax rate is not sufficient information for claiming that there will be a substitution effect away from leisure toward work. Because base broadening eliminates the preferential tax treatment of certain activities, the real wage in terms of some goods will decline, even though the real wage in terms of most goods will rise. Consider a taxpayer presently in the 50 percent bracket who under the Treasury II plan will be in the 35 percent bracket; suppose the wage rate is \$10. Currently, one hour of work buys \$5 of food or recreation; under the Treasury II plan one hour of work will buy \$6.50 of these goods. Conversely, while under current law one hour of work could provide \$10 worth of municipal services financed by deductible property taxes, under the Treasury II plan one additional hour of work may provide only \$6.50 more of these goods because the deductibility is eliminated.⁴³ In this case, even the direction of the substitution effect is not unambiguous, and depends on the shape of individuals' preference functions.

More directly, eliminating the deductibility of state and local income taxes reduces the combined federal, state, and local marginal tax rate on labor income for itemizers by less than the decline in the federal marginal tax rate. The increase in the effective impact of sub-federal income taxes tends to offset the federal rate reduction that the increased revenue gained from eliminating deductibility allows. Similarly, the elimination of the two-earner credit would tend to offset the reduction in statutory marginal tax rates for those who currently make use of it. Note that this provision applies to the lower-earning spouse, whose labor supply behavior is widely believed to be more sensitive to wages than that of the primary wage earner.

One possible way to reduce the average level of marginal tax rates while not reducing the revenue yield is to reduce the progressivity of the tax system.⁴⁴ Hausman (1981) e.g., has argued, on the basis of his econometric analysis of labor supply behavior, that moving to a completely flat-rate income tax would, at the cost of diminished progressivity, substantially increase aggregate labor supply as well as reduce the resource misallocation costs of the tax system.⁴⁵ Hausman's estimate is not, however, a reliable guide to the likely effect of the Treasury II proposal on labor supply because, by design, the plan does not significantly alter the progressivity of the tax system.⁴⁶

⁴³Under the Treasury I plan, this argument also applied to employer-provided health insurance and charitable contributions, depending on the circumstances involved.

⁴⁴On the relationship between progressivity and labor supply, see Sandmo (1983).

⁴⁵The estimated increase in labor supply is 10.7 percent, based on Table 7 of Hausman (1981) and information contained in the text. Hausman's analysis has been challenged by Heckman (1983) and Browning (1985).

⁴⁶However, see the section above on vertical equity for a discussion of the difficulties of assessing the distributional impact of the plan.

In conclusion, the reduction in statutory marginal tax rates would be expected, *ceteris paribus*, to increase the desired supply of labor by as much as 3 percent. The true after-tax real wage rate would not, though, rise by as much as a simple extrapolation from marginal tax rates would indicate. This would mitigate, though probably not eliminate, the increased incentive to supply labor. In this case, the perception that after-tax wages have increased may be as important as the reality that the true return to working has not changed quite as much.

Housing

Under current law, the return to owner-occupied housing is untaxed at the federal level and the return to investing in rental housing is preferentially taxed. In broad outline, the Treasury II tax proposal leaves unchanged the federal taxation of owner-occupied housing but, by eliminating property tax deductibility, may increase its overall rate of taxation. It also increases the rate of taxation on rental housing. This section discusses these changes in more detail and attempts to trace out their implications for housing markets.

The Treasury II proposal affects owner-occupied housing through three principal avenues: the elimination of the deductibility of local property taxes, the restriction of interest deductibility for borrowing other than on mortgages for principal residences, and the changes in the rate of taxation on competing uses of capital.⁴⁷

Holding the interest rate constant, the decline in individual marginal tax rates increases the user cost of owner-occupied housing. To the extent that housing is financed by borrowing, it increases the after-tax cost of borrowing for itemizing households only.⁴⁸ To the extent that housing is equity-financed, the decline in tax rates increases user cost if

⁴⁷In the Treasury I proposal, a fourth aspect was critical—the indexation of interest payments and receipts. Under the indexation scheme, interest receipts and payments (other than for mortgages on principal residences and up to \$5,000 of other net interest expenses) would have been adjusted downward to approximate the portion that represented real income or expense. The exemption of mortgage interest from indexing would have provided a strong incentive for all itemizing homeowners to be mortgaged up to the value of their principal residence. The portion of the loan that formerly represented equity in the house could be invested in a taxable security with similar characteristics to the mortgage loan. The individual's portfolio then would essentially be unchanged, but the individual would earn an arbitrage profit since all mortgage interest would be deductible but only the real portion of the interest receipts would be taxable; the proceeds from the bond would pay the interest on the home equity loan. Because owning a house would be required to support this arbitrage, the net result of this provision would be to reduce the user cost of owner-occupied housing to itemizing households to an extent determined by the rate of inflation, the nominal interest rate, and the taxpayer's marginal tax rate.

⁴⁸The fraction of households that itemize (now at an all-time high of 37 percent) is significantly below the fraction of households that are owner-occupiers (about 65 percent).

it increases the after-tax rate of return on alternative investments. For high-bracket taxpayers who primarily invest in tax-exempt assets this connection is indirect, occurring only if the rate of return on tax-exempt assets rises in order to remain competitive with fully-taxed assets. As the previous section discussed, the Treasury II tax reform plan is not likely to induce a large change in the general level of interest rates, though perhaps a slight decline could be expected.

The effect on housing demand of eliminating property tax deductibility depends on the essential nature of the property tax. If it is viewed as a distorting tax on capital, then eliminating the deductibility increases the effective taxation of housing and consequently the user cost of housing for itemizers. If, following Tiebout (1956) and Hamilton (1976), the property tax is simply the price for municipally provided services, then eliminating deductibility will in the long run have no effect on the demand for housing. The net price of municipal services to itemizing homeowners will increase, leading households to seek out communities which offer lower levels of services, but no smaller average house values.

There is a limitation on deductible interest expenses under current law, but mortgage interest is exempt from the limit. The Treasury II proposal subjects mortgage interest secured by a non-principal residence to this limit, though an exemption worth at least \$5,000 is provided and the new rules are phased in gradually over a 10-year period. This provision will increase the cost of second homes unless desired debt can be shifted onto the principal residence or debt financing is not required.

Several provisions of the Treasury II proposal would affect the profitability of investment in real estate, and would thereby influence the supply and equilibrium price of rental housing. The most important of these are (i) the replacement of the ACRS depreciation schedule with a stretched-out, though indexed, depreciation schedule; (ii) the substitution of full taxation of real capital gains (with no loss limitation) for depreciable assets in place of the long-term capital gains exclusion; (iii) immediate taxation of pledged receivables, which eliminates the deferral of taxation on installment sales; (iv) the extension of the "at-risk" limitations on deductible losses to real estate; (v) repeal of the special investment tax credit for rehabilitation of certain old or historic buildings; (vi) the expanded limitation on interest deductions, proposed to include interest on mortgages for non-principal residences and the taxpayer's share of the interest expense of limited partnerships and most Subchapter S corporations; (vii) the elimination of tax-exempt industrial development bond financing for multifamily housing and (viii) repeal of the special five-year amortization of expenditures to rehabilitate low-

income housing.⁴⁹

Most recent analyses have concluded that the net effect of the provisions that directly affect real estate plus the reduction in marginal tax rates would be to substantially reduce the after-tax rate of return of a typical real estate investment, holding constant the rental rates and the value of real estate. Downs (1985), in an extensive discussion of this issue, estimated that in order to maintain the same real after-tax return, rental rates would have to rise by between 5 and 10 percent.

This result may seem somewhat surprising in view of the fact that most economists have concluded that the current tax system favors investment in equipment compared to investment in structures. In this case, a policy which moves in the direction of uniform taxation of all types of investment would be expected to favor real estate compared to other types of investment. Some reconciliation of these two apparently incompatible views is possible. The standard analysis refers to the corporate-level effective rate of taxation of an equity-financed investment. The recent studies of tax reform's impact on real estate focus on a highly leveraged investment made by a top-bracket individual (often held through some kind of partnership) where the current preferential treatment of capital gains can be exploited by sale of the asset well before its productive life has ended and many of the other special tax provisions that apply to real estate are utilized. The tax consequences of General Motors erecting a building to house its assembly lines are quite different from those of a limited partnership putting up a multi-family apartment building. The first conclusion is that, disregarding leverage, the Treasury II proposal increases the taxation of real estate relative to investment in corporate structures and inventories, and arguably increases it relative to investment in equipment.

A second key aspect of these analyses is that the real estate investment is assumed to be highly leveraged. This implies that any change in the underlying return becomes greatly magnified in the return to the leveraged investment. Furthermore, a decline in the tax rate against which interest deductions are taken, holding constant the effective tax rate on an equity investment, can greatly reduce the after-tax return to a leveraged investment. Since the decline in tax rates applies to borrowing for any purpose, it is not clear why this implies a relative disadvantage to real estate. The role of leverage is explored in what follows.

Consider the problem first in a stylized economy where there is no risk, all wealth owners have identical marginal tax rates, and all real income is correctly measured for tax purposes and fully taxed. In this world there is no advantage to leverage, as the after-tax rate of return is

⁴⁹Two important aspects of the Treasury I proposal that were deleted from the President's tax proposals are the indexation of interest and the taxation of limited partnerships with more than 35 partners as corporations.

the same for all investments and for all investors. In this economy a reduction in the common marginal tax rate will not change the relative attractiveness of the available assets. Next assume that, due to accelerated depreciation and preferential tax treatment of capital gains, the effective tax rate on equity in real estate is lower than the statutory rate. In equilibrium enough capital is attracted to real estate so that its after-tax rate of return is equal to the return to investments in other sectors. In this case, a decline in the statutory marginal tax rate reduces the relative tax advantage of real estate, and will cause a flight away from real estate. An increase in the effective tax rate on equity-financed real estate, holding statutory rates constant, will have a similar effect. In a progressive income tax system, high-bracket individuals will find it in their interest to hold leveraged positions in tax-preferred assets. Low-bracket individuals and tax-exempt entities will find it in their interest to lend to the high-bracket individuals. The presence of inside debt causes a revenue loss to the government, because the average tax rate against which interest deductions are taken exceeds the average tax rate applicable to interest receipts. In this world, an across-the-board decrease in marginal tax rates disfavors the preferentially taxed asset as above, and also reduces the arbitrage-related loss of revenue due to the flattening of rate differentials. In equilibrium, though, this private loss will be reflected in a general reduction in after-tax rates of return.

According to this analysis, the Treasury II proposal disadvantages real estate both by reducing its preferential tax status and by lowering and compressing the marginal rate structure. The fall in marginal rates negatively affects real estate because it reduces the magnitude of any tax advantage real estate maintains, and not because real estate, as an especially highly leveraged investment, is hurt relatively more by a reduction in the tax rate against which interest can be deducted.

Introducing risk into these stylized models complicates the analysis considerably. A risky asset will, in equilibrium, earn a higher after-tax expected rate of return than a riskless investment. By borrowing at the riskless after-tax rate of interest and buying the higher-yielding risky asset, an individual can increase a portfolio's expected rate of return, but only at the cost of increasing its riskiness. An accurate analysis of tax reform must carefully specify not only how expected rates of return are changed, but also how the riskiness of alternative investments is affected. The Treasury II proposal reduces the riskiness of real estate investments by indexing depreciation allowances and by allowing unlimited deduction of all real capital losses. These features may to some degree offset the factors discussed above.

The role of leverage in understanding the effects of tax policy also can look different in a model with risk. In the riskless model, borrowing is not limited and is not tied to any particular collateral assets. However,

if there are real bankruptcy costs, the ability to borrow (or the interest rate on the borrowing) may depend inversely on the riskiness and bankruptcy costs attendant to the borrower's assets. In a progressive tax system, high-bracket individuals who gain from being highly leveraged will then prefer less risky, tax-preferred investments. That is relevant to real estate because it is often argued that, due to better secondary markets, real estate is subject to lower bankruptcy costs—it is easier to find a new owner for an apartment building than for a factory. Then real estate assets can be more easily (or cheaply) leveraged than other assets. If this argument is correct, a general reduction in marginal tax rates does disfavor real estate precisely because it reduces its relative advantage due to leverage.

It should be obvious from this discussion that the net impact of the Treasury II tax proposals on housing is difficult to quantify in a precise way. The broad implications are, though, fairly clear: both owner-occupied and rental housing are relatively less favored under the Treasury II plan. The short-run implication of this is a decline in the market value of housing. Over time resources will shift away from housing, forcing up the level of rents. How much real rents will increase in the long run depends on the substitutability of housing services and other goods and on the substitutability of real estate and alternative assets. If, for example, there is relatively little of the first type of substitutability, then rents will tend to rise until the relative attractiveness of real estate investment is restored to its former position. Note, though, that this is an increase in the *relative* price of housing services and, for a given level of prices, implies a fall in the price of other goods. This change in relative prices has distributional implications only to the extent that different income groups spend different shares of income on housing. Low-income households will be worse off to the extent, and only to the extent, that they spend relatively high shares of income on housing services.

The impact on the rate of homeownership is likely to be small because the price of housing services will rise regardless of tenure.^{50,51} If rents are sticky in the short run, there may be a shift toward renting. This shift will not persist as rents rise to restore the profitability of real estate investment.

⁵⁰Hendershott (1985) draws a similar conclusion.

⁵¹One provision that makes debt-financed homeownership less attractive for itemizers is the elimination of state and local tax deductibility, the largest itemized deduction. This will increase the number of taxpayers for whom the sum of non-housing-related deductions is below the standard deduction, and therefore for whom some of the mortgage interest deduction does not result in a dollar-for-dollar reduction in taxable income. This would not affect the demand for housing at the margin (except for those households who are no longer itemizers), but would increase the relative price of owning versus renting housing. On this issue see Hendershott and Slemrod (1983).

Tax Evasion

A recent study by the Internal Revenue Service (1983) estimated that in 1981 the individual income tax revenue forgone due to noncompliance with the tax law amounted to \$68.5 billion, or 24 percent of individual income tax receipts in that year.⁵² It further estimated that evasion had been growing at an annual real rate of 4.3 percent since 1973. Assuming the same real rate of growth between 1981 and 1985 yields an estimated tax gap in 1985 of \$96 billion.

The prevalence of tax evasion has adverse implications for both the fairness and efficiency of the tax system. It contributes to unfairness because it favors individuals who are willing to gamble against detection and stretch the tax law to their advantage and whose line of work facilitates understatement of true taxable income. Individuals who are unwilling or unable to successfully underpay their tax liability suffer because higher tax rates are necessary to make up the lost revenues due to evasion and to finance the enforcement of the tax laws. Tax evasion contributes to inefficiency because it utilizes resources for the research, planning, and camouflaging of tax evasion schemes and requires resources for the enforcement of the tax laws. It may also cause inefficiency by drawing resources into those activities that facilitate evasion, such as self-employment or assets that produce capital gains.

Two aspects of the Treasury II proposal would potentially mitigate the problem of tax evasion—the reduction in marginal rates and the paring of special credits, deductions, and adjustments to income. Reducing marginal tax rates reduces the expected return to understating taxable income, and thus, *ceteris paribus*, diminishes the incentive to engage in tax evasion. However, as Yitzhaki (1974) has pointed out, if (as is usually the case in the United States) the penalty for tax evasion is determined as a fraction of the understatement, then lower tax rates proportionately reduce both the payoff to undetected understatement and the penalty incurred for detected evasion. In this case, there is no substitution effect toward less evasion from lower marginal tax rates. If, however, the probability of detection depends positively on the amount of income underreported, then lower marginal taxes will generally lead to a substitution effect reducing evasion.

In a pioneering empirical effort, Clotfelter (1983) estimated the responsiveness of tax evasion to marginal tax rates. Using data from the IRS Taxpayer Compliance Measurement Program survey, which consists of extensive audits of a random sample of the taxpaying population, Clotfelter estimated that the elasticity of underreported income with

⁵²This estimate does not include tax revenue lost due to failure to pay tax liabilities reported on filed returns nor does it include the tax liability due to income earned from illegal activities.

respect to marginal tax rates ranged from 0.5 to 3.0, depending on the specification chosen.

Using this range of estimated responsiveness, a 10 percent across-the-board reduction in federal income tax rates was simulated and found to reduce the amount of underreported income by between 9 and 26 percent. The Treasury II tax plan features an average reduction in marginal tax rates of 19 percent (although it is not uniformly distributed); it also, by eliminating sub-federal tax deductibility, reduces overall marginal tax rates less than otherwise. Using 15 percent as the decline in the average overall marginal tax rate leads to a predicted drop of between 13½ and 39 percent in underreported income, which would raise an estimated \$13 to \$37 billion in additional revenue in 1985.⁵³ Empirical research into both the magnitude and determinants of tax evasion is, however, still in its infancy. Even a range of estimates as wide as these results should be treated as tentative and preliminary.

The elimination of several special credits, deductions, and adjustments to income will more firmly base tax liability on activities that are subject to information returns provided by third parties, such as wage and salary payments, interest and dividend receipts, and other miscellaneous income. This will facilitate the monitoring of reported tax liabilities.

Finally, there is another potentially important link between tax reform and tax evasion. There is considerable evidence that taxpayers who perceive the tax system to be unfair are more likely to be evaders.⁵⁴ If fundamental tax reform can contribute to an increased general perception of fairness, it may directly reduce noncompliance.

Conclusions

The tax reform proposal offered by the President is not as radical or intellectually satisfying as other plans that have been suggested, including that of his own Treasury Department. Nor does it quite live up to its accompanying public relations campaign, which has hailed it as the Second American Revolution and promised substantial tax reductions for the great majority of Americans. Its less-than-radical nature is not entirely surprising, considering that it must eventually pass through a political

⁵³This calculation is based on several assumptions, specifically that (i) individuals' underlying attitudes have not changed substantially since 1969; (ii) the ratio of aggregate tax understatement to tax paid is equal to the ratio of income understatement to income reported and (iii) Clotfelter's simulation results for a 10 percent across-the-board cut in rates can be linearly extrapolated to apply to a larger cut in rates.

⁵⁴See Mason and Calvin (1984) for a brief discussion, and an opposing view, of this literature.

through a political system which has apparently placed one important constraint on the reform package—that no income group or politically important constituency suffer inordinately in the short run. This constraint rules out many plans that feature more radical changes in progressivity, base broadening, or the tax base concept itself.

Nevertheless, the tax plan offered by the President represents a clear improvement over the current system. It would induce a more efficient use of the nation's resources and thus improve economic performance, eliminate several sources of inequity, and potentially stem the rapidly growing problem of tax evasion. It falls short of its stated objectives by not substantially reducing the system's complexity or increasing the overall incentives to save and invest. As with any tax change, it would generate transitional inequities and could also increase the uncertainty that accompanies the expectation of further future changes in the tax system.

But what about households, the presumed object of this study? The foregoing analysis of tax reform in terms of macroeconomic aggregates and lofty objectives can obscure the implications of tax reform for individuals and families. The average household would notice little change in the tax filing process—perhaps a few less lines to skip over. More people would be aware of their federal marginal tax rate. Tax liability would decline on average, with the individual situation depending largely on the size of family, number of wage earners, and state of residence. The price of certain goods, such as leisure (i.e., working), charitable contributions, housing, and municipal services (for itemizers), would change and some households would adjust their behavior in response. The benefits of improved resource allocation would show up gradually in the form of increased wages and generally improved economic conditions.

Much of the above also applies to high-income individuals, who tend to have complicated returns with varying sources of non-wage income. Capital gains and losses on their portfolios would be an additional factor in how they fare under tax reform. Investment decisions would have to be re-evaluated because of the changes in the relative tax treatment of assets and because of the decline in the return to reducing taxable income.

The macroeconomic impact of tax reform results from the response of households (and firms) to the changed incentives of a new tax system. If the incentives encourage the efficient use of resources, one benefit of tax reform is improved economic performance. This potential benefit does not show up in the local newspaper's calculations of how tax liability will change, but deserves to be an important element of the continuing debate on tax reform.

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Discussion

Alan S. Blinder*

This is not an easy paper to discuss. It covers a great deal of ground; as Slemrod himself notes, the “topic is not really limiting.” Furthermore, the paper is a fine example of “two-handed” economics. You all remember the old joke about Harry Truman who, exasperated by economists who told him “on the one hand . . . , but on the other hand . . . ,” asked in desperation for a one-handed economist. Joel Slemrod is careful to be a two-handed economist. Almost every controversial statement that appears in the text is appropriately qualified in a footnote. Finally, Slemrod takes reasonable positions on everything—including the “bottom line,” which is that Treasury II, for all its flaws, is probably a good deal better than nothing. So what’s a poor discussant to do?

In my remarks, I will try to cover the same ground as Slemrod does, highlighting areas of agreement and disagreement. But I should stress at the outset that the disagreements are mostly on matters of emphasis. What else can I do? Slemrod basically gets it right.

I think it is worth starting by pausing to ask why we want equal tax rates; for, after all, the real thrust of Treasury I (and to a lesser extent Treasury II) is not so much fairness, simplicity, or growth, but *tax neutrality*, that is, equal tax rates on different sources of income.

The economist’s basic argument for tax neutrality is that a more neutral system gives rise to less deadweight loss. Slemrod states this clearly many times. He also puts in the correct caveat from optimal tax theory: taxes that leave relative prices unaltered are not necessarily optimal. Finally, he adds the important observation that, due to weak em-

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pirical evidence, optimal tax theory is probably not operational on how optimal tax rates would differ from equal tax rates. So he expresses the view that equal tax rates should be favored.

I believe this point is even stronger than Slemrod indicates. First, as he notes, optimal tax theory says that it is virtually always optimal to tax different factor inputs at equal rates; and income taxation is all about taxing factor earnings. Second, there must be an "equal ignorance" argument—of the type Lerner used to advocate an equal income distribution¹—that suggests the optimality of uniform taxation. Specifically, suppose there are two goods to be taxed; let t be the *ratio* of the two tax rates; and let t^* be the optimal ratio (which is not necessarily 1.0). Suppose the deadweight loss from suboptimal taxes is quadratic:

$$L = b(t - t^*)^2,$$

and that t^* is unknown with density function $f(t^*)$. Then the expected loss is minimized by picking:

$$t = E(t^*).$$

If the density $f(t^*)$ is distributed more or less symmetrically around 1.0, then equal taxation is the best policy.

Third, once unequal taxes are sanctioned, politics will make sure that the deviations from equality have much to do with the political power of different interest groups and little to do with cross-elasticities of demand. That, indeed, probably explains the system of differential taxes we have now. Would anyone want to defend the proposition that the current structure of unequal tax rates was influenced more by economic efficiency than by lobbying efficiency?

The case for tax neutrality is also bolstered by the fact that equal tax rates reduce the possibilities for tax arbitrage that arise either when different types of income are taxed differentially (for example, when funds are borrowed to put in a tax-deductible IRA), or when different people are taxed differentially (as an example, when income is transferred to children and/or to trusts). In my view, the first kind of arbitrage (which is prevented by uniform, but not necessarily flat, taxes) is far more important than the second kind (which can only be prevented by a flat tax structure). But this is not to say that the second is not a problem.

As I see it, the basic point in the context of Slemrod's paper is that tax neutrality often—but not always—promotes "fairness, simplicity, and growth."

¹Lerner, Abba, *The Economics of Control*, 1944.

Fairness

We logarithmic utilitarians still believe that vertical equity calls for progressivity, certainly in average rates, and probably in marginal rates as well. In this respect, a single flat rate would not be "fair." Slemrod stresses that Treasury II is not distributionally neutral, but favors the poorer and richer ends over the middle. This has proven to be a big political liability for Treasury II.

In my view, favoring the poor in this way is to be applauded. Among other things, it counteracts what has gone on in the last 30 years. To cite just one example, the average federal tax rate on a family of four earning one-half the median income rose from 4.5 percent in 1955 to 10.2 percent in 1965, 15.6 percent in 1975, and 18.3 percent in 1983.² And let us not forget that the poor were left out of the 1981 tax-cutting binge.

In discussing distributional changes, Slemrod emphasizes favoritism toward "traditional families." I'm not sure this is a bad idea, given the likely benefits to society from more parenting. But, in any case, I would highlight removing the poor from the income tax rolls as both the primary goal and the primary achievement of these changes in the distribution of tax burdens.

Favoring the rich comes, in my view, from an excessive attachment to flatness. We have long known that a linear tax structure cannot put as much of the burden on the very rich as does our progressive one. Treasury II certainly does not. But I guess fairness on this issue is very much in the eye of the beholder.

But the issue of different tax rates on different income sources is another matter. Here opinions on what is "fair" and "unfair" are more agreed upon. In particular, large differences in tax burdens on different types of income are widely perceived as creating horizontal inequity. It seems to me that equalizing these rates would, more than anything else, reduce the feeling that the "common guy" is being ripped off by the tax system. This element of fairness—which Slemrod mentions near the end of his paper, under "tax evasion"—is very important in a self-administered system. So I would like to take it up in the context of fairness.

Slemrod suggests that tax evasion might now be costing the U.S. Treasury nearly \$100 billion in revenue loss per year. Since annual personal income tax collections are running at about \$330 billion, that is a huge loss. Furthermore, one guesses that the losses from legal tax avoidance are at least this great, and probably greater. I don't think there is a single statistic that makes as compelling an argument for comprehensive

²See Blank, Rebecca M., and Alan S. Blinder, "Macroeconomics, Income Distribution and Poverty," forthcoming in Sheldon Danziger (ed.), *Antipoverty Policies: What Works and What Does Not*, Harvard University Press, Table 12.

tax reform as this one does. And I find quite believable Slemrod's claim that the situation encourages otherwise honest taxpayers to cheat. Does he have evidence on this point? If so, it should be in the paper.

My overall conclusion on fairness, then, is that fairness calls for equal tax rates on different income sources, that is, for neutrality. But it also calls for unequal marginal rates in different brackets.

Simplicity

The relationship between neutrality and simplicity is not simple. Slemrod makes the obvious (only to economists) point that collapsing 14 brackets into three does not make the system any simpler. And there are even instances where greater simplicity conflicts with the neutrality principle; for example, income averaging and indexing for interest. In many of these cases, we probably should sacrifice simplicity to a higher goal. But, by and large, I feel certain that more equal tax rates on different income sources would dramatically reduce the complexity of our current tax law.

Slemrod understands this point, but I think he understates its importance. He states, correctly, that lower marginal rates would reduce the resource costs of filing tax returns only a little *holding constant the sources of income*. But one of the main hopes of tax reformers, I think, is that lowering and, especially, equalizing tax rates might radically transform the sources of income. As Charles McLure suggests, the cry for tax simplification may really be a cry to get rid of the tax gimmicks that enable the other guy to beat the system.³

Growth

The tax reform proposals probably have least to do with growth. They are aimed much more at static efficiency gains than at changing the economy's growth rate. Slemrod recognizes this and, by pointing to some very large estimated efficiency gains in some recent research, suggests that this emphasis is correct. For example, he cites several places where we might pick up 1 percent of GNP. That's about \$40 billion these days, or about 10 percent of corporate plus individual income tax collections. \$40 billion here, \$40 billion there, and pretty soon you're talking about real money! And this is an annual flow.

However, I want to spend some time on what Slemrod did and did not say about growth, because that is one of the two areas where Treas-

³Charles McLure, Jr., "Rationale Underlying the Treasury Proposals," this volume.

sury II and especially Treasury I have received the biggest public flogging.

First, I was glad to see Slemrod call our attention to the fact that the theoretical case for consumption taxation is not as clear-cut as its advocates sometimes suggest. It relies on an empirical condition about complementarity with leisure about which we know little.

Second, Slemrod makes the obvious (again, only to economists) point that only a permanent change in the long-run productivity growth rate can change the economy's long-run growth rate. That is correct, and I should think that our best guess is that tax reform would do nothing to this rate. However, an eternal optimist might imagine that we might get more invention and innovation if some of the brainpower now devoted to beating the taxman were used instead to build better mousetraps. I think Adam Smith believed that.

Third, Slemrod points out that we might grow faster for a period by deepening the capital stock. To do this, we must raise the share of saving and investment in GNP.

Regarding saving, Slemrod is rightly critical of IRAs as a means of encouraging saving. Though he uses what in my opinion is an excessive estimate of the interest elasticity of saving (Boskin's), he still shows a small anticipated effect of the tax reform on saving. I think we have all noticed by now that after about four years of experience with vastly broadened IRAs and Keoghs and higher after-tax real interest rates, we are experiencing some of the lowest personal saving rates on record.

But a more fundamental question is this: Why should public policy try to raise the savings rate above that provided by the free market? One answer often given by consumption tax advocates is that the income tax distorts intertemporal choice away from saving and toward consumption. This is true especially when inflation is high. But is that an important distortion? That depends on the elasticity of substitution, and a recent paper by Hall suggests that this elasticity is very small.⁴ If so, there are more important distortions to worry about.

Slemrod's paper seems on the weakest ground where he discusses investment. He focuses on whether corporate income tax revenues will go up or down. Why should we be so interested in this? Is it not true that a constant-revenue change in the structure of the corporate income tax—one which gains revenue by lowering the investment tax credit and reducing accelerated depreciation and gives it back by lowering the statutory rate—should reduce the incentive to invest, not raise it, as Slemrod suggests?

In any case, I'd put the emphasis elsewhere—on the *quality* of in-

⁴Robert E. Hall, "Intertemporal Substitution in Consumption," mimeo, Stanford University, July 1985.

vestment rather than on the *quantity*. And that, of course, is where tax neutrality shines. I have a hard time understanding how a tax code that encourages construction of vacant office buildings is "pro-growth."

There are just a few other points made in Slemrod's paper on which I would like to comment.

The first pertains to labor supply. Supply-siders, but not sensible people, push for lower marginal rates as a way to encourage more labor supply. Here it is easy to understand the goal, since labor is taxed while leisure is not. However, there is little reason to expect a big effect. Slemrod presents a back-of-the-envelope calculation indicating this. But it seems to me that even this small number is too optimistic, for the following reason. Most of the aggregate labor supply elasticity, he correctly notes, comes from women. But I think it has been established that wives work *less* when their husbands' after-tax wages rise. In that case, a simultaneous increase in the after-tax wage rates of both husbands and wives ought to yield a labor supply elasticity for women well below the 1.2 that Slemrod uses.

The second point is about housing. Slemrod makes the point that the loophole for mortgage interest in Treasury I opened a glaring arbitrage possibility. He is right, and the point is quite general: exempting mortgage interest will interfere with any plan to reform the wretched current tax treatment of interest.

I fully understand that homeownership is a sacred cow of our tax system, and I probably even have a bit more sympathy than the median economist for its exalted status. But must we subsidize homeownership in a way that slaps the goals of both equity and efficiency so brazenly in the face? Are there not better ways to subsidize homeownership? For example, a credit in place of the deduction would at least subsidize rich and poor to the same extent. More exotically, Harvey Rosen and I have raised the possibility of offering a lump sum payment for first-time purchasers of a house.⁵ This idea has the virtues of: (1) not distorting choices in the direction of bigger houses; (2) keeping the price of housing equal across income classes; and, most germane to the present discussion, (3) not littering the tax code and/or creating arbitrage opportunities.

Finally, I come to Slemrod's two-part conclusion, with which I heartily agree. First, what Charlie Schultze once called the "do no direct harm principle"⁶ is a serious impediment to sensible tax reform—one which will, almost by its nature, generate a long list of winners and losers. If we are to improve tax policy, and other aspects of economic policy, we

⁵Blinder, Alan S., and Harvey S. Rosen, "Notches," *American Economic Review*, September 1985, pp. 736-747.

⁶Schultze, Charles L., *The Public Use of Private Interest*, Brookings, 1977.

simply have to find a way to relieve our political process of this inhibition. (Don't ask me how!)

Second, Treasury II, even though it looks a bit like an ugly duckling next to the swan that was Treasury I, is probably a good deal better than nothing. Since most economic policy changes recommended by the U.S. government make things worse rather than better, economists should support Treasury II enthusiastically, even though it may not be their favorite bill.

Discussion

*David F. Bradford**

Joel Slemrod says a great many sensible things in this stimulating paper. Because his subject is extraordinarily broad, he inevitably makes some statements with which one might quibble. I propose, though, to reserve my quibbles for private conversation, and to use my time to add emphasis to certain of his points.

First is the degree of ambiguity about just what it is the tax reform is trying to achieve. The reform is being marketed as a tax cut, in spite of the insistence that it is to be "revenue neutral." Accepting that changes will be revenue neutral and neglecting the possible efficiency gains, the reform cannot be a cut for all. It is simply a redistribution of the burdens. In turn, the reform is supposed to be "distributionally neutral," which means it is not intended to change the distribution of the burdens between rich and poor. That leaves changes in the tax burdens among people who are supposedly similarly situated. However, the main (though not the only) way in which people who are similarly situated can be seen as bearing different taxes arises from their making different choices from among the same set of opportunities. Thus, people who own a lot of tax-exempt bonds appear to pay less in taxes than do similarly situated people who own ordinary bonds. It is often rather difficult to understand why people make the choices that they do, but if we work from the assumption that they act in their own best interests, so long as each of these illustrative taxpayers has the option of choosing the other's portfolio, it is rather hard to support the view that the difference in their taxes reflects horizontal inequity.

As the example suggests, one might make a case that the tax system

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should make sophistication in portfolio and other choices less important. It does seem an attractive idea that the form in which I choose to hold my wealth should have no bearing on my tax liability. (But then, it would be nice if, in general, the return on my savings did not depend upon my making the right or the lucky decision.) Similarly, perhaps my federal tax liability ought not to depend upon the choice my community or state makes about how much to tax me, or how much of my pay I choose to take in the form of health benefits. But there is at least some reason to question the strength of the case in horizontal equity for reforms along the lines now being considered.

On the other hand, as pointed out by Slemrod, the reforms under consideration will have large transitional incidence effects. My favorite example of a windfall loss is timber. Presently, timber is taxed as though it were an asset eligible for long-term capital gains treatment. The President's tax proposals would treat raising trees like other businesses. Just what the proposed change would do to the value of existing stands of timber is not easy to calculate, in part because it depends upon the openness of the timber market in international terms. But it is quite plausible that the effect would be a huge fall in value. Owners of timber property presumably have done nothing special to deserve such a loss. On the other side of the coin, the proposed reform would drop windfall gains on other portfolios. My favorite example is the gain that would accrue to those who have large retirement accumulations. The draw-down of pension saving would occur at lower rates of tax than had been anticipated.

Transition effects of this kind are hard to avoid, yet they are by and large distinctly unjust as a matter of equity. There is a trade-off of major proportions between the gains in perceived equity of the ongoing effects of the rules and the equity of genuine burden redistribution in transition.

The effect of moving toward heavier taxation of capital in general (if, indeed, that is where we are heading) will, because of the way we manage these things (through devices such as accelerated depreciation), tend to impose a disadvantage on those who choose to accumulate in the future, but to bestow a windfall gain on owners of existing assets. (The point needs to be qualified somewhat; a windfall gain on average does not rule out many windfall losses, as the timber example suggests.) So we have a rather odd situation of granting a gain to the existing rich but putting at a relative disadvantage those who are trying to accumulate. The situation is of particular interest to me, as an advocate of taxation on the basis of consumption, because I would be inclined to do exactly the opposite, trading off arguably unjust windfall losses to existing wealth holders for the equity advantage to those looking toward the future.

Slemrod nicely reminds us that the labor supply incentive effects of tax rate reductions achieved by base-broadening may be less than is often supposed. Essentially, what goes on in tax reform is a great shift in the rates of tax on many different transactions. In thinking about labor supply we tend to focus on the trade-off between current work effort and current consumption of, say, groceries. But to allow lower rates of tax, and therefore cheaper groceries, requires that other things people buy with their wages, such as state and local services or retirement consumption, become more expensive. The supply response is therefore not the same as one might predict to follow from a simple increase in current wages.

There is a question raised by Slemrod whether the taxation of capital is going up or down. As he points out, calculations of effective tax rates on different forms of investment may lead one to conclude that, on average, the rate of tax on capital is going down. However, that is apparently inconsistent with the view that the rate of tax on labor is going down, and is in puzzling contrast with the predicted increase in revenues from the corporation income tax. I have not redone the figures in connection with the President's tax proposals, but Slemrod himself has pointed out that the effect of Treasury I's elimination of the investment tax credit, depreciation and inventory reforms, indexing of interest, and corporate rate reductions worked out to an approximate wash. All of the extra revenue from the corporation tax came from eliminating special provisions, such as the timber rules I noted above. It is an interesting question whether eliminating such special rules should be thought of more as increasing the tax on capital or more as increasing the tax on timber. It is a classic incidence problem, in fact, and one we have almost no information about.

Slemrod reminds us how little we know about the corporation income tax more generally. In thinking about the effects of tax reform on the incentive to undertake domestic investment, I go through the following exercise: Eliminating the investment tax credit must make investment less attractive. Further, in a system with accelerated depreciation, reducing the tax rate makes investment less attractive. The reform of the depreciation rules as proposed by the Administration (by contrast with the Treasury's November 1984 plan) may be neutral. Therefore, the overall effect must be to make investment less attractive. But my reasoning depends upon the idea of arbitrage between debt and investment. (That's why cutting the tax rate has a disincentive effect when there is accelerated depreciation.) If investment is equity-financed, the cut in rates has a positive effect. We know that financial structure is endogenous, but we still do not have an adequate model to use for purposes of tax analysis. And as the example suggests, it matters.

In summing up his overview of its effects, Slemrod offers his opinion that the Administration's tax reform plan "represents a clear improvement over the current system." That reflects his weighing in the balance the gainers and losers. Forced to vote, I suppose I come out in the same place. But I am not very sure that the windfall gains and losses we are proposing to distribute are adequately compensated for by the improvement in efficiency and apparent equity of the tax system.

I would mention, in particular, two problems that are not dealt with in the current effort, and that will certainly cause trouble in the future. One is the need to do something about the little-understood but important interaction of inflation and the income tax as it works through the interest rate. Treasury I made a stab at this, but it was not taken seriously. However, the distorting effect is serious indeed. At 2 percent interest and no inflation, the zero bracket taxpayer can, through lending or borrowing, buy or sell for 61 cents a claim on one dollar of real purchasing power 25 years hence. For the 35 percent bracket taxpayer the price is 72 cents. At an inflation rate of 10 percent, and the same apparent "real" interest rate of 12 percent, the price for the zero bracket taxpayer is still 61 cents but for the 35 percent bracket taxpayer it is \$1.74. That kind of difference has to matter and even at the relatively modest inflation rate of 5 percent, the 35 percent taxpayer confronts a negative real after-tax interest rate.

Second, I am among the few who thinks we are missing an opportunity to accomplish real simplification. In my opinion, the path to genuine simplicity, not to mention equity and efficiency, leads through consumption-oriented taxation using cash-flow accounting. However, to pursue that subject would break the bounds of both my time limit and my discussant's license.

Tax Reform and Capital Formation

*Richard W. Kopcke**

According to a growing number of influential critics, the prevailing federal income tax laws have become highly inequitable and are an obstacle to economic growth. In seeking more equitable and neutral taxes, many have proposed a thorough overhaul of the codes. Prominent among the proposals are two congressional plans, Bradley-Gephardt and Kemp-Kasten, and two Treasury plans, Treasury I and the President's tax proposals of May 1985, hereafter referred to as Treasury II. In attempting to correct the perceived problems in the current internal revenue codes, each of the four proposals would alter both the distribution of the income tax burden and the incentives that the codes bestow on savers or investors. Each proposal contains its distinctive compromises in balancing equity against investment incentives.

This paper examines how each of the four proposals for federal income tax reform might alter investment spending by changing the taxation of corporate income. As a first step toward assessing the potential influence of these plans on capital formation, this approach isolates the effects of their changing: (i) corporate income tax rates, (ii) formulas for depreciation allowances, (iii) investment tax credits, or (iv) allowances for the deduction of corporate dividends from taxable profits. This study is not a comprehensive evaluation of the basic principles behind each plan, nor does this study consider how these reforms may influence capital formation by altering households' propensities to save,

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by modifying the real after-tax yields in credit markets, or by changing the rate of growth of GNP. This paper also does not consider how great investment spending ought to be.

The Bradley-Gephardt proposal, often called the Fair Tax, appears to be designed primarily to achieve a specific standard of equity in measuring and taxing income. This plan does not necessarily attempt to enhance or even sustain the levels of investment incentives offered by the current revenue code. Not surprisingly, then, this study finds that Bradley-Gephardt fosters less investment spending than either the current revenue code or the other three tax reform proposals. Supporters of this plan apparently believe the best policy is to tax income "equitably," and then rely on other fiscal policies or monetary policy, if necessary, to encourage the desired rate of capital formation.

The Kemp-Kasten proposal, by contrast, appears to be designed primarily to achieve a specific standard of neutrality in taxing investment income. By doing so, it may better integrate corporate and personal income taxes. This study concludes that Kemp-Kasten fosters more investment spending than current tax law, and it may enhance capital formation as much as the Treasury plans.

The Treasury plan of late 1984 shares some of the philosophy behind both the congressional plans. Treasury I sought a "fair" tax by closing loopholes and by attempting to tax only economic income. At the same time it strives for a more neutral tax treatment of investments and a greater integration of corporate and personal taxes. According to the results of this study, the Treasury I proposal may foster the least investment during its first decade, because some of its investment incentives are introduced slowly. But over longer intervals, this plan should encourage a rate of capital formation exceeding that of current law and rivaling that of the Kemp-Kasten plan.

The Treasury II plan, introduced in 1985, is similar to Treasury I in many respects. But this second plan does not integrate the corporate and personal taxes nearly as much as the first, nor does it offer some of the features of Treasury I that were designed to measure and tax economic income consistently. This plan initially may encourage more investment spending than Treasury I, but in the long run both Treasury I and the Kemp-Kasten plan may foster more capital formation.

The first section of this paper describes some of the problems of defining a "neutral" tax. The second section introduces the four tax reform proposals. The macroeconomic consequences of these proposals on business capital spending are examined in the third section, and some of the industry-specific consequences are described in section four. The paper concludes with the fifth section.

What Is a Neutral Income Tax?

Since the inception of the science, economists have recognized that tax rules may not be neutral, because they can alter the relative prices among goods, the allocation of resources, or the distribution of income. According to many of today's neoclassical theories, even the simplest of income taxes hinders business capital formation by fostering consumption spending and by encouraging investors to purchase consumer durables, owner-occupied dwellings, or other assets that yield implicit income which escapes taxation. If the income tax code also includes a corporate income tax that has not been integrated properly with the general personal income tax, business investment spending may be deterred all the more.¹ Consequently, the prevailing revenue code is not regarded as a neutral tax.

According to the most stringent standards, for a tax to be neutral neither the relative prices of goods and services nor the allocation of resources should depend on tax rates or other features of the tax rules. By this severe definition, no tax is neutral, so policymakers have turned to a variety of less demanding standards. For example, considering only the *direct* consequences of taxing the returns on capital, a neutral tax might levy equal effective tax rates on all investments; it might leave the relative "take-home pay" on investments unchanged; or it might not alter the relative costs of using capital goods. Because no tax satisfies the stringent definition of neutrality, a revenue code that is neutral according to one of these alternative definitions may not be neutral according to the others under all circumstances. Furthermore, a revenue code that is neutral in the context of one model of economic behavior may not be neutral in another model, even though the definition of neutrality is the same in both cases.

Even by the less stringent standards suggested above, the prevailing income tax codes that apply to businesses are not neutral. A simple neoclassical model of investment behavior may illustrate best both the commonly mentioned problems with the current law and the types of reform needed to make the revenue code more neutral among business investments. In this model *m* firms each have invested in a specific

¹See for example A. Auerbach, *The Taxation of Capital Income* (Harvard University Press, 1983); M. Feldstein, *Capital Taxation* (Harvard University Press, 1983); and C. E. Steuerle, *Taxes, Loans, and Inflation* (Brookings Institution, 1985).

According to Keynesian theory, however, business capital formation need not be hindered by such a reduction in the propensity to save. See, for example, the "paradox of thrift," as described in J.M. Keynes, *The General Theory of Employment, Interest, and Money* (Harbinger Book; Harcourt, Brace and World, Inc., 1965), pp. 106 (last paragraph, Chapter 8), pp. 210–213 (first section, Chapter 13), pp. 358–371 (seventh section, Chapter 23), and Chapter 12.

machine tool. With no corporate income tax, each firm purchases this equipment until the present value of the marginal revenue product for the last machine equals the price of the machine:

$$P = \sum_1^{N^f} \text{MRP}_i^f / d_i \quad f = 1, \dots, m. \quad (1)$$

The service life of this machine may vary among the firms (N^f), and the streams of marginal revenue product ordinarily will not be the same for many firms.² For simplicity, all investors use the same set of discounts (d_i).

The pattern of decay of the revenue product is the economic depreciation of the machine tool. Although the physical decay of the tool, as established by engineering studies, will be the same for all firms, the rate of economic depreciation will vary across firms. Because different industries expect different rates of technical progress in their production techniques, the machine tool may have a shorter expected useful life-span in some industries, while in others the machine may be expected to sustain its productivity better in later years. Furthermore, different industries ordinarily use different types of labor skills or raw materials in producing their specific goods or services. Consequently, differences in the relative prices of labor, materials, or output that are expected to prevail during the life of the machine will make the anticipated economic depreciation (as well as the measured decay of the marginal physical product) of the machine vary across firms.

If a flat tax were levied on the revenue product of investments, ignoring the general equilibrium adjustments, the direct effect of the tax would be to reduce the net marginal revenue product and the demand price for the machine proportionately for all firms:

$$P_\tau = (1 - \tau) \sum_1^{N^f} \text{MRP}_i^f / d_i = (1 - \tau) P, \quad f = 1, \dots, m. \quad (2)$$

Under these very limited conditions, the tax is neutral among corporate investors because the effective tax rate is the same for all, and the tax does not directly alter the relative demand prices or returns prevailing

²These differences arise because of relatively imperfect or illiquid markets for used capital goods. Three commonly mentioned grounds are: high transactions and installation costs; imperfect information about the quality of used capital (the possibility of "lemons"); and relatively high conversion costs (capital goods are frequently "customized" when first installed). See also the observations concerning the problems with measuring the quantity of capital goods cited at the end of footnote 3.

Of course, unless the firms never intend to sell these machine tools, (1) may misstate the equilibrium condition. The equation fails to include the cost of reselling the machine. For each firm, (1) implicitly states that the disposal value is the present value of the remaining marginal product for that firm.

across corporations or investment goods.

The current tax rules that apply to businesses are more complicated than this flat tax. The tax law specifies different rules for measuring the taxable incomes of different firms or different types of capital goods, and the law at times sets different tax rates for firms according to their size, their legal status (corporation, proprietorship, partnership, cooperative, or trust) or their line of business.

In the case of the machine described above, the m firms (all large, profitable nonfinancial corporations) are taxed according to a statutory measure of earnings (E_i) which does not necessarily match revenue product. The firms also are entitled to claim investment tax credits (at a rate k) and depreciation allowances (according to a schedule of rates, D_i , $i = 1, \dots, T$). Therefore, for the last machine purchased by each firm:

$$P_\tau = k P_\tau + \sum_1^{N^f} MRP_i^f/d_i - \tau(\sum_1^{N^f} E_i^f/d_i - P_\tau \sum_1^T D_i/d_i).$$

Or, somewhat more simply

$$P_\tau = (1 - k)^{-1} (P - \tau(\sum_1^{N^f} E_i^f/d_i - P_\tau \sum_1^T D_i/d_i)). \quad (3)$$

Although the investment tax credit is widely regarded as an undisguised tax incentive, depreciation allowances appear to have some grounds for representing business expenses. Because maintenance and repair expenses are accounted for separately, depreciation allowances represent the inevitable wasting of the asset, a kind of economic depletion allowance or reserve. Without taxes, this depletion of the capital asset is reflected in the pattern of decay of the revenue product. Otherwise, there is no separate depreciation expense (other than maintenance and repairs) to be considered in measuring the return on a specific investment. Nevertheless, businesses wishing to maintain their output will establish a depreciation reserve: the decline in revenue product from existing investments will require undertaking new replacement investments. The reserve, therefore, dictates how much of current profit must be retained to purchase new capital if the firm is to conserve its size. In this sense, the depreciation allowance is not to be deducted from revenue product to measure the profitability of investment; instead, for conservative or growing businesses it is a claim on cash flow for funding new replacement investments. Consequently, depreciation allowances may be interpreted not as a surrogate for business expenses incurred by using existing assets, but as a delayed tax subsidy which may help fund subsequent replacement investments or dividend payments to stockholders.

The tax rules, as described in (3), would be neutral (in the less stringent sense) over all investments qualifying for tax credits and among all profitable corporate investors taxed according to these rules, if the second term in the braces were proportional to the present value of the stream of pretax marginal revenue product (P). Although the effective tax rates may vary across investments, the relative demand prices of capital goods would not depend on the tax rate or other features of the tax rules. But the schedule of depreciation allowances, fixed by law, is not related to each firm's stream of revenue product, and the pattern of taxable investment income may be related only loosely to the revenue product of capital. As a result, the second term in the braces probably will not be proportional to P . Moreover, the rate of the investment tax credit varies among investment goods. Consequently, in this simple neoclassical model, the current corporate income tax is not neutral by any reasonable standard.

Over the years tax policy advisors have suggested different reforms for making the tax codes more neutral. The most sweeping suggestions advocate the elimination of all business taxes or the complete integration of corporate and personal income taxation. A second set of more modest suggestions would require:

- (i) measures of taxable investment income (before deductions for depreciation allowances) that match the revenue product of capital;
- (ii) the elimination of the investment tax credit; and
- (iii) the revision of depreciation schedules, either allowing investors to deduct from taxable income the full price of investment goods at the time of purchase or specifying schedules of depreciation allowances whose present values *always equal* the prices investors pay for capital goods.³

³With these three measures, (3) becomes

$$P_{\tau} = P - \tau(P - P_{\tau})$$

As a result $P_{\tau} = P$ for all investment goods, for all firms. All three of these measures are required to obtain this result. In particular, if (ii) were changed allowing businesses to claim "economic depreciation," then the present value of depreciation allowances would not equal the price investors pay for capital goods (P), and the tax law would not be neutral. (In view of previous comments, it also is not clear that *one* schedule of "economic depreciation" may be defined for each capital asset. Many common approaches seem to appeal to the concept of "engineering depreciation.")

If the patterns of economic depreciation (the decay of marginal revenue products) were identical for all firms, then neutrality need only require that depreciation allowances correspond to this pattern of economic decay. (P.A. Samuelson, "Tax Deductibility of Economic Depreciation to Insure Invariant Valuations," *Journal of Political Economy*, vol. 72 (December 1964), pp. 604–6.) This observation no doubt inspired the appeal to "economic depreciation" in the Treasury I and Bradley-Gephardt proposals. Of course, this uniform pattern of decay also must not be influenced by changing economic conditions (the term

Under either of these two sets of proposals (3) above becomes

$$P_{\tau} = \sum_1^{N^f} \text{MRP}_i^f / d_i = P \quad (4)$$

for all investment goods, for all firms. The effective tax rate for all investments, corporate and noncorporate, on the margin is zero (ignoring personal taxes), and the relative prices of investment goods do not depend directly on the corporate tax rules. The second set of proposals would allow for a corporate income tax on the income of capital goods that earn more than marginal returns.⁴ The corporate income tax would become a tax on oligopoly profit or on the economic rent earned by inframarginal investments whenever production functions exhibit decreasing returns for capital.

Whereas these two sets of proposals, by virtue of (4), would treat all investment goods and investors the same on the margin, the simple flat corporate income tax, which led to (2), would discriminate directly against corporate investors in this model. With the flat tax, owners of corporations would be taxed twice on their marginal investments, unlike other investors who would pay, at most, only personal income taxes on their returns.

Although the reform proposals that eliminate the corporate tax liabilities for marginal investors may claim a degree of neutrality, they appear to be unpopular for practical and theoretical reasons. The "biases" against investment inherent in the corporate tax codes have been well understood for decades. Yet, when lawmakers turn to the task of fostering capital formation, they have sought the maximum "bang" in investment spending per "buck" of tax revenue that they sacrifice. Re-

structure of interest rates, relative prices of goods and factors of production, etc.) for this approach to be tenable. As explained before, these conditions probably are too strong to be believed.

The reform suggested in (iii) would also require a change in the capital gains tax for businesses. A firm selling an asset would report its receipts less the original price of the asset plus accumulated depreciation allowances (all adjusted for inflation) as ordinary taxable income.

The foregoing assumes that we can measure capital aggregates and therefore the price and productivity of these aggregates. For a telling criticism of this assumption, see, for example: D. Usher, ed., *The Measurement of Capital* (University of Chicago, 1980), esp. the two papers comprising Chapter 7, M. Brown, "The Measurement of Capital Aggregates: A Postswitching Problem," and E. Burmeister, "Comment"; T. M. Stoker, "Completeness, Distribution Restrictions, and the Form of Aggregate Functions," *Econometrica*, 52 (July, 1984), pp. 887-907; and C. Ichniowski, "Micro-Production Functions Aren't Pretty: Firm-Level and Industry-Level Specification for Inputs and Outputs," National Bureau of Economic Research, working paper no. 1365, June 1984.

⁴See, for example, J. Sturrock, "Eliminating the Tax Discrimination Against Income from Business Capital: A Proposal," in Board of Governors of the Federal Reserve System, *Public Policy and Capital Formation*, April 1981, pp. 281-302.

ducing the corporate tax rate is, therefore, the least attractive policy. Lower rates would reduce the tax liability on income earned by past as well as new investments, whereas more generous tax credits and depreciation allowances may be limited to new investment projects alone.⁵

Furthermore, lawmakers have used tax credits, variations in depreciation schedules, and specialized definitions of taxable income to foster the demand for specific investment goods or to encourage the growth of deserving industries and regions. Neutrality (in the less stringent sense) apparently is not and perhaps should not be the single goal of tax policy. Given that no revenue code can be fully neutral, a "second best" revenue code may have a place for these traditional tax incentives in order to compensate for some of the unavoidable biases inherent in any tax law. Because tax revenues are used to finance public spending and government operations, traditional tax incentives also may complement other government policies, which are designed to alter the composition of GNP, the allocation of resources, or the distribution of income.

Finally, economists, lawyers, accountants, and businessmen do not agree with one another, or even among themselves, on the proper measure of the revenue product of capital goods. This dissension prevails because the concept of revenue product is defined by and depends on the specific economic model adopted. Without the perfect markets, the prevalence of equilibrium, and the degree of certainty assumed in the simple neoclassical model used above, for example, there is no unique measure of revenue product. In fact, the all-important *ex ante* returns to capital that influence investors depend on perceptions of future business conditions; furthermore, the accurate measurement of *ex post* profit also may depend on these intangible perceptions.⁶ In the absence of an en-

⁵See, for example, R. Kopcke, "The Efficiency of Traditional Investment Tax Incentives," in Board of Governors of the Federal Reserve System, *Public Policy and Capital Formation*, April 1981, pp. 163-75.

⁶See, for example, the debate on measuring corporate profitability: B. Malkiel, "U.S. Equities as an Inflation Hedge," in J. A. Boeckh and R. T. Coghlan, eds., *The Stock Market and Inflation* (Dow Jones-Irwin, 1982), pp. 81-96; F. Modigliani and R. A. Cohn, "Inflation and the Stock Market," in Boeckh and Coghlan, pp. 97-118; R. Kopcke, "Stocks Are Not an Inflation Hedge," in Boeckh and Coghlan, pp. 45-58; and R. Kopcke, "The Continuing Decline in Corporate Profitability and Stock Prices," *New England Economic Review*, July/August, 1982. Of course the measurement of the profitability of capital presumes that the quantity of capital can be measured. See the citations at the end of footnote 3 concerning problems in defining economic aggregates such as the quantity of capital, the prices of capital goods, and the productivity of capital.

If the stream of tax liabilities does not conform to the stream of revenue product in the same way for every firm, the tax system ordinarily will not be neutral, especially as economic conditions change. Therefore, as illustrated by the debates in the previous paragraph, *ex post* measures of income that do not depend on *ex ante* estimates of future performance may misrepresent the profile of economic income. If taxable income is defined to be such an *ex post* measure of income, then the correspondence between the streams of tax liabilities and revenue products will tend to vary across industries, and the tax system will not be neutral.

during consensus, we could interpret the various measures of taxable investment income as compromises among differing points of view.

Perhaps we should not expect to design an ideal income tax that, in every respect, will be at least as "neutral" as any alternative proposal. Our conception of neutrality is defined in terms of prevailing economic theory, current and prospective business conditions, and the social objectives of lawmakers. This conception generally changes over time, sometimes significantly, as our knowledge, our economy, and our social goals evolve. Consequently, tax reform proposals are perhaps best regarded as steps toward a destination that itself changes with experience.

Some Current Proposals for Income Tax Reform

The accumulation of tax incentives and reforms over the years has fashioned a tax code that many now regard as inequitable or an obstacle to growth. This widespread dissatisfaction has bred a variety of proposals for income tax reform, four of which are examined below. Although these proposals recommend many profound changes in the current tax codes, the following analysis considers only changes in the taxation of business income (table 1).

The Bradley-Gephardt Proposal

The Bradley-Gephardt plan would impose a uniform 30 percent tax rate on all corporate income and repeal the investment tax credit. Depending on their "asset depreciation range" guidelines (established in the Revenue Act of 1971), equipment would be assigned to one of six classes with lives of 4, 6, 10, 18, 28, or 40 years. Structures would be assigned to the 40-year class. For purposes of calculating depreciation allowances, investors could use highly accelerated 250 percent declining-balance schedules over the assigned life spans of durable assets. This formula for depreciation is designed to equate the present value of these allowances with the present value of actual capital consumption expenses, using a 10 percent discount rate. The Bradley-Gephardt proposal would repeal the current \$100 dividend exclusion and raise the maximum capital gains tax rate from 20 percent to 30 percent.

This plan attempts to eliminate some "loopholes" or incentives in the revenue codes while retaining others. It takes no significant step toward the better integration of corporate and personal income taxes. Although the corporate tax rate is reduced, the loss of the investment tax credit and accelerated depreciation allowances (table 2) raises corporate income tax liabilities compared to existing law and two of the three other

Table 1
A Comparison of Selected Provisions of Four Current Tax Reform Proposals

	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
<u>Business Taxation</u>				
Corporate Income Tax Rate	33%	15% on first \$25,000 18% on second \$25,000 25% on third \$25,000 33% on profits above \$75,000	30%	15% on first \$50,000 25% on next \$50,000 35% on profits above \$100,000
Dividend Deduction	50%	10%	None	None
Investment Tax Credit	Repealed	Repealed	Repealed	Repealed
Depreciation Allowances	Simple declining balances over longer asset lives, indexed for inflation	Accelerated declining balances over longer asset lives, indexed for inflation	250% declining balances over longer asset lives	Accelerated allowances over somewhat longer asset lives, indexed for inflation
Interest Expense	Inflation premium not deductible	Fully deductible	Fully deductible	Fully deductible
<u>Investment Taxation</u>				
Maximum Capital Gains Tax Rate	35% with indexing	17.5% with no indexing or 35% with indexing after 1991	30%	17% with no indexing or 29% with indexing
Dividend Exclusion	Repealed	Repealed	Repealed	Repealed
Interest Income	Inflation premium not taxed	Fully taxable	Fully taxable	Fully taxable

Table 2
The Accumulation of Depreciation Allowances

	Number of Years Needed to Recover:		
	1/3 of Purchase Price	1/2 of Purchase Price	2/3 of Purchase Price
Equipment			
ACRS	1 3/4	2 1/2	3 1/4
Treasury I	2 3/4	4 1/4	6 1/4
Treasury II	2 3/4	2 1/2	3 1/2
Bradley-Gephardt	2	2 3/4	4 1/4
Kemp-Kasten	2 1/4	3	3 3/4
Structures			
ACRS	4	6 1/4	9
Treasury I	11	19	29 1/2
Treasury II	5	8	12
Bradley-Gephardt	5	8 1/2	13 1/4
Kemp-Kasten	4	6 1/4	9

Note: Assuming 5 percent inflation, entries show the number of years required for real depreciation allowances to sum to the appropriate proportion of the average asset's purchase price.

proposals. In terms of achieving neutrality (as discussed in conjunction with equation (4) of the previous section), the Bradley-Gephardt plan does not attempt to set the present value of depreciation allowances to the purchase price of assets. Instead, these allowances are linked more closely to the engineering rate of decay of durable assets, assuming that the sum of the inflation rate and real discount rate is about 7 percent.⁷ Variations in the expected rate of inflation not offset by variations in the real discount rate could alter the relative tax treatment of many capital assets.

This plan attempts to achieve a measure of fairness as defined by its authors, not theoretical elegance as defined by common neoclassical models of economic behavior.

The Kemp-Kasten Proposal

The Kemp-Kasten plan would impose a graduated corporate income tax that attains a maximum tax rate of 35 percent on incomes exceeding \$100,000. This proposal also would repeal the investment tax credit. For purposes of calculating depreciation allowances, durable as-

⁷The pretax 10 percent discount rate used to define allowances is a 6.7 percent nominal discount rate after corporate taxes.

sets currently assigned to 3, 5, 10, 15, or 18-year ACRS classes would be, respectively, reassigned to 4, 6, 15, 20, or 25-year "neutral cost recovery" classes. Depreciation allowances also would be indexed so that the economic value of these allowances would not be diminished by rising prices. This approach is intended to equate the present value of depreciation allowances with the purchase price of durable assets, assuming a 3.5 percent real discount rate. Kemp-Kasten would repeal the \$100 dividend exclusion, and it would give taxpayers receiving capital gains a choice of tax rules: either exclude 40 percent of these gains from income taxation, or exclude from income taxation that portion of capital gains that merely represents inflation.

The Kemp-Kasten plan attempts to achieve a more neutral tax treatment of business investments. The repeal of the investment tax credit and the adoption of depreciation allowances whose present value equals the purchase price of durable assets (assuming a 3.5 percent real discount rate) closely matches two of the three requirements for a neutral tax presented in the previous section. These steps may well achieve a better integration of the corporate and personal income taxes as well. With the proper definition of taxable corporate income, they would eliminate the corporate tax burden on the all-important marginal investments according to the neoclassical model.

Treasury I (November 1984)

The Treasury proposal would tax corporate income at a rate of 33 percent, after allowing corporations to exclude one-half of dividends paid to stockholders from taxable income. The proposal would repeal the investment tax credit and replace ACRS with the "real cost recovery system" (RCRS). All durable assets would be assigned to one of seven depreciation classes and receive an invariant annual depreciation rate ranging from 32 percent to 3 percent. RCRS would permit businesses to adjust their depreciation allowances each year for rising prices so that the value of RCRS allowances would not vary with the changes in prices. This Treasury plan would reduce the tax deduction that businesses as borrowers can claim for interest that they owe on their indebtedness. Borrowers would not be allowed to deduct interest expenses that reflect the "inflation premium" in interest rates, and lenders would not pay taxes on the inflation premium in their interest incomes. This plan, like the previous plans, would repeal the dividend exclusion. The maximum capital gains tax rate would be 35 percent, but taxable gains would exclude the appreciation of assets due to inflation.

Treasury I shares some of the philosophy behind both the Bradley-Gephardt and the Kemp-Kasten proposals. Treasury I attempts to inte-

grate corporate and personal income taxes better by allowing for a considerable dividend deduction. It also strives for a degree of neutrality by repealing the tax credit, reducing the corporate tax rate, indexing depreciation allowances, interest income, interest expense, and capital gains and by reducing somewhat the tax incentives for household investments in durables. But this Treasury plan also sought a "fair" tax. Many of the measures above could be interpreted as closing loopholes; real depreciation allowances would be linked closely to the engineering decay of assets; and the proposal would attempt to tax only economic income.

Treasury II (May 1985)

The President's tax proposals, submitted to Congress in May 1985, feature a graduated corporate tax rate which rises from 15 percent to 33 percent for corporations with more than \$75,000 of taxable income. This plan (hereafter, Treasury II) would entitle corporations to deduct from their taxable income one-tenth of dividends paid to shareholders. For purposes of calculating depreciation allowances, the Treasury II plan offers schedules that accelerate allowances somewhat more than the schedules of the first plan. Durable assets would be assigned to one of six classes with depreciation rates ranging from 55 percent to 4 percent. These allowances, like those of the first plan, would be indexed for changes in prices. Finally, the Treasury II proposal would repeal the dividend exclusion, but it would allow taxpayers to exclude one-half of capital gains from their taxable income, and, beginning in 1991, taxpayers could choose to exclude the portion of capital gains attributed to inflation instead of using the flat 50 percent exclusion.

Treasury II is in many respects similar to the previous proposal. But this second proposal does not integrate the corporate and personal taxes nearly as much as the first. Instead, it offers more accelerated depreciation allowances (table 2) to compensate for the reduced dividend deduction. This second plan also no longer proposes some of the features of the first (such as indexing interest income and expense) that were designed to measure and tax economic income more consistently.

The Macroeconomic Consequences of the Four Tax Reforms

In order to compare the potential influence on business capital spending of the four tax reforms discussed above, this paper uses two different descriptions of investment spending: the cash-flow and the neoclassical models. A previous study found that these two approaches

"explained" the recent course of investment spending rather well.⁸ According to the cash-flow model, capital budgets rise and fall with the supply of funds generated by retained earnings and depreciation allowances. The neoclassical model uses business output, corporate income tax rates, the value of tax credits and depreciation allowances, interest rates, and the relative price of capital goods to explain investment spending. Although tax rules matter in both models, the cash-flow approach says that investment reacts to changes in *current* business tax liabilities, not future tax liabilities; whereas the neoclassical approach says that investment responds to changes in the present value of *current and future* tax liabilities.

The cash-flow model emphasizes liquidity constraints and uncertainties about the future, while the neoclassical model emphasizes the after-tax rate of return on investment over the life of the project. This profound distinction can divide the two models' assessments of tax reform. All four proposals, for example, would twist the schedule of depreciation allowances; compared to ACRS, they would diminish the deductions early in an asset's life in favor of subsequent deductions. According to the cash-flow model, this kind of reform would tend to reduce cash flow, at least temporarily, thereby reducing investment spending for a time. Should tax reform "stretch out" the schedule of depreciation allowances too severely, the cash-flow approach may even predict an enduring decline in business fixed investment. In a growing economy, the volume of tomorrow's new investments will exceed that of today's investments. Consequently, by the time investors begin to recoup the "postponed" depreciation allowances on today's investments, the postponed allowances on investments undertaken after today may be great enough to prevent cash flow from regaining its former path at any time during the future. Unlike the cash-flow model, the neoclassical model weighs the promise of greater deductions in the future along with today's lower deductions, so it may predict greater capital spending than the cash-flow model if ACRS were repealed. In fact, if tax reform introduces indexing which enhances the value of future allowances sufficiently, capital formation could even increase according to the neoclassical approach.⁹

⁸R. Kopcke, "The Determinants of Investment Spending," *New England Economic Review*, July/August 1985.

⁹This study does not use "effective tax rates" to assess the consequences of the various tax plans, because all prominent descriptions of investment spending use various measures of sales, profit, the cost of capital, the return on investment, or the business cycle to explain the demand for capital goods. Taxes surely matter, but they influence capital formation only indirectly through profit, the cost of capital, or the return on investment. An effective tax rate cannot even be defined unambiguously without an appeal to a specific model of investment spending. Suppose, for example, a tax reform introduced an investment tax credit for construction expenditures but replaced ACRS with very conservative

Tables 3 to 7 summarize the simulations of the cash-flow and neoclassical models of investment spending over 20 years, running from 1981 to 2000. Although ACRS was enacted before these alternative proposals were conceived, the simulations all begin at the same time to compare the eventual effects of each plan, without giving ACRS the benefit of a head start. In all simulations real GNP grows 3 percent per year after 1984, and the rate of inflation, real rates of interest (after taxes), dividend/price ratios on common stock, and the relative prices of investment goods do not change after 1984.¹⁰ Corporate profits before taxes and corporate dividend payments increase at the same rate as nominal GNP.

Although these simulations of the growth of the capital stock can be used to rank the four tax proposals against each other and against the current tax law, this ranking depends on the economic assumptions behind the simulations. For example, the rules that yield the greatest rate of capital formation, assuming that inflation and GNP growth remain constant as is done here, may not retain top honors should the economy experience sufficiently frequent or severe business cycles during the next 15 years. In the past, cyclical variations in the rate of inflation often altered the efficacy of investment tax incentives. Consequently the various 20-year simulations of the tax reform proposals are repeated three times in order to assess how changes in the rate of inflation may alter the consequences of each proposal. (See the appendix for

depreciation schedules. This reform may be described as a tax cut, at least temporarily, by the cash-flow model, but the neoclassical model could regard it as a tax increase. Moreover, in the context of the cash-flow model, no measure of an effective tax rate could predict very accurately the response of investment spending to a tax reform unless this measure essentially were defined to be cash flow; a similar conclusion applies to the neoclassical model or any other prominent description of the demand for investment goods. Therefore, according to the two approaches used in this article, the course of business cash flow, sales, and the user cost of capital—not an effective tax rate—govern the pace of capital formation.

See also A. Auerbach, *The Taxation of Corporate Income*, cited in footnote 1, esp. chapters 2 and 3; and R. Kopcke, "Inflation, Taxation, and the Demand for Capital Assets," *Journal of Political Economy*, Vol. 89 (February 1981), pp. 122–131.

¹⁰Assuming that the real rate of interest (r) is constant implies that nominal yields equal $(1+r)(1+\pi)-1/(1-t)$, where π is the inflation rate and t is the marginal corporate tax rate. Actual nominal yields typically have been less than those predicted by this formula in the past. (This discrepancy is partly due to the difference between corporate and personal income tax rates and to the lack of indexing in the corporate tax code. See R. Kopcke, "Why Interest Rates Are So Low," *New England Economic Review*, July/August, 1980. The four tax proposals tend to reduce the difference among personal and corporate tax rates, and, except for Bradley-Gephardt, they make the user cost of capital less sensitive to the rate of inflation.) Should the real cost of funds tend to decline with rising inflation in the future as it has in the past, the ranking of the proposals shown in tables 6 and 7 will not change drastically. The relative user costs do not change significantly with changes in the real rate of discount as is illustrated by tables A-1 and A-2 in the appendix.

more details about the models and the simulations.)

None of these simulations admit "multiplier effects." If one tax plan produced more investment spending than another, this additional investment would tend to foster a more rapid expansion of economic activity, which, in turn, would stimulate even more investment spending. By fixing the annual growth of GNP at 3 percent for all simulations, the results below may understate the differences among the various tax plans. Nevertheless, the basic ranking of the plans will not be altered by this absence of multiplier effects.

Finally, this study does not examine the tax treatment of business inventories. Under current law, businesses may account for the cost of goods removed from their inventories using First-In-First-Out (FIFO) or Last-In-First-Out (LIFO) methods. During periods of significant inflation FIFO understates the cost of these goods, thereby creating "inventory profits" on which businesses pay taxes. Although LIFO delays the payment of these taxes, this accounting method does not remove the potential tax liability on these inventory profits by revaluing inventories. Both Treasury proposals would allow businesses to adjust the value of goods taken from inventory for changes in prices due to inflation. Because the value of inventories was not indexed during the 1970s and early 1980s, the marginal tax rate on corporate profits may have been 20 percent greater than that set by law.¹¹ The following simulations may understate the influence of the two Treasury proposals on capital formation by omitting this treatment of inventory profits tax.

The Cash Flow Results

Under the conditions of the simulations, only the second Treasury tax proposal generally increases investment compared to ACRS (tables 3 and 4). Treasury II's lower corporate income tax rate, indexed depreciation allowances, and modest dividend deduction more than compen-

¹¹During the 1960s and 1970s the ratio of inventory profits (the inventory valuation adjustment) to nonfinancial corporate profits with inventory and capital consumption adjustments equalled roughly twice the inflation rate. (See R. Kopcke, "Are Stocks a Bargain," *New England Economic Review*, May/June 1979, pp. 5-24, esp. p. 23.) Therefore, with 10 percent inflation, taxable corporate profits would be overstated by 20 percent. A more modest inflation rate of 5 percent would increase the marginal tax rate on corporate profits from 46 percent to almost 51 percent, by taxing inventory profits.

If, for example, the user costs described in the appendix were altered by replacing the factor $(1 - \text{TAX})$ in the denominator by $(1 - \text{TAX} (1 + 2\pi))$ for all tax schemes except the two Treasury plans, then the user costs for ACRS, Bradley-Gephardt, and Kemp-Kasten would be 6 percent greater with 3 percent inflation, 10 percent greater with 5 percent inflation, and 14 percent greater with 7 percent inflation. Accordingly, the capital stocks for these three tax schemes shown in tables 6 and 7 would tend to be reduced by 6, 10, or 14 percent, depending on the rate of inflation.

Table 3
The Stock of Producers' Durable Equipment—Cash-Flow Model
Billions of 1972 Dollars

	ACRS	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
3 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	735	712	729	723	719
1990	932	882	916	869	869
1995	1087	1039	1075	997	1014
2000	1197	1177	1208	1114	1146
Average Annual Growth Rate (Percent)	3.4	3.3	3.4	3.0	3.2
5 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	734	712	729	723	719
1990	913	873	907	858	859
1995	1041	1018	1053	971	992
2000	1132	1148	1177	1077	1116
Average Annual Growth Rate (Percent)	3.1	3.2	3.3	2.8	3.0
7 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	734	711	728	722	719
1990	895	865	899	848	849
1995	1002	1000	1034	949	972
2000	1079	1125	1152	1048	1091
Average Annual Growth Rate (Percent)	2.9	3.1	3.2	2.7	2.9

Note: See appendix for details.

Table 4
The Stock of Nonresidential Structures—Cash-Flow Model
Billions of 1972 Dollars

	ACRS	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
3 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	688	661	666	665	663
1990	767	747	761	745	744
1995	868	843	862	829	834
2000	959	939	959	912	925
Average Annual Growth Rate (Percent)	2.3	2.2	2.3	2.0	2.1
5 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	668	660	666	665	663
1990	761	744	758	741	741
1995	851	835	853	819	825
2000	929	926	945	896	911
Average Annual Growth Rate (Percent)	2.1	2.1	2.2	1.9	2.0
7 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	668	660	666	665	663
1990	755	742	755	738	737
1995	835	828	845	810	817
2000	904	915	933	882	899
Average Annual Growth Rate (Percent)	2.0	2.0	2.1	1.9	1.9

Note: See appendix for details.

sate investors for the loss of the investment tax credit and for the loss of highly accelerated depreciation allowances. Treasury I depresses capital formation at first, but during the last half of the simulation this proposal produces the most rapid growth of the capital stock, once the gradual introduction of its substantial dividend deduction is complete. Although the schedules of depreciation allowances in this first Treasury plan are not as accelerated as the schedules of allowances in Treasury II, the substantial dividend deduction in the first Treasury plan eventually yields the greatest cash flow. Kemp-Kasten supports a greater rate of capital formation than Bradley-Gephardt, but neither can support as much investment spending as the two Treasury plans.

Table 5 helps illustrate how each of the tax reform proposals would have affected cash flow in selected years. All the simulations in this table fix the path of investment spending to match that of the ACRS simulations with 5 percent inflation (tables 3 and 4). Under these circumstances, the Bradley-Gephardt proposal's comparatively large reduction of corporate income tax rates would increase cash flow about 5 percent in 1985 and 8.5 percent by the year 2000. The reduction of tax rates in the two Treasury plans and the Kemp-Kasten proposal are not as great; they would increase cash flow only 7 percent and 6 percent, respectively, by 2000.¹²

Because the Bradley-Gephardt plan's depreciation allowances are not accelerated as much as the ACRS allowances, that proposal would reduce cash flow about 4 percent in 1985 and 2.4 percent by 2000 as a result of the change in depreciation rules. While the depreciation schedules of the second Treasury proposal and the Kemp-Kasten proposal are not accelerated as much as ACRS, they are more accelerated than the Bradley-Gephardt allowances, and they are indexed for inflation. Consequently the depreciation allowances for Treasury II and the Kemp-Kasten proposal are sufficiently generous to add more than 5 percent to cash flow by 2000. Even though the depreciation allowances for the first Treasury proposal are indexed, by 2000 they would reduce cash flow almost 4 percent, because the depreciation schedules for Treasury I are not nearly as accelerated as those for the other tax reform proposals.

The first Treasury proposal eventually increases cash flow more than 13 percent as a result of its substantial dividend deduction. The less generous dividend deductions of Treasury II add less than 3 percent to

¹²From 1985 to 1990 pretax profits grow only 8 percent annually, while depreciation allowances grow 11.5 percent, due to the rapid accumulation of highly accelerated depreciation allowances in the ACRS simulation. As a result, taxable profits decline over these 5 years, making the reduction in corporate tax rates less valuable in 1990 than in 1985. After 1990, depreciation allowances rise more slowly than pretax profits, thereby increasing the value of the reduction in tax rates.

Table 5
The Effect of Tax Reform on Cash Flow
Percent of ACRS Cash Flow

	Total	Change in Cash Flow due to:			
		Lower Corporate Tax Rate	Change in Depreciation Allowances	Repeal of Investment Tax Credit	Dividend Deduction
Treasury I					
1985	-.8	4.0	-8.0	-6.1	9.3
1990	-1.1	2.1	-7.5	-6.7	11.0
1995	4.5	4.6	-5.4	-7.0	12.3
2000	9.4	6.9	-3.7	-7.1	13.3
Treasury II					
1985	1.0	4.0	0.8	-6.1	2.3
1990	1.7	2.1	4.1	-6.7	2.2
1995	4.9	4.6	4.9	-7.0	2.4
2000	7.8	6.9	5.3	-7.1	2.7
Bradley-Gephardt					
1985	-5.4	4.9	-4.2	-6.1	0
1990	-7.0	2.5	-2.8	-6.7	0
1995	-4.0	5.7	-2.7	-7.0	0
2000	-1.0	8.5	-2.4	-7.1	0
Kemp-Kasten					
1985	-5.7	3.4	-3.0	-6.1	0
1990	-3.3	1.7	1.7	-6.7	0
1995	1.0	3.9	4.1	-7.0	0
2000	4.4	5.9	5.6	-7.1	0

Note: See appendix for details.

cash flow. Finally, all proposals reduce cash flow 6 or 7 percent by repealing the investment tax credit.

Altogether the first Treasury proposal would boost cash flow by more than 9 percent by the year 2000. The second Treasury proposal would add almost 8 percent to cash flow. Although Treasury I eventually overtakes Treasury II, for the first 15 years of the simulation Treasury II contributes the most to cash flow. Kemp-Kasten does not contribute as much as the two Treasury plans to corporate cash flow during this 20-year simulation, but after a slow start it gains steadily on Treasury II. Bradley-Gephardt also reduces cash flow substantially during the first five years of the simulation, but, unlike Kemp-Kasten, the Bradley-Gephardt proposal loses ground relative to the two Treasury plans during the full 20-year simulation.

Treasury I offers the least accelerated depreciation allowances. For this reason, this proposal supports the smallest rate of capital formation for the first five years of all simulations (tables 3 and 4). With 3 percent inflation, Bradley-Gephardt and Kemp-Kasten support nearly identical rates of investment spending for the first 10 years of the simulation, but neither fosters as much capital accumulation as ACRS or Treasury II. During the second half of the simulation with 3 percent inflation, Treasury II's capital stock surpasses that of ACRS; Treasury I's capital stock is rapidly catching up with that of Treasury II; and Kemp-Kasten's capital stock, having surpassed that of Bradley-Gephardt, is also rapidly gaining ground on ACRS as it catches up somewhat with Treasury II's capital stock.

Unlike ACRS and Bradley-Gephardt, the two Treasury proposals and the Kemp-Kasten plan index their depreciation allowances so that rising prices do not erode the purchasing power of these allowances. As a result, rising inflation reduces the capital stock in the year 2000 most for ACRS and Bradley-Gephardt. With 7 percent inflation, for instance, the two Treasury plans and Kemp-Kasten foster more capital formation by the year 2000 than does ACRS. Despite indexing, higher rates of inflation depress the capital stock somewhat for the Treasury plans and Kemp-Kasten as well, because depreciation allowances on investments made before 1981 are not indexed for these plans. In the long run, the rate of capital formation essentially would be unaffected by the inflation rate under the Treasury plans and Kemp-Kasten, so these simulations understate the advantages of these plans should inflation increase in the future. On the other hand, for rates of inflation much below 3 percent, the value of indexing becomes negligible, so ACRS and the Bradley-Gephardt plan would become relatively more attractive.

The Neoclassical Results

Here the Kemp-Kasten proposal and the two Treasury proposals produce the most rapid growth of the stock of producers' durable equipment and nonresidential structures (tables 6 and 7). Because the present value of Kemp-Kasten's depreciation allowances, by design, is very nearly equal to the purchase price of capital goods, this plan fosters the most investment spending throughout the 20-year simulation. Whereas the stocks of equipment and structures grow at essentially equal rates under the Treasury's first plan, Kemp-Kasten and Treasury II favor investment in structures.

In the cash flow simulation, the postponement of depreciation allowances initially tended to reduce cash flow and investment spending commensurately, but in the neoclassical model investors realize that postponed allowances eventually will be claimed—albeit the waiting reduces their value somewhat. Consequently, in the neoclassical simulation, the Kemp-Kasten plan and two Treasury plans support more capital formation than does ACRS throughout the 20-year period, because investors foresee the value of future depreciation allowances and the dividend deductions on the earnings of investments undertaken from the very beginning. With 3 percent inflation, the capital stocks of Kemp-Kasten and Treasury I surpass that of ACRS; Treasury II fosters nearly as much investment spending as ACRS; and Bradley-Gephardt supports the least capital formation.

Going behind these overall rankings, three of these four tax proposals tend to alter the composition of the capital stock. For example, compared to Treasury I or the existing ACRS investment incentives, Kemp-Kasten, Bradley-Gephardt, and Treasury II reduce the cost of capital proportionately more for structures than for equipment.

According to the neoclassical model, investors consider the value of depreciation allowances on *new* investments, not past investments, when ordering new capital goods. Consequently, the growth of the capital stock under Kemp-Kasten and the two Treasury plans is not affected by the rate of inflation, because these plans offer indexed depreciation allowances on new investments. Rising inflation reduces the rate of capital formation for ACRS and the Bradley-Gephardt plan, which lack indexed depreciation allowances. While ACRS may rival Treasury II for fostering investment at low rates of inflation, at 7 percent inflation the two Treasury plans and the Kemp-Kasten plan offer investment incentives that surpass those of ACRS by a wide margin. At 3 percent inflation ACRS encourages significantly more investment spending than Bradley-Gephardt. At 7 percent inflation the gap between the capital stocks of ACRS and Bradley-Gephardt is much smaller. Even though neither plan indexes depreciation allowances, because of Bradley-Gephardt's rela-

Table 6
 The Stock of Producers' Durable Equipment—Neoclassical Model
 Billions of 1972 Dollars

	ACRS	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
3 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	713	728	718	693	721
1990	839	881	837	776	849
1995	969	1033	957	869	975
2000	1118	1203	1098	985	1123
Average Annual Growth Rate (Percent)	3.0	3.4	2.9	2.4	3.1
5 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	713	728	718	692	721
1990	826	881	837	771	849
1995	941	1033	957	858	976
2000	1078	1203	1098	969	1123
Average Annual Growth Rate (Percent)	2.8	3.4	2.9	2.3	3.1
7 Percent Inflation after 1984					
1980	615	615	615	615	615
1985	713	728	718	692	721
1990	815	881	837	767	849
1995	918	1033	957	849	976
2000	1044	1203	1098	956	1123
Average Annual Growth Rate (Percent)	2.7	3.4	2.9	2.2	3.1

Note: See appendix for details.

Table 7
 The Stock of Nonresidential Structures—Neoclassical Model
 Billions of 1972 Dollars

	ACRS	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
3 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	673	708	705	677	749
1990	777	860	841	786	949
1995	900	1029	994	912	1168
2000	1041	1220	1168	1057	1411
Average Annual Growth Rate (Percent)	2.7	3.5	3.3	2.8	4.3
5 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	672	708	705	677	749
1990	765	860	841	779	949
1995	873	1029	994	897	1168
2000	1001	1220	1168	1035	1411
Average Annual Growth Rate (Percent)	2.5	3.5	3.3	2.7	4.3
7 Percent Inflation after 1984					
1980	611	611	611	611	611
1985	671	708	705	767	749
1990	755	860	841	773	949
1995	855	1029	994	887	1168
2000	973	1220	1168	1019	1411
Average Annual Growth Rate (Percent)	2.4	3.5	3.3	2.6	4.3

Note: See appendix for details.

tively low corporate tax rate, the declining value of depreciation allowances does not reduce cash flow for the Bradley-Gephardt plan as much as it does for ACRS.

The Loss of Tax Revenue

In the cash flow simulations, investment spending is tied directly to the concurrent cash flow of businesses. The plan that reduces business tax liabilities the most also produces the most investment spending, because the tax payment is the only element of cash flow that varies among the simulations. Therefore, the Treasury proposals foster the most rapid capital accumulation by reducing business tax payments by the greatest amount.

According to the cash-flow model, the difference in capital spending between two plans is essentially proportional to the difference between the concurrent tax burdens they place on businesses. Consequently, no tax proposal can be more "efficient" than another in the sense that the difference in capital spending between plans divided by their difference in concurrent government tax revenues is essentially a constant, 1.14.

Had these cash flow simulations allowed overall economic activity to vary directly with investment spending, the tax plans that produce the most investment also would tend to increase income tax revenues, because they would raise GNP and taxable incomes the most. Under these circumstances, the increase in capital spending divided by the *net* loss in government tax revenues could be greatest for the Treasury plans, which foster the greatest rate of capital formation. This is only a conjecture, however. The response of GNP to business tax reductions also depends on any changes in personal taxes. A greater business tax cut may be accompanied by higher personal tax rates, which could reduce consumption spending and business revenues, thereby depressing GNP growth or business cash flow. In assuming a constant 3 percent growth of real GNP for all simulations, this study has not considered some of the potential effects of revising personal taxes on capital formation.

In the neoclassical simulations, investment spending depends on the concurrent and future return on investment. Consequently, a plan that promises valuable tax reductions in the future may foster investment spending today with apparently little loss of tax revenue today. In the long run, however, these promised tax reductions may be very costly if they do not produce sufficient capital formation today.

Adhering to the specific concept of efficiency described above—which tax incentives deliver the greatest "bang" in capital spending per "buck" of prospective revenue loss—reducing the corporate income tax

rate is the least efficient investment incentive. While encouraging new investments, lower corporate tax rates reduce the tax liability on income earned by existing capital as well. Accelerated depreciation and investment tax credits, on the other hand, can be limited to new investment projects.¹³ Because the first Treasury proposal and the Bradley-Gephardt plan rely relatively heavily on reducing the tax rate on corporate profits, the neoclassical approach suggests that the Kemp-Kasten plan and the second Treasury proposal provide more "efficient" tax incentives for investment.

Although this view is common, it does bear one considerable flaw. The double taxation of corporate profits discourages business capital formation. To ameliorate this deterrent, investment tax credits and accelerated or indexed depreciation allowances may be designed to offset the burden of corporate income taxes, but this strategy may prepare the way for substantial biases in the tax code. For instance, the value of depreciation allowances to any investor may vary with economic conditions. As a result, these allowances must be adjusted continually to prevent changes in the expected level or pattern of inflation, changes in the term structure of discount rates, changes in the relative prices of goods or factors of production, and other variables from altering the relative tax treatment of various capital goods or various industries. The changing economic conditions of the past three decades have warranted many such adjustments, including the enthusiastic promotion of ACRS in 1981 followed by the earnest appeal for tax reform by many former supporters of ACRS. Accordingly, the Treasury I plan's blend of dividend deductions and indexed depreciation may be a most attractive and practical approach to tax reform.

The Consequences of Tax Reform for Specific Industries

The foregoing results suggest that none of the four proposals for tax reform, if adopted, would treat all businesses the same. After all, these proposals were designed to rectify the current law's inequitable treatment of taxpayers, including businesses. Some proposals, for example, tend to reduce the tax liabilities of firms purchasing structures. These plans, therefore, would tend to boost the after-tax returns for firms in the structure-intensive printing industry relative to the equipment-intensive paper industry. Furthermore, because all four proposals would

¹³See also R. Kopcke, "The Efficiency of Traditional Investment Tax Incentives," in Board of Governors of the Federal Reserve System, *Public Policy and Capital Formation*, April 1981, pp. 163-75.

reduce corporate income tax rates, they would tend to reduce the tax burden most for industries with high ratios of profits to cash flow.

This study also examines how the various reform proposals would tend to alter the cash flow and user cost of capital for selected industries. The composition of the capital stock is assumed to remain constant for each industry, matching that of the late 1970s for the duration of the simulations. In the cash flow analyses, the rate of real investment for each industry, by assumption, increases its stocks of equipment and structures 3 percent per year. In this manner, the changes in cash flow that accompany each tax reform isolate the direct effect of these reforms on each industry. Inflation is set at 5 percent, so pretax earnings, dividends, and all other components of cash flow except for depreciation allowances and the tax liability grow approximately 8 percent per year.

The industrial simulations, like the aggregate simulations, show that Treasury I reduces the cash flow of most businesses during its first five years while its dividend deductions and tax rate costs are introduced gradually. Treasury I eventually tends to reduce the tax burden most for industries that use more structures than equipment in production and for industries that pay substantial dividends. Accordingly, this proposal would tend to increase the cash flow of manufacturing firms the most. However, textile firms and manufacturers of paper, rubber, or primary metals, which depend heavily on equipment or pay low dividends, would experience lower cash flow. Similarly agricultural, mining, transportation, and utility firms would have lower cash flow.

Treasury I and Treasury II tend to have similar effects on the pattern of cash flow among the industries. Although Treasury II offers a much smaller dividend deduction than Treasury I, Treasury II compensates by accelerating depreciation allowances, especially those for structures.

Like the Treasury proposals, the Bradley-Gephardt proposal would boost the cash flow of most manufacturing industries, while depressing the cash flow in agriculture, mining, transportation, and utilities. But Bradley-Gephardt does not reduce the tax burden for most manufacturers as much as the Treasury plans. Similarly, Bradley-Gephardt does not increase the tax burden as much on other industries.

The Kemp-Kasten proposal compared to current law and the other plans greatly increases the value of depreciation allowances for structures. As a result, this proposal would boost the relative cash flow of manufacturing firms considerably. In time, all manufacturing industries would have greater cash flows under Kemp-Kasten. But, for other industries, Kemp-Kasten would increase tax liabilities when compared either to current law or to the other reform proposals.

In many respects the results of the user cost simulations are similar to those for the cash flow simulations. Manufacturing industries generally benefit from a greater reduction in user costs than other industries.

The Kemp-Kasten plan tends to reduce the relative cost of capital for manufacturers the most; the Bradley-Gephardt plan reduces their relative user cost the least. While the two Treasury proposals seem to increase investment incentives more for manufacturers than other industries, these two plans appear to reduce the cost of capital more uniformly across industries than Kemp-Kasten. The Treasury plans do not appear to change the cost of capital for the various industries as uniformly as Kemp-Kasten. Here, as in the macro simulations, all tax reform proposals, except Kemp-Kasten, would reduce user costs for almost all industries. The Kemp-Kasten plan generally reduces the cost of capital the most, providing slightly greater incentives for investment than Treasury I.

Assuming that the appeals for tax reform do not arise from a lasting shift in fiscal policy designed to encourage investment in manufacturing, then adoption of any of these proposals may require other fiscal measures in order to maintain our industrial balance. It is not clear, in this case, that the resulting "distortions" in fiscal policy would be any less onerous than those present in current policy. If the fostering of investment in manufacturing is a welcome by-product of tax reform, then this reform might not endure if, for example, future economic conditions fostered a further expansion of manufacturing at the expense of other industries. Since their inception, governments intentionally have altered the composition of GNP, the allocation of resources, and the distribution of income in order to achieve best their community's goals. No doubt future tax reforms, like those past, will continue to heed the overall aims of policymakers as they manage fiscal policy. Consequently the tax reforms eventually enacted probably will not clash to a great degree with legislators' attitudes about a proper federal industrial policy. In this regard, the four proposals for tax reforms examined here do offer lawmakers some distinct choices.

Conclusion

The Reagan administration enthusiastically promoted the tax reforms enacted in 1981. But by 1984, the Administration strongly emphasized the need for overhauling much of the revenue code, while criticizing ACRS, introduced in 1981, for creating distortions and for failing to provide consistent investment incentives when economic conditions were changing. This is not an isolated event. Virtually all post-war administrations changed their opinions about proper or acceptable tax rules while they were in office.

If history is to offer us any instruction about tax reform, its foremost lesson is that our conception of right and proper taxation generally

changes as our knowledge, our economy, and our social goals evolve. Consequently, those who have sold past tax reforms as enduring policy changes and those who point to past "failures" in order to criticize current tax reform efforts may be guilty of misplaced emphasis. Tax reforms are best regarded as steps toward a destination that changes with experience.

This paper examines some of the consequences of four contemporary proposals for tax reform—two Treasury plans, the Bradley-Gephardt proposal and the Kemp-Kasten plan—assessing how they might influence the rate of capital formation by altering the taxation of investment income. The results suggest that the two Treasury proposals and Kemp-Kasten eventually would tend to increase the rate of capital formation compared to ACRS. Even though these three proposals for tax reform would repeal the investment tax credit and replace ACRS with less accelerated depreciation rules, they would boost investment by reducing corporate income tax rates, by indexing depreciation allowances, or by introducing a corporate dividend deduction. The first Treasury tax reform proposal of late 1984 might depress investment spending at first, but it eventually would tend to foster one of the most rapid rates of capital formation by taking a long step toward eliminating the double taxation of corporate profits.

Perhaps the most distinctive feature of the first Treasury proposal is its attempt to move closer to taxing only the economic income of households and businesses. Rising inflation during the 1960s and 1970s eroded the value of depreciation allowances, raising the tax burden on investors. A series of tax reforms culminating in the Economic Recovery Tax Act of 1981, designed to offset the effects of high rates of inflation, now appears to have made tax incentives for investment too generous during the early years of an asset's life. The first Treasury proposal attempts to link depreciation allowances to the economic rate of decay of durable assets, and it indexes these allowances for inflation. In this manner, the plan tries to achieve a more equitable measure of income that is not distorted by changes in the inflation rate.

The plan also could reduce the cost of capital for businesses by measuring the economic income of stockholders more accurately. Under current law, the effective tax rate on real capital gains varies greatly with the inflation rate. For example, during the high inflation of the 1970s effective tax rates on real capital gains frequently exceeded 100 percent. With the first Treasury plan, the effective tax rate on real capital gains would not change with the rate of inflation. Consequently the Treasury's proposal might make stocks more attractive investments. During the 1970s, many investors shunned the stock market once they realized that stocks were a poor inflation hedge, partly because the effective tax rate on corporate income and equity investments rose with the rate of infla-

tion. The Treasury's tax proposal might restore some of equity's appeal by indexing depreciation allowances, business inventory profits, and capital gains income: the effective tax rate of the returns to stockholders would no longer rise with the rate of inflation.¹⁴

Whether or not they are enacted, each of the four proposals can serve as models for designing future tax reforms. As such a statement of "first principles," the first Treasury proposal seems to be a useful foundation upon which to build. This is not to say that this Treasury plan embodies the essence of fair and neutral taxation. In a sense, no tax can be entirely neutral, and fairness is in the eye of the beholder. Future recessions or rising relative prices of capital goods once again may warrant lawmakers' studying special tax incentives for investment. A model tax plan is like an engineer's design for an efficient automobile or hotel. We may not adopt the design because we want fancy fenders or airy atriums. But the engineer's plan allows us to assess the costs and benefits of the features we might want, and the engineer's plan allows us to assess whether or not these features threaten the structural integrity of the finished product. A model tax code deserves study and understanding so that, at least conceptually, lawmakers can return to it in designing each new tax reform. In this manner, a model code may minimize the risk of the tax laws becoming a heap of complex, incompatible provisions, which demand annual reforms while confounding the understanding of lawmakers and taxpayers alike.

¹⁴See R. Kopcke, "The Continuing Decline in Corporate Profitability and Stock Prices," *New England Economic Review*, July/August 1982; "Stocks Are Not an Inflation Hedge," in J. A. Boeckh and R. T. Coghlan, eds., *The Stock Market and Inflation* (Dow-Jones Irwin, 1982); and "The Decline in Corporate Profitability," *New England Economic Review*, May/June 1978.

See also D. Fullerton "The Indexation of Interest, Depreciation, and Capital Gains: A Model of Investment Incentives," National Bureau of Economic Research, Working Paper No. 1655, June 1985; and J. Tatom, "Federal Income Tax Reform in 1985: Indexation," *Federal Reserve Bank of St. Louis Review*, February 1985, pp. 5-12.

Appendix

The Cash Flow Model

$$IE_t = 2.12 + \sum_{i=0}^5 b_i (CF_{t-i}/PE_{t-i}) + 3.13(.936)^t$$

$$b_0 = .370$$

$$b_1 = .168$$

$$b_2 = .096$$

$$b_3 = .090$$

$$b_4 = .082$$

$$b_5 = .006$$

$$KE_t = IE_t/4 + .957 KE_{t-1}$$

$$IS_t = 12.71 + \sum_{i=0}^5 b_i (CF_{t-i}/PS_{t-i}) + 1.85(.956)^t$$

$$b_0 = .084$$

$$b_1 = .076$$

$$b_2 = .062$$

$$b_3 = .047$$

$$b_4 = .033$$

$$b_5 = .025$$

$$KS_t = IS_t/4 + .984 KS_{t-1}$$

where

IE, IS: quarterly investment in producers' durable equipment and nonresidential structures expressed in 1972 dollars;

KE, KS: stock of equipment and structures expressed in 1972 dollars;

PE, PS: price deflators for equipment and structures from National Income and Product Accounts;

CF: nonfinancial corporate business cash flow, retained earnings plus depreciation allowances, expressed at an annual rate;

t: a time index denoting the quarters; t equals unity in 1981:I.

The final term in both equations represents the prediction error of 1980:IV multiplied by the autocorrelation coefficient raised to the power t.

The entries in text tables 3 and 4 are the values of the KE and KS for the fourth quarters of the years shown. From 1981:I to 1984:IV, all simulations use historical values for CF, PE, and PS. Afterward, PE and PS grow at the assumed rate of inflation.

For the ACRS simulations, pretax profit grows at an annual rate equal to unity less the product of unity plus the inflation rate and unity plus .03 (the assumed rate of real growth). Dividends increase at this same rate. To accomplish a smooth transition from 1984 to 1985 and subsequent years, depreciation allowances after 1984 equal the sum of three components: \$280 billion (book depreciation for nonfinancial corporations in 1984) times $(.92)^{(\text{year}-1984)}$; the ACRS allowances on subsequent investments undertaken after 1984; and a constant, \$23 billion. The corporate tax rate equals .46 plus .54 times the average state corporate profits tax rate. Taxes equal the tax rate (as defined in the previous sentence) times the difference between pretax profits and depreciation allowances less the amount of the investment tax credit (.096 times PE•IE). CF then equals pretax profits less dividends less taxes plus depreciation allowances. Starting in 1985:I the calculated value of the investment tax credit was reduced by \$6 billion in every quarter and the simulated value of CF was raised by \$30 billion in every quarter to allow for a smooth transition. This lump-sum approach (rather than a lower effective tax credit and tax rate approach) seemed appropriate, because with continuing growth more corporate income would be taxed at the maximum prevailing marginal rate and "carry-forwards" or "carry-backs" would diminish in significance.

For simulations other than ACRS, CF equals CF as determined above less the change in taxes. The change in taxes equals the new maximum corporate tax rate times the change in depreciation allowances (ACRS allowances on investments made after 1980:IV less the appropriate tax plan's allowances on its simulated investments), plus the investment tax credits from the ACRS simulation, plus the change in the maximum corporate tax rate (the new maximum rate less the tax rate as defined in the previous paragraph) times taxable profits from the ACRS simulation, less the new maximum tax rate times the dividend deduction. The new maximum tax rate equals the proposed federal rate plus the product of the state tax rate and one minus the proposed federal rate.

For tax plans that allow businesses to invest more of their pretax cash flow (due to lower tax liabilities), no allowance is made for the more rapid growth of pretax profit in the future as a result of this greater rate of capital accumulation. This conservative assumption tends to understate the differences among the various tax plans, but it does not alter their basic ranking. (The neoclassical simulations "forecast" more rapid capital formation than the cash flow models partly because they recognize the return on investment that accompanies this capital deepening.) Because total fixed investment eventually rises \$1.14 for every \$1 of sustained tax cut, debt and interest expense must be rising faster in the simulations that foster more investment with greater tax cuts. The simulations conservatively assume that the increased profit on the additional investment that is financed by debt equals the service charges imposed by this additional debt.

The simulations of Treasury II do not include the "recapture" provisions that do not allow businesses to benefit both from ACRS depreciation schedules on investment undertaken from 1981 to 1985 and from the lower corporate income tax rates to be enacted after 1985. By starting all simulations in 1981, the recapture provisions are not necessary in this study. Should Treasury II, with recapture, be enacted in the future, the growth of the capital stock could be less than that of the Kemp-Kasten plan until the effects of the recapture have lapsed.

Implicit in these simulations is the assumption that the after-tax nominal rate of interest (hence the real rate of interest) is the same for all simulations. This same assumption applies to the neoclassical simulations. We adopt this assumption mostly because it is convenient (mostly, but not entirely—see footnote 10). Any reasonable alternative would require a complete model of the effect of tax reform on household saving and credit markets as well as on investment demand. As stated in the text, this undertaking is beyond the scope of this paper.

For text table 5, the various simulations as described above are repeated, except that inflation is fixed at 5 percent and the amount of investment spending in the simulations for the two Treasury proposals, the Bradley-Gephardt proposal, and the Kemp-Kasten proposal is constrained to equal that of the ACRS simulation.

The Neoclassical Model

$$IE_t = \sum_{i=0}^{12} b_i (Q_{t-i}/RE_{t-i}) - \sum_{i=1}^{13} c_i (Q_{t-i}/RE_{t-i}) + .089 KE_{t-1} + 14.01(.942)^t$$

$b_0 = .021$	$b_7 = .042$
$b_1 = .030$	$b_8 = .038$
$b_2 = .034$	$b_9 = .033$
$b_3 = .042$	$b_{10} = .028$
$b_4 = .045$	$b_{11} = .021$
$b_5 = .045$	$b_{12} = .014$
$b_6 = .044$	

$c_1 = .020$	$c_8 = .042$
$c_2 = .030$	$c_9 = .038$
$c_3 = .037$	$c_{10} = .033$
$c_4 = .042$	$c_{11} = .026$
$c_5 = .045$	$c_{12} = .019$
$c_6 = .046$	$c_{13} = .012$
$c_7 = .044$	

$$KE_t = IE_t/4 + .957 KE_{t-1}$$

$$IS_t = \sum_{i=1}^{10} b_i (Q_{t-i}/RS_{t-i}) + .0278 KS_{t-1} + (.967)^t$$

$b_1 = .0013$	$b_6 = .0002$
$b_2 = .0011$	$b_7 = .0001$
$b_3 = .0009$	$b_8 = .0002$
$b_4 = .0006$	$b_9 = .0004$
$b_5 = .0004$	$b_{10} = .0007$

$$KS_t = IS_t/4 + .984 KS_{t-1}$$

where

Q: business product expressed in 1972 dollars at an annual rate

RE, RS: User cost of equipment and structures, where

$$RE = (PE/P) (.15 + D) (1 - ITC - TAX (WE) - .3 (1 - DEBT))/(1 - TAX)$$

$$RS = (PS/P) (.05 + D) (1 - TAX (WS) - .3 (1 - DEBT))/(1 - TAX)$$

PE, PS are the implicit price deflators for producers' durable equipment and nonresidential structures, respectively. (U.S. Bureau of Economic Analysis)

P is the implicit price deflator for GNP. (U.S. Bureau of Economic Analysis)

The economic rate of depreciation for equipment is estimated at .15 and structures .05.

D, the discount rate for corporate profits after corporate income taxes, equals the Standard & Poor's dividend/price ratio for common stocks plus an estimate of the real rate of growth of nonfinancial corporate enterprises, a constant 4 percent. This definition of D is inspired by the Gordon growth model for valuing equities. See for example T. Campbell, *Financial Institutions, Markets, and Economic Activity* (McGraw-Hill Book Co., 1982), esp. pp. 55-58.

ITC is the investment tax credit on equipment. Although many public utility structures are eligible for investment tax credits, we assume the effective tax credit for all corporate

structures is zero. As long as utility regulatory commissions enforce target rates of return, a higher tax credit may reduce revenues for utilities, rather than reducing the user cost of capital.

WE is the present value of depreciation allowances for equipment using the most "accelerated" formulas permitted by law. The discount rate used is .02 plus π . WS is defined similarly for structures. .02 represents the assumed real rate of return on bonds after taxes, a figure roughly consistent with the inflation forecasts given below assuming a tax rate of 40 percent.

π is the average inflation rate expected to prevail over the holding period of new bonds issued in each quarter. The values used in this series are as follows:

1976:I to 1977:IV	5.5%	1982:III	7.0%
1978:I to 1978:IV	6.0%	1982:IV to 1983:IV	5.5%
1979:I to 1979:IV	7.0%	1984:I to 1984:II	6.0%
1980:I to 1980:IV	8.0%	1984:III to 1984:IV	5.5%
1981:I to 1982:II	7.5%		

DEBT is the present value of debt service charges after taxes per dollar borrowed at the prevailing Aa new utility rate. The maturity of the loan equals the tax lifetime of the capital good. The discount rate is the same as that for WE.

According to the neoclassical model, in deciding whether to undertake an investment project, business managers compare the present value of the project's cash flow with its cost. A firm will then accept investments until the cost of the last project accepted equals its discounted cash flow. Supposing the equity to capital ratio is .7 and the present value of real economic returns before taxes is V (real returns depreciate 15 percent per year and the discount rate is D):

$$PE(.7) = P(1 - TAX)V + PE [- .3 DEBT + TAX (WE) + ITC]$$

or $PE = P(1 - TAX)V + PE [.3(1 - DEBT) + TAX (WE) + ITC]$

This equation yields the user cost of capital RE. (See for example R. E. Hall and D. W. Jorgenson, "Tax Policy and Investment Behavior," *American Economic Review*, June 1967, pp. 391-414.) The expected rate of change of PE/P is assumed to be negligible.

The final term in both equations represents the prediction error of 1980:IV multiplied by the autocorrelation coefficient raised to the power t.

For text tables 6 and 7, the entries equal the capital stock for the fourth quarter of each year shown. For all simulations Q grows 3 percent annually after 1984:IV, while all price deflators grow at the rate of inflation. In all user costs, the dividend/price ratio on common stocks and the real cost of debt finance are assumed to equal their values of 1984:IV in all subsequent quarters. Consequently, the present value of depreciation allowances, the corporate tax rate, and the amount of the investment tax credit are the only variables that distinguish the various tax plans from one another. ACRS alone features an investment tax credit of .096 in RE. For the two Treasury plans and the Bradley-Gephardt plan, the real depreciation allowances are discounted at a real rate of 2 percent. (We also calculated user costs with a 4 percent discount rate. See the tables below.) For ACRS and the Kemp-Kasten plan, depreciation allowances are discounted at the inflation rate plus 2 percent. Because the two Treasury plans allow a dividend deduction, which effectively reduces the marginal tax rate on taxable profits, the corporate tax rate in the denominator of their user cost formulas is reduced by assuming that one-half of taxable profits are distributed as dividends. (Since a dollar of depreciation allowances always can reduce taxable profits by one dollar, regardless of dividends, the present value of depreciation allowances in the two Treasury plans is multiplied by their respective maximal corporate tax rates.) During

the period when the dividend deduction is being introduced in steps, the rate of the effective dividend deduction equals a discounted value of present and future effective rates of dividend deductions.

The following tables show the user costs behind the neoclassical simulations. For the purposes of the simulations, we assumed a 2 percent real discount rate, after taxes. The tables also show user costs, assuming a 4 percent real discount rate. The switch to a 4 percent discount rate does not alter the relative ranking of the tax proposals' user costs. This switch would not alter the ranking of Kemp-Kasten's user costs on equipment or structures, each considered separately, but it would raise the overall user cost for the Kemp-Kasten plan relative to that of Treasury I so that both of these plans would have the same overall cost of capital. The Kemp-Kasten plan, therefore, would share top billing with Treasury I if the neoclassical simulations were repeated using a 4 percent discount rate.

Table A1
The User Cost of Capital: Equipment
Percent

	ACRS ^a			Treasury I	Treasury II	Bradley-Gephardt ^a			Kemp-Kasten
2 Percent Real Discount Rate									
1980 ^b	.235			.235	.235	.235			.235
1981	.222			.208	.203	.256			.211
1982	.216			.200	.211	.253			.207
1983	.199			.180	.195	.225			.188
1984	.199			.178	.193	.225			.188
	3%	5%	7%			3%	5%	7%	
1985	.187	.196	.204	.173	.193	.217	.222	.226	.187
1986 ^c	.187	.196	.204	.172	.193	.217	.222	.226	.187
4 Percent Real Discount Rate									
1980 ^b	.245			.245	.245	.245			.245
1981	.230			.218	.212	.261			.222
1982	.225			.209	.219	.258			.218
1983	.206			.189	.200	.230			.199
1984	.207			.187	.199	.230			.198
	3%	5%	7%			3%	5%	7%	
1985	.196	.204	.212	.181	.199	.222	.226	.230	.197
1986 ^c	.196	.204	.212	.180	.199	.222	.226	.230	.197

^aBecause depreciation allowances are not indexed for these plans, the user costs after 1984 depend on the assumed rate of inflation: 3, 5, or 7 percent.

^bUser costs equal those prevailing before the Economic Recovery Tax Act of 1981.

^cUser costs remain constant after 1985.

Table A2
The User Cost of Capital: Structures
Percent

	ACRS ^a			Treasury I	Treasury II	Bradley-Gephardt ^a			Kemp-Kasten
2 Percent Real Discount Rate									
1980 ^b	.270			.270	.270	.270			.270
1981	.250			.194	.188	.240			.154
1982	.258			.197	.202	.250			.156
1983	.216			.169	.175	.209			.135
1984	.219			.168	.174	.208			.135
	3%	5%	7%			3%	5%	7%	
1985 ^c	.200	.214	.225	.161	.174	.197	.204	.209	.133
4 Percent Real Discount Rate									
1980 ^b	.272			.272	.272	.272			.272
1981	.260			.214	.209	.245			.185
1982	.267			.217	.221	.255			.191
1983	.222			.186	.191	.214			.164
1984	.223			.184	.190	.213			.163
	3%	5%	7%			3%	5%	7%	
1985 ^c	.214	.225	.234	.177	.190	.204	.209	.213	.161

^aBecause depreciation allowances are not indexed for these plans, the user costs after 1984 depend on the assumed rate of inflation: 3, 5, or 7 percent.

^bUser costs equal those prevailing before the Economic Recovery Tax Act of 1981.

^cUser costs remain constant after 1984.

Discussion

*George N. Hatsopoulos**

Tax reform has once again reached prominence among national economic issues. This is not surprising in view of the long-standing dissatisfaction of a majority of Americans who believe that the current tax system is unjustifiably complex and unfair. What is unusual this time around is that the present tax-redesign effort does not pretend to address the major economic problems of the day. It is not as though the current problems of our economy are less significant than those of the past: there is near consensus that the unprecedented deficits in our federal budget and our foreign trade are ominous. It is as though these problems are so overwhelming that relief is sought by diverting attention to what are thought to be the more manageable issues such as fairness and simplicity.

Fairness and simplicity are worthy long-term objectives for tax policy, but only if their attainment does not impair economic growth and employment. Mr. Kopcke implicitly addresses the question of economic growth by analyzing the effects of four major tax proposals (Treasury I and II, Bradley-Gephardt, and Kemp-Kasten) on the rate of capital formation. In addition, he discusses issues relating to the neutrality of the tax system, which affects growth by virtue of the efficiency of allocation of capital across productive activities.

Concerning neutrality, he concludes that whereas no tax system can be neutral in the strict sense of the word, some systems are more neutral than others. He states also that "our conception of right and proper taxation generally changes as our knowledge, our economy, and our

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social goals evolve." I fully agree. Concerning the rate of capital formation, he concludes that Treasury I and II and Kemp-Kasten eventually would tend to increase the rate of capital formation compared to present tax law. I disagree.

In my opinion all four tax-reform proposals examined will, for several years, retard capital formation and accelerate the decline of our international competitive position, not only in basic industries but high-technology ones as well. There are benefits that can be attributed to each of the four proposals in an ultimate equilibrium state, assuming the share of our manufacturing industry does not change. However, if any of those proposals are enacted in their present form, the damage inflicted during the transition period is likely to overshadow such long-term benefits.

There are two bases for my conclusion. One is analytical and the other is common sense. Let me start first with the latter, which usually turns out to be more dependable.

All four proposals increase overall business taxes substantially, at least for a transition period of several years. Moreover, they reduce tax rates on earnings from capital already in place—a windfall for past investors. The plans, therefore, must raise revenue by increasing taxes on new capital, counter to traditional wisdom that tax rates on new capital should be kept low to spur investment. Thus, U.S. manufacturers will be further motivated to use cash generated by fixed assets in the United States to finance investments abroad. In addition, liquidation of domestic assets will be facilitated by the lowering of personal tax rates under all plans and the dividend deductibility provisions of the two Treasury proposals. Eventually, three of the four proposals will reduce business taxes and improve capital-allocation efficiency, but the present value of such benefits will probably be more than offset by the shorter-term damage.

Let us now disregard, as Kopcke has done, the transition problems and discuss the analysis that has led to his conclusions concerning long-term equilibrium. He uses two models: the cash-flow and the neoclassical. I have problems with both models.

First, I do not believe that corporate cash flow motivates or should motivate investment. By and large, corporations make investments only if the discounted present value of after-tax earnings from such investments is greater than the cost of the investments.

Many corporations reduce their rate of investment during recessions, not because their cash flow is reduced, but because demand for their products is low. For these companies investment and cash flow seem to correlate simply because these two indicators are procyclical. It would be very surprising if the correlation persisted in the absence of a recession. Moreover, such a correlation does not apply to high-technology companies that have relatively fewer fixed assets and more inven-

tories and receivables. They enjoy increasing cash flow but invest less during recessions. In any case, Kopcke does not seem to put much weight on the cash-flow model since its results mostly contradict his final conclusions.

The neoclassical model requires the evaluation of the user cost of capital for each class of assets considered. Kopcke considers two classes of assets—equipment and structures—but not inventories, receivables, or land. I differ with him in his calculations of the cost of capital on several points.

In the traditional calculation of the user cost of capital, first introduced by Hall and Jorgenson, all cash flows from an investment, including taxes and tax credits, are discounted by the marginal after-tax cost of funds, which combines the cost of equity and the after-tax cost of debt in some proportions. Kopcke departs from this approach. He discounts the economic returns before taxes by the cost of equity and discounts all other cash flows by a lower fixed real rate of return plus inflation. His rationale is that the only cash-flow stream that is uncertain and, therefore, warrants the risk premium included in the cost of equity, is the project's economic return—after all, tax credits, depreciation allowances, and interest payments on bonds involve no uncertainty.

I object to this procedure for two reasons. First, the risk premium reflected in the cost of equity, which Kopcke uses to discount the risky cash flows, is too low. The observed required return on equity reflects the investor's discount rate on all corporate cash flows, both risky and riskless. The discount rate investors apply to the risky component alone is, therefore, substantially greater than the cost of equity. Second, many of the cash flows which are modeled as certain, for example depreciation allowances, are in fact uncertain since many firms may pay no corporate taxes in some future years.

To project interest rates post enactment, Kopcke assumes that the after-tax rate of interest is the same for all simulations. This assumption implies that the after-tax rate of return required by marginal bondholders is invariant. But Kopcke does not specify who these marginal bondholders are. Different results would be obtained depending on whether these marginal bondholders are tax-exempt institutions, corporations, or households. Moreover, he does not take into account the fact that the proposed tax reforms will lower domestic savings, initially by shifting taxes from consumers to business, and eventually by increasing the federal deficit. Simulations of all these effects have been performed by Data Resources Inc.¹ They conclude that nominal pretax interest rates will

¹See Data Resources, Inc., "The DRI Study of Tax Reform" (a private multiclient study), Lexington, MA: May 1985; Roger E. Brinner, Testimony to the Senate Finance Committee and the House Ways and Means Committee, June 27, 1985; and Roger E. Brinner, "Tax Reform II: The President's Tax Proposals for Fairness, Growth, and Simplicity," *U.S. Long-Term Review*, Summer 1985.

change one way or the other and, as a result, the after-tax cost of corporate debt will increase.

For the real cost of equity D , Kopcke uses the expression

$$D = Y + G \quad (1)$$

where Y is the dividend-to-price ratio for common stocks and G an estimated real rate of growth of nonfinancial enterprises. While this expression, used widely in the literature, makes good sense, it is unreasonable to assume that the yield Y and real rate of growth G will not change significantly as a result of a major change in the tax code. Although it is nearly impossible to make an accurate evaluation of the effects of the tax code upon the cost of equity, there are several plausible models that I have used which show such effects to be significant.

Kopcke reduces the corporate tax rate that appears in the denominator of his final formula for the cost of capital by a factor that depends on the fractions of corporate dividends that are tax-deductible. Such a modification is unjustifiable. Dividend deductibility does reduce the cost of capital, but only by virtue of the fact that the cost of equity is less than that indicated by equation (1). Specifically, if a fraction β of the dividends paid by a corporation can be deducted from taxable income, the after-tax cost of such dividends is reduced by the factor $(1 - \beta Z)$, where Z is the statutory marginal corporate tax rate. In this case the appropriate expression for the cost of equity is

$$D = Y(1 - \beta Z) + G \quad (2)$$

My own analysis of the effects of the four proposals on factors affecting economic growth in the long term, disregarding short-term damage, indicates the following:

1. The user cost of capital for equipment will rise by more than 10 percent.
2. The user cost of capital for structures will decline by more than 5 percent.
3. The tax code will be more neutral across different types of tangible assets and, therefore, allocation of capital will be more efficient.
4. The real discount rate, after taxes, that businesses apply to future cash flows will rise. That means that investment in new ventures such as R&D activities will either decline, focus on shorter-term payoffs, or both.

The first three effects may balance each other, but the fourth effect is so critical to the international position of our manufacturing industries that all four proposals, especially the Treasury I plan and Bradley-Gephardt, will reduce economic growth in the United States.

In his closing remarks Kopcke points out that all proposals, and in particular Treasury I, seem to be useful models upon which to build

future tax reforms. There is no question in my mind that all of the proposals examined contain ideas that are sound and useful. But a far better model than any of these is the Japanese tax system, which combines neutrality across assets, virtual elimination of double taxation, strong incentives for growth, and strong disincentives to stagnation. It is partly due to such a tax system that Japan's cost of capital is less than half that of the United States and its investment in equipment per employee and rate of productivity growth more than twice ours.²

²George N. Hatsopoulos and Stephen H. Brooks, "The Gap in the Cost of Capital: Causes, Effects, and Remedies," in R. Landau and D.W. Jorgenson, *Technology and Economic Policy* (Ballinger: forthcoming 1986).

Discussion

*Alan J. Auerbach**

In looking at the order of discussants, I imagined that my role in evaluating Richard Kopcke's paper on investment was to steer a course between the cost-of-capital Scylla and the Charybdis of the accelerator. This is relatively easy when the mean squared error is as large as is typically found in investment equations.

This is where I begin, and it will also be where I finish. Perhaps the most important point to be emphasized, when considering fundamental changes in our tax system, is that our econometric techniques provide us with little ability to predict economic behavior when we introduce major changes in the economic conditions facing firms. It is prudent to attribute a fair amount of uncertainty to simulated responses to major tax revisions. My specific comments on the paper are intended to illustrate this point.

Kopcke simulates the effects of four popular tax reform plans on fixed investment by firms, using two familiar models of investment behavior, the cash-flow model and the neoclassical model. According to the cash-flow model, a firm's investment is determined by the level of its internally generated funds. According to the neoclassical model, the investment decision rests on changes in the level of output and in the user cost of capital, which in turn is based on financial costs, tax factors, and the rate at which capital decays. The author is a bit misleading in suggesting that "these two approaches explained the recent course of investment spending rather well." What he really means is that they do as well or better than other models. The fact is that investment in the 1980s has been rather hard to predict. This is evident if one looks at

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Kopcke's earlier paper in which he actually estimated the equations he uses here. Out-of-sample root-mean-squared errors for the 1980s are many times larger than those for the sample period of estimation, and, like those of most other forecasters, Kopcke's models underpredict the strength of recent investment.

The problem is that real, after-tax interest rates have been too high, and after-tax corporate profitability too low, to justify the investment recovery observed in 1984. Some (for example, Bosworth 1985) have suggested that what is happening is a strong shift in the demand for capital among sectors. Because of the irreversibility of investment, weak demand in one sector does not fully cancel strong demand elsewhere: you can't turn a tractor into a word processor. However, there are always sectoral shifts over time, making this explanation for the unusual recent behavior of investment less than compelling. Others (for example, Blanchard and Summers 1984) have suggested that investors have greater confidence in government and expectations of future profitability than they did a few years ago. Perhaps this reveals the true meaning of "voodoo economics" as the act of conjuring up the animal spirits first envisaged by Keynes.

Thus, Kopcke begins his analysis of proposed reforms with models carrying very limited warranties. He then must decide just how to account for different provisions not present in the current tax code. Two of the most important of these provisions are found in the two Treasury proposals, Treasury I and Treasury II, the latter perhaps more appropriately called White House I. These are the dividends-paid deduction, set at 50 percent of dividends paid under Treasury I and 10 percent of dividends paid under Treasury II, and the windfall tax on excess depreciation that would be imposed under Treasury II.

Kopcke ignores the second, following the logic that his comparisons begin in 1981, before any excess depreciation under ACRS would have occurred. This has the effect of making cash flow under Treasury II look a lot better to his investment model than it does to actual investors at the moment, who would lose \$56.5 billion between now and 1989 as a result of this specific provision.

In accounting for the effect of the dividends-paid deduction on the user cost of capital, he assumes that firms will pay out half of their gross returns to capital, *before* depreciation, as dividends. This is a substantial overstatement of actual payout ratios. If one takes the more usual approach of treating dividend relief as a reduction in the effective personal tax rate on that fraction of after-tax earnings coming from new investment that is distributed as dividends, the implied changes in the cost of capital are much smaller. My back-of-the-envelope calculations suggest that Kopcke would predict percentage reductions in the user cost of capital under the Treasury I dividends-paid deduction that would, for

equipment, exceed that coming from a *doubling* of the investment tax credit. My own calculations also suggest that he has overstated the effect of these provisions by at least a factor of between three and six.

I say "at least" because Kopcke does not account at all for the view held by at least some economists (discussed in Auerbach 1983b) that dividend taxes impose an even smaller effect on the cost of capital than would be indicated by looking at payout ratios. Hence, both plans, and particularly Treasury I, will look much better to the neoclassical model than is probably appropriate.

With these points in mind, it is interesting to consider the paper's predictions that the plan most effective in encouraging the accumulation of business fixed capital would be Treasury II according to the cash-flow model and Treasury I according to the neoclassical model. I suspect that each of these results depends crucially on the way in which Kopcke has interpreted these plans, and that if different, perhaps more realistic assumptions were incorporated, Kopcke, like others, would find that it is hard to beat ACRS for total fixed investment, except perhaps with Kemp-Kasten, for which FAST is certainly an appropriate acronym in the area of depreciation allowances.

Before concluding, I must raise a strong objection to Kopcke's characterization of tax neutrality in the beginning of his paper. We can all agree that lump sum taxes are nondistortionary and that this is a complicated world, but there is a well-supported efficiency argument for attempting to make the tax base correspond to true economic income, if indeed an income tax is to be used at all (Auerbach 1982). This amounts to trying to make depreciation schedules resemble those dictated by economic depreciation, or at least mimic the effect of such schedules through other means. The efficiency cost of the present distortionary system of corporate taxation is probably on the order of several billion dollars a year (Auerbach 1983a). Nowadays such numbers seem small but we need all the national income we can get. Moreover, there are important additional problems associated with the rapid depreciation of assets under current law, most notably the increased incidence of tax losses and their associated distortions.

Certainly there are problems in making the transition to a less distortionary tax system. One must also worry about second-best considerations, and the fact that going from a tax system with high tax rates and investment incentives to one with low rates and low investment incentives may waste tax revenue on substantial windfalls to existing capital assets. But this does not make the goal of reduced distortions, which plays an important role in all of the proposals considered here, unimportant or simply a matter of equity. Rather, it means that we have to think a little harder about the design of appropriate transition schemes, such as a phased reduction in corporate taxes (analyzed in Auerbach and Hines

1986) that can provide better short-run investment incentives while at the same time increasing corporate tax collections.

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Discussion

*Robert Eisner**

The bottom line of Kopcke's ambitious study is that three of the four tax reform proposals he considers, Treasury I and Treasury II and Kemp-Kasten, would boost business investment. I don't believe it, but that's not all bad. Indeed, I might begin by challenging the fairly conventional wisdom that we want more business investment. Business investment does not necessarily promote growth. It can be unproductive.

The widespread notion that investment does promote growth stems, presumably, from the notion that businesses in a free market undertake investment in the (correct) expectation that its future proceeds exceed its current costs. But if those proceeds include tax subsidies, firms may be induced to acquire capital assets whose future product exclusive of tax benefits is less than their supply price or opportunity cost. That is the path of decline, not growth.

The notion that business investment under current law has been retarded by its tax treatment is not easy to sustain. The combination of deductibility of swollen nominal interest costs, exclusion of the bulk of capital gains from taxation, accelerated depreciation for tax purposes, the investment tax credit, the proliferation of tax shelters, and the exclusion of vast amounts of saving from taxes, is such that the current tax system on balance subsidizes new business fixed investment, albeit most unevenly.

And I must also inveigh against the all too easy assumption that business income taxes in general discourage business investment. The fact is that the corporate profits tax is a tax on corporate income: income from capital, from labor, or from any other factor of production. It does

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not in itself change relative factor costs and therefore does not encourage less capital-intensive production. I suppose application of the "cash-flow" model, with the assumption that corporate income taxes are in no way passed on, can bring the then definitional result, in terms of that model, that investment must fall. That is just another piece of evidence on the foolishness of the cash-flow model of investment.

I might as well state it flatly: the cash-flow model is nonsense. If it really described business behavior, our rationale for a private-profit market system would be destroyed. Businesses would be investing whether capital assets promised to be productive or profitable or not, merely because they had the money.

Indeed, curiously, the "cash flow" in cash-flow models, including Kopcke's version, does not even measure cash flow. Rather it describes gross profits minus dividend payout; and with dividends a fairly sticky variable, variations in cash flow reflect variations in gross profits. But profits need hardly be in cash and frequently are largely tied up in inventories and accounts receivable.

Kopcke does not make clear in the current paper where he gets his models' presumably estimated parameters. The usual positive associations between cash flow and investment relate essentially to the fact that both investment and profits are procyclical. That tells us nothing about the likely effects of a structural change in after-tax profits brought on by changes in tax provisions.

In Kopcke's simulations with a cash-flow model, dividend deductibility, as in Treasury I, increases cash flow—and therefore investment—because the only element of cash flow that Kopcke allows to be affected by the various tax plans is the tax payments themselves. But surely, offering 50 percent deductibility for dividend payments could be expected to encourage firms to pay out more of their earnings. If they more than double their payout, cash flow, as defined, would actually decline!

I would quarrel with Kopcke's assertion that double taxation of dividends discourages capital formation. It does indeed distort capital financing and it inhibits the free flow of potentially investable funds. To the extent that it discourages payout, however, it may well encourage firms to expand and one major way of expanding is investment. As to the notion that the double taxation of dividends significantly raises the cost of capital to the firm, this largely ignores the overwhelming role in the supply of capital of the expectation of essentially untaxed capital gains, as well as the extent to which investors with low or zero marginal tax rates are likely to be preponderant among dividend recipients.

While the cash-flow model may, to put it bluntly, be reasonably dismissed out of hand, the difficulties in the so-called neoclassical model are in part intrinsic and in part related to Kopcke's application of the model. A major difficulty is the common one of assuming parameters,

such as interest rates or costs of capital, which may appear exogenous to the firm, as independent, in the economy as a whole, of variations in tax parameters. The introduction of ACRS in 1981, according to some neo-classical model devotees, was supposed to bring about a big increase in business investment by reducing the rental price or user cost of capital. In fact, the increase in the rental cost of capital due to a sharp rise in real interest costs considerably outweighed reductions due to the more favorable tax treatment. But should not any reasonable macroeconomic model have suggested that the tax reduction, particularly one deemed to increase investment demand, would contribute to higher real interest rates?

I have some concern for the particular distributed lag formulation, going back to an article of Bischoff a number of years ago, from which Kopcke derives his parameters. Perhaps more troublesome is the use of dividend/price ratios as the variable element in the cost of capital. As I confess I have tried to point out on a number of previous occasions, the dividend/price ratio is much more properly viewed as the inverse of a measure of the expected profitability of investment than of the cost of capital. For the price of equity will be high relative to fairly sticky dividend payments precisely when expected future profits on investment are high. A negative time series relation between investment and a "cost of capital" built around the dividend/price ratio tells us nothing about any true relation with the cost of capital or the total rental price of capital of which it is a part. For the cost of capital to a firm relates not to its current dividends but to the share of expected earnings which must be anticipated for new stockholders. We can infer nothing from the relation between investment and the dividend/price ratio about the effects of changes in tax parameters that would affect the rental price of capital.

A further problem with both estimation of the neoclassical investment function and its use to predict effects of changes in tax parameters is the failure to include a price expectations or capital gains term. This term was indeed in the original neoclassical formulations but, presumably because of data difficulties, is rarely included in estimations. But it can be critical.

In fact, the effect of corporate tax rate changes on the rental price of capital is ambiguous in the neoclassical formulation. It is not necessarily true that a higher corporate tax rate will increase the rental price of capital or that a lower rate will reduce it. The business income tax rate actually enters in both the numerator and the denominator of the rental price of capital term. Changes in it depend upon an interaction with the expected rate of capital gains, the present value of tax depreciation allowances, the proportion of the cost of capital which is tax-deductible—and that may be more than 100 percent when inflation swells nominal interest rates far above real interest costs—and the amount of the invest-

ment tax credit. Without specifying all of these, we cannot infer that lowering the corporate tax rate, as all of the tax reform proposals would, actually lowers the rental price or user cost of capital.

But a major factor in Kopcke's results with the neoclassical model relates, particularly for the evaluation of Treasury I, to his treatment of dividend deductibility. For he sees in this a reduction in the marginal tax rate which enters with a negative sign in the denominator, but no change in the marginal tax rate applicable to the present value of depreciation deductions in the numerator! This stacks the deck overwhelmingly in favor of any plan with dividend deductions and makes Treasury I, with its 50 percent dividend deduction, a huge "winner."

I see no justification for this treatment. Dividends, which are only about one-third of taxable profits, not one-half as assumed by Kopcke, would not seem to have much to do with the marginal tax rate on the income from new investment. Firms undertaking new investment may hardly be expected to plan higher dividend payments as a consequence. And if they did, the reduced marginal tax rate that they anticipate should be applied to the present value of the associated added depreciation allowances which would be tied to the new investment. And I might add again that it is capital gains, and in large part untaxed, "unrealized" capital gains, which are the dominant reward to investors supplying equity capital, not dividends.

My own conclusion, based partly on my own priors and estimates of the elasticity of the demand for capital with respect to its cost, is that Treasury I, and the new House of Representatives version of tax reform, would have had little effect upon the aggregate of business investment. Either one would be beneficial in making tax treatment of investment more neutral and therefore on balance making the investment undertaken much more productive.

Treasury II was actually, under reasonable inflation assumptions, more favorable in its tax treatment to investment than even ACRS, now appropriately, if belatedly, widely maligned. Treasury presentations of implications of Treasury II's depreciation provisions had been unfortunately misleading in failing to make clear the huge benefits to taxpayers, and losses to the Treasury, resulting from the combination of inflation adjustments and the retreat from the economic depreciation of Treasury I.

Whether this or any other moves to maintain or enlarge investment "incentives" will do much for investment, I quite doubt. Their major effect would be to line the pockets of those who might otherwise pay business taxes and their owners.

But after all, is that not their real purpose?

Tax Simplification and Financial Markets

*Patric H. Hendershott**

Four tax reforms have been proposed in recent years: Bradley-Gephardt, Kemp-Kasten, Treasury I and Treasury II. These reforms seek to improve economic efficiency by taxing different capital assets and sources of income more equally. Each reform is purported to be revenue-neutral from the perspective of the U.S. Treasury and distributionally neutral across households. While this alleged neutrality is probably (certainly, in some instances) overstated, it is analytically convenient to assume revenue and distribution neutrality. It is also convenient to abstract from growth and inflation effects.

Even with revenue and growth neutrality, the reforms could substantially affect financial markets. Reductions in investment incentives and marginal tax rates would tend to lower before-tax interest rates,¹ and lower taxes on existing corporate capital would tend to increase stock prices.² The pattern of security issues would be altered by resulting changes in the composition of investment between real estate and other assets and in desired loan-to-value ratios. The paper compares and

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¹Feldstein and Summers (1978) develop the relationship between investment incentives and before-tax interest rates, and Peek and Wilcox (1984) report evidence that before-tax interest rates respond to tax rates.

²Auerbach and Kotlikoff (1983) calculate that the 1981 Tax Act imposed a capital tax of \$200 billion on shareholders by taxing new capital more favorably than old; Hendershott and Shilling (1982) calculate that the 1981 Act would raise real interest rates by one and one-half percentage points.

contrasts the likely impacts of each of the four reform proposals on interest rates (taxable and tax-exempt), security flows, and stock prices.

Tax Reform and Interest Rates

The analysis is built around a diagram in which the interaction of the demand for and supply of (funds for) real capital determines before-tax interest rates. Tax reforms can reduce the level of before-tax interest rates by lowering the demand for real capital (reducing investment incentives) and/or by raising the supply of funds for real capital accumulation (lowering marginal tax rates on saving). Whether a specific tax reform will lower before-tax interest rates and by how much depends on how the reform is structured.

Comparative-static analysis focuses on the separate impact of the various reforms on the supply and demand curves for real capital. The supply-curve analysis evolves into a discussion of how reforms will likely alter the relation between tax-exempt and taxable yields. Putting the separate curve shifts together provides specific estimates of rate declines under the various reforms. These estimates depend heavily on the assumed interest elasticities of the domestic and net foreign supplies of capital (saving). Because wide disagreement exists over these elasticities, any estimate of the expected decline in interest rates in response to tax reform is bound to be controversial.

A Graphic Analysis

The demand for real capital depends positively on real output and negatively on the rental price of capital (c). This price is related to the economic depreciation rate (d), the required real return the firm must earn (r), and various business tax parameters (Hall and Jorgenson, 1967):

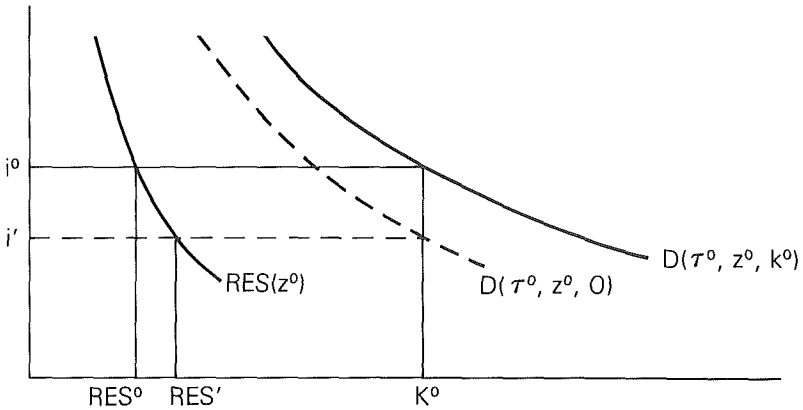
$$c = (r + d) \frac{1 - k - \tau z}{1 - \tau} \quad (1)$$

where k is the investment tax credit, τ is the business income tax rate and z is the present value of tax depreciation deductions. The required real return, in turn, depends on personal tax rates and risk factors, as well as the level of the before-tax interest rates and the expected inflation rate. An increase in before-tax interest rates raises r and thus c , thereby lowering the demand for capital.

Figure 1 illustrates the impact of tax reform on the level of interest rates and the allocation of real capital between residential and nonresidential uses in a fixed-capital allocation model. The negative impact of interest rates on quantity demanded is plotted; the other components of

Figure 1

Interest Rate Determination:
Zero Interest Rate Elasticity for the Supply of Capital



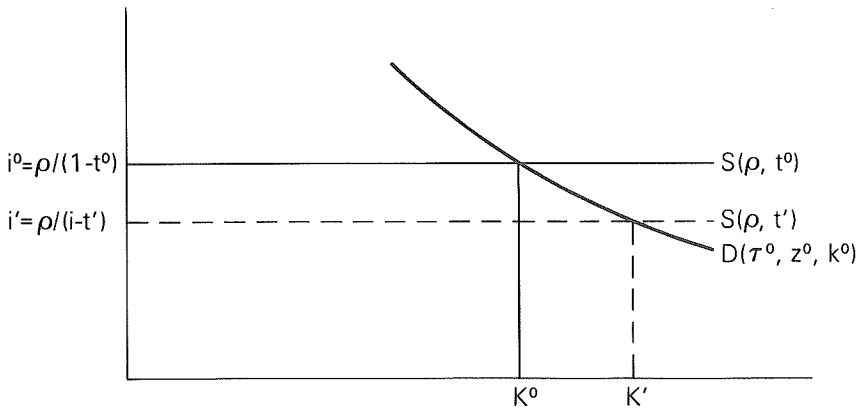
the rental price—business tax rates, τ , tax depreciation schedules, z , and the investment tax credit, k —are shift parameters in the demand functions. Under current law (τ^0, z^0 and k^0), the level of interest rates is i^0 , residential capital is RES^0 , and nonresidential capital is $K^0 - RES^0$. The supply schedule is drawn as a vertical line to reflect the fixed capital stock. With all of the schedules interpreted as fractions of income, the analysis can be reinterpreted in a growth context.

I begin with a simple tax change: the elimination of the investment tax credit (setting $k=0$) espoused in all four tax reform proposals. The total demand schedule, $K(\tau^0, z^0, k^0)$, drops down to $K(\tau^0, z^0, 0)$, the interest rate declines to i' , the quantity of residential capital increases to RES' and the quantity of nonresidential capital decreases to $K^0 - RES'$. That is, removing an incentive for nonresidential investment leads to a reallocation of capital to residential uses, the mechanism being a decline in interest rates. The fixed-capital assumption is appropriate for analyzing the impact of tax reform on interest rates if the interest elasticity of domestic saving is zero and either the interest elasticity of net foreign saving is zero or foreign central banks move foreign interest rates with American rates such that net foreign saving is unchanged.

The opposite assumption would be to make the supply of capital perfectly elastic. Summers (1981) notes that the long-run interest rate elasticity of saving is infinite in an unfettered life-cycle model where households have a strong bequest motive. Figure 2 has been constructed to illustrate the impact of tax reform on interest rates in this opposite case, where the supply elasticity comes from domestic, not foreign, sav-

Figure 2

Interest Rate Determination:
Infinite Interest Rate Elasticity for the Supply of Capital

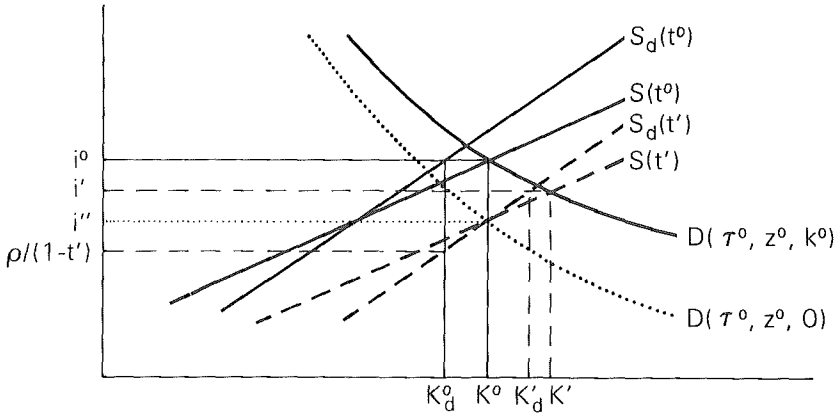


ing. The horizontal supply of capital is drawn at $i^0 = \rho/(1-t^0)$, where ρ is the fixed after-tax return to savers and t^0 is the tax rate built into taxable interest rates. The removal of the investment tax credit analyzed in figure 1 (but not in figure 2) would lower the demand curve and the quantity of nonresidential capital would decrease. However, the interest rate and quantity of residential capital would be unchanged. A more interesting reform is analyzed in figure 2: a decrease in t from t^0 to t^1 . For simplicity, the decrease is assumed not to affect the demand for capital (although this is virtually an impossible case owing to the relationship between t and τ). The interest rate declines from i^0 to $i^1 = \rho/(1-t^1)$, and the total stock of capital rises from K^0 to K^1 . Residential and nonresidential components of capital increase in proportion to their interest-rate sensitivities.

I next examine a world where the infinite supply elasticity comes from international capital flows (domestic saving is again assumed to have zero interest elasticity). In this model, the level of world interest rates is determined by a fixed supply of world capital and the demand for real capital in all countries. The RES demand curve in figure 1 could be redefined as the total American demand for capital and the K curve as the world demand for capital. In this case, a tax reform that reduced after-tax returns to American savers (such as the decrease of t^0 to t^1) would not alter either the aggregate supply of capital or the level of American (world) interest rates. As before, the level of American rates (world rates generally) would decline in response to a negative change in a demand shift parameter, such as the removal of the investment tax credit analyzed in figure 1. However, the decline would be smaller for an

Figure 3

Interest Rate Determination:
Finite Interest Rate Elasticity for the Supply of Capital



open economy than a closed one because the demand for world capital should be more responsive to interest rate changes than should be the demand for American capital alone. In effect, American nonresidential capital would be reallocated to foreign capital as well as to American residential capital.

Figure 3 portrays the presumably realistic case of positive, but finite, interest rate elasticities in both the domestic (S_d) and net foreign ($S - S_d$) supplies of capital. Limitations on the domestic elasticity follow from adding capital market constraints to the life-cycle model and restricting the bequest motive. Limitations on the foreign elasticity recognize the major role the U.S. plays in world capital markets. The supply schedules are drawn so that a positive net foreign supply of capital, $K^0 - K_d^0$, exists at the initial level of American interest rates, i^0 . A decrease in t from t^0 to t' (the reader should ignore the shift in the demand schedule for the moment) lowers the domestic supply schedule vertically to $\rho/(1-t')$ and shifts the total supply schedule sympathetically. The net result is a decline in i to i' , an increase in the total American capital stock to K' , and a reduction in net foreign holdings of American capital to $K' - K'_d$. The latter translates into an improvement in the U.S. trade deficit.

Combining the previous analyses, I now deduce the interest rate response to a broad tax reform that shifts both the supply and demand schedules. Specifically, the tax credit is eliminated, and t is cut to t' . For convenience, the demand curve is assumed to shift downward by exactly enough to maintain the existing level of the American capital stock at K^0 . As the schedules are drawn, the net foreign demand for American capital, which was originally positive, is zero, and the interest rate has declined to i'' .

The impact of any tax reform on the level of American interest rates is thus seen to depend fundamentally on the size of the resulting downward shifts in the demand and domestic-supply curves. Three interest rate elasticities are also important: (1) the interest elasticity of foreign saving (after allowance for foreign central bank actions to adjust foreign interest rates to "exogenous" shifts in American rates), (2) the interest rate elasticity of domestic saving, and (3) the interest elasticity of the demand for capital. The next two sections of the paper explain how to obtain estimates of the downward shifts in the domestic supply of capital and the demand for capital. The supply-side analysis treats the yield on tax-exempt securities as the return to high-income savers and asks how far the level of taxable interest rates would have to fall under the various reforms to maintain tax-exempt yields at pre-reform levels. The demand-side analysis asks how far the level of rates would have to fall to maintain the aggregate demand for capital (and thus the level of net investment) at its pre-reform level, assuming a fixed total supply of capital.

Tax Reform, Tax-Exempt Yields, and the Supply of Domestic Saving

Most saving is almost certainly done by high-income households who consider tax-exempt securities to be competitive investments. Thus a reasonable measure of the downward shift in the supply-of-domestic-saving schedule is the decrease in the level of taxable interest rates necessary to prevent the level of tax-exempt yields from rising above their pre-reform level. Calculating the magnitude of this shift requires specification of both the determinants of the ratio of tax-exempt to taxable yields (new issue coupon rates) and the impact of the tax reforms on each determinant.

Determinants of Relative Yields on Tax-Exempt Securities. The greatest difference between securities issued by the federal government and by state and local governments is the tax treatment of their coupon income: the federal government taxes the income earned on its securities, but not that earned on state and local securities. If municipal and Treasury securities were identical in every other respect, the relationship between coupon rates on par-valued municipals (R_m) and Treasuries (R_t) of maturity j would be given by

$$R_{mj} + (1 - \tau_g)G_m + \phi_m \tau_j R_{mj} = (1 - \tau_j)R_{tj} + (1 - \tau_j)G_t + \phi_t \tau_j R_{tj}, \quad (2)$$

where the G s are expected annual rates of capital gains over the investor's holding period, τ_g is the concurrent effective capital gains tax rate, and the ϕ_m and ϕ_t reflect expected tax savings from optimally trading

municipal and Treasury bonds, respectively (Constantinides and Ingersoll, 1984). The expected gains depend on expected future one-period coupon rates (and other factors), and the expected tax savings parameters vary negatively with transaction costs and positively with the maturity of the securities. For one-period securities, the expected gains and tax savings are zero and the familiar

$$Rm_1/Rt_1 = 1 - \tau_1 \quad (3)$$

obtains.

Miller (1977) combines two equilibrium conditions to specify τ_1 : equality between the expected risk-adjusted after-tax marginal costs of corporate debt $[(1 - \tau_c)i]$ and equity (e) and between the after-personal-tax risk-adjusted return on equities $[(1 - \tau_e)e]$ and that on municipal securities $[(1 - \tau_1)i]$. Solving,

$$\tau_1 = 1 - (1 - \tau_c)(1 - \tau_e).$$

That is, the tax rate implicit in one-period tax-exempt coupons equals unity less the product of one less the statutory corporate federal tax rate and one less the tax rate on corporate equity.³ With a corporate tax rate of 0.46 and an equity tax rate of 0.0742, $\tau = 0.5$, and the rate ratio is also 0.5. Allowing for the excess of contracting costs on corporate debt over equity would raise this ratio during periods of substantial risk of corporate bankruptcy.⁴

In recent years, this ratio has been slightly above 0.5 for one-year bonds, roughly 0.7 for ten-year securities, and 0.8 for twenty-year securities (Peek and Wilcox, 1986). For one-year bonds, the ratio has been consistent with equation (3). For longer term bonds, the rate ratio is, from (2),

$$\frac{Rm_j}{Rt_j} = \frac{1 - \tau_j + \phi t_j \tau_j}{1 + \phi m_j \tau_j} + \frac{(1 - \tau_g)(Gt - Gm)}{1 + \phi m_j \tau_j}. \quad (4)$$

An important question is whether tax savings from trading are sufficient in magnitude to reconcile observed rate ratios for longer term bonds with Miller's specification of τ_1 at roughly 0.5 under current law. (On

³One could develop, at least intuitively, a noncorporate structure argument analogous to Miller's corporate structure argument. The result would be identification of τ_1 with "the" personal tax rate on debt. If this rate were taken to be the maximum rate under current law and the tax reforms, the analysis that follows in the text would not be significantly altered because the corporate and maximum personal rates are roughly equal now and would continue to be under all reforms.

⁴Buser and Hess (1985) find the corporate bond risk spread, a proxy for the expected probability of default, to be the major determinant of variation in the one-year rate ratio over the 1967-82 period.

average, the second term in (3) is small and thus can be ignored.)

Constantinides and Ingersoll calculate ϕ_{tj} for ten-year securities to be about 0.5, assuming no transaction costs. With $\tau_j = 0.5$, the first term in (1') becomes $0.75/1.25 = 0.6$, assuming ϕ_{mj} is also 0.5. Taking transaction costs into account would lower the ϕ 's, especially that for municipal securities. Constantinides and Ingersoll compute a 20 percent reduction in the value of trading ten-year Treasuries if transaction costs equal $\frac{1}{2}$ percentage point and roughly twice this reduction if costs are a full percentage point. Because quoted bid/ask spreads on Treasury securities are only a quarter percentage point, transaction costs are relatively unimportant for long-term Treasuries. In contrast, quoted bid-ask spreads are 3 to 4 percentage points for municipal securities and would greatly reduce the gains from trading them. With $\phi_{tj} = 0.45$ for Treasuries and $\phi_{mj} = 0.1$ for municipals, the first term in (1') becomes 0.7.⁵ Thus, the observed increase in the tax-exempt/taxable rate ratio as maturity increases can be explained without varying τ_j across maturities.

Tax Reform and the Ratio of Exempt to Taxable Coupons. The first two columns of table 1 list the corporate tax rate and the personal tax rate on equity under current law and the reforms. All the reforms would significantly lower the corporate rate and thus raise the ratio of tax-exempt to taxable coupons. Moreover, under the original Treasury plan, only the real component of interest would be deductible. More specifically, only β of nominal interest would be deductible, where $\beta = .06/(.06 + \pi)$ and π is the inflation rate. At a 5 percent inflation rate, the tax saving from a dollar of interest would be only 19 cents— $0.35(6/11)$. Because the tax rate at which corporate interest expense is deductible is relevant to the determination of τ_1 , Treasury I would surely increase the interest-rate ratio more than the other three reforms.

The equations used to project the rate ratios for one- and ten-year securities under current law and all reforms are:

$$R_{m1}/R_{t1} = 1 - \tau_1$$

$$R_{m10}/R_{t10} = \frac{1 - \tau_1 + 0.45\tau_{1t}}{1 + 0.1\tau_{1t}}.$$

⁵The above analysis assumes that municipal and Treasury securities are equal in all respects other than federal taxation of their coupon income. In fact, coupons on municipal securities must contain a premium to compensate investors for expected shortfalls in realized yields relative to promised yields owing to default and/or early call, and the expected shortfalls on high-quality securities tend to increase with maturity (they approximate zero on one-year securities). Further, the longer the maturity of munis, the more high tax bracket investors must be compensated for the possibility of their unexpectedly becoming lower tax bracket investors (and having to pay large transaction costs to convert to taxable securities) or of the value of municipals' tax-exempt status declining. These factors would raise longer-term exempt coupons relative to longer-term taxable coupons.

where $\tau_1 = 1 - (1 - \beta\tau_c)(1 - \tau_e)$ and $\beta = 1.0$ except in the original Treasury plan. The tax rate upon which trading gains are based (τ_{1t}) is specified similarly, but with $\beta = 1$ even under Treasury I. The calculated rate ratios for one- and ten-year maturities are listed in the fourth and fifth columns of table 1. The ratios rise under all reforms, especially the original Treasury plan.

The final task is determination of the magnitude of the downward shift in the domestic supply schedule drawn in figure 3. This magnitude

Table 1
Tax-Exempt and Taxable Coupon Rates Under Various Tax Regimes

Tax Regime	Corporate Tax Rate		Exempt/Taxable Rate Ratio		Taxable Rate That Maintains Exempt Rate	
	Tax Rate	on Equity ^a	1-Year	10-Year	1-Year	10-Year
Current	.46	.0742	.500	.690	.11	.11
Bradley-Gephart	.30	.0940	.634	.770	.0868	.0986
Kemp-Kasten	.35	.0555	.614	.758	.0896	.1001
Treasury I	.33	.1128	.728 ^b	.875 ^b	.0756	.0867
Treasury II	.33	.0667	.625	.765	.0880	.0992

^a From Hendershott, 1985, table 6.

^b Assumes an inflation rate of 5 percent. The ratio varies positively with the inflation rate because the portion of interest that is taxed varies negatively with the inflation rate.

is computed as the difference between the current assumed level of taxable rates, 0.11, and the average of the levels of taxable interest rates at which savers would earn the same returns on one- and ten-year tax-exempts under the various reforms that they earn under current law. These levels are calculated from

$$Rt^r = Rt^c \left(\frac{Rm}{Rt} \right)^c / \left(\frac{Rm}{Rt} \right)^r,$$

where the r and c superscripts, respectively, denote values under a reform and current law and are listed in columns six and seven of table 1.⁶ The differences between 0.11 and the average of these levels are substantial: nearly 3 percentage points for Treasury I and about 1½ points for the other three reforms.

Tax Reform and the Demand for Real Capital

I now turn to the demand side. The question investigated is: how far would interest rates have to fall in response to the different reforms to maintain aggregate investment at current levels (how far would the

⁶The precision of the interest rates reported (basis points) in this and other tables reflects the exactitude of the computer, not the confidence of the author.

demand schedule in figure 3 shift downward)? The starting point is a detailed listing in table 2 of the reform provisions pertinent to investment.

All reforms lower the maximum corporate and personal tax rates and eliminate the investment tax credit. Proposed capital gains taxation and tax depreciation changes vary widely, however. Bradley-Gephardt treats these items less favorably than current law: capital gains would be taxed at the regular income tax rate which translates into a 30 percent rate vis-à-vis the current 20 percent, and tax depreciation lives would be lengthened significantly, 40 years for structures rather than the current 18, and 10 years for equipment rather than the current 5. Even with greater acceleration (250 percent DB versus 175 percent DB), first-year tax deductions for structures would decline from 10 percent to 6 percent and for equipment the decline would be from 30 to 25 percent. Kemp-Kasten would treat capital gains and tax depreciation far more generously than either current law or the other proposals. On capital gains, a choice would exist between having nominal gains taxed at 60 percent of the lowered regular rate or having only real gains taxed at regular rates. Moreover, property investments could be effectively written off entirely in the year of purchase. Nonfinancial neutrality would then exist for depreciable properties because net (of depreciation) investment hurdle rates would equal the weighted average cost of capital for all such assets [with $k = 0$ and $z = 1$ in equation (1), $c = r + d$].

Treasury I attempts to neutralize the tax system for inflation by indexing everything. Only real capital gains, including those on inventories, would be taxed; depreciation would be on a replacement, rather than historic, cost basis; and only the real part of interest expense would be taxed and could be deducted (nominal home mortgage interest being the exception). Treasury I also attempts to tax all assets and business forms (except owner-occupied housing) equally. To this end, tax depreciation for each depreciable asset would equal the Treasury's best estimate of true economic depreciation; the investment tax credit for equipment and public utility structures would be dropped; real capital gains would be taxed at the regular income tax rate; and half of corporate dividends would be deductible at the corporate level. The indexation of inventory gains, elimination of the tax credit, and the proposed tax depreciation treatment would result in all net investment hurdle rates, except that for owner-occupied housing, equaling the cost of capital divided by 1 less the relevant tax rate [with $k = 0$ and $z = d/(r + d)$ in equation (1), $c = r/(1 - \tau) + d$]. The partial dividend exclusion would reduce discrepancies between the cost of capital for corporate and noncorporate investments.

Treasury II retreats from these principles in significant respects: all interest would continue to be deductible; investors in nondepreciable assets would have the option of paying taxes on nominal capital gains at

Table 2
Important Tax Parameters for Business Investment

	Current Law	Bradley-Gephardt	Kemp-Kasten	Treasury I	Treasury II
Maximum Tax Rates ^a					
Corporate	.4924	.342	.389	.37	.37
Personal	.53	.342	.30	.41	.41
Investment Tax Credit	yes	no	no	no	no
Capital Gains	Nominal Gains at 40% of regular rate	Nominal gains at regular rate	Nominal gains at 60% of regular rate or real gains at regular rate	Real gains at regular rate	Nominal gains at 50% of regular rate or real gains at regular rate
Depreciation Tax Deductions ^b	175%/150% DB or SL over 18/5 years	250% DB over 40/10 years	Near Expensing ^c	3% per year, SL, indexed	DB/SL over 28/6.5 years indexed
First year:					
Structures	10%	6%	6%	3%	4%
Equipment	30%	25%	20%	18%	27%
Interest Indexation	no	no	no	yes	no
Partial Dividend Exclusion	no	no	no	yes (50%)	yes (10%)

^a These assume a 6 percent state and local tax rate, deductible at the personal level except under the Treasury plans.

^b All tax reforms have multiple maturity equipment classes. The first (full) year's depreciation rates are for an "average" piece of equipment and for a current 18-year structure.

^c More than 100 percent, indexed for inflation, of the original value is written off at straight line rate over 25 years. With a low 3½ percent real discount rate, this is equivalent to expensing.

one-half of the regular income tax rate; tax depreciation would exceed economic depreciation; and only one-tenth of dividends would be deductible. Tax depreciation would be especially generous for equipment that continues to be classified as three- or five-year and for public utility structures; allowable depreciation would exceed that under current law even at zero inflation. However, much five-year equipment would be reclassified as longer lived. For industrial structures, tax depreciation

Table 3
Interest Rate Levels Necessary to Maintain Investment in Different Assets
Assuming Passage of Different Reform Plans (pre-passage level of interest
rates = 11%)

	Bradley- Gephardt	Kemp- Kasten	Treasury I	Treasury II
Corporate				
Inventories	10.4	11.1	9.9	12.7
Equipment	5.9	9.0	5.1	7.8
Industrial Structures	10.4	12.9	8.2	11.2
Utility Structures	8.5	11.1	7.1	11.1
Noncorporate				
Inventories	11.0	11.6	10.5	12.9
Equipment	6.2	8.8	5.3	7.7
Depreciable Real Estate	9.6	11.5	7.8	10.06
Owner-Occupied Housing ^a	9.5	10.9	9.7	10.0
Model Simulation	9.11	11.06	8.00	10.12

^aThis is a weighted average for households with incomes of \$17,500, \$27,500, \$40,000, \$70,000 and \$130,000, where the weights are 0.12, 0.10, 0.31, 0.30, and 0.17.

would be more favorable only at inflation rates of 6 percent or greater.

To get a rough fix on how much the reforms would tend to lower interest rates through their negative impact on the demand for capital, I have calculated how the interest rate would have to change for investment hurdle rates, and thus the level of investment in each asset category, to remain constant.⁷ The results are listed in table 3. An interest rate below 11 percent means that the reform is negative for that asset category *if interest rates don't change*; a rate above 11 percent means the opposite.

All assets except noncorporate inventories receive less favorable treatment under Bradley-Gephardt, with equipment suffering the most, followed by utilities (both lose the investment tax credit). This is not the

⁷This is an application of the methodology used by Feldstein and Summers (1978) in their calculation of the maximum potential interest rate for all corporate investments. Modeling of the reforms is fully described in Hendershott (1985).

case with Kemp-Kasten. While equipment is hit (much less than under Bradley-Gephardt), structures are favored. The pattern of interest rates implied by Treasury I looks much like that of Bradley-Gephardt, but the levels are even lower (except for owner-occupied housing). Treasury II gives back much that Treasury I took away. Depreciation allowances are more generous than current law for equipment and utilities to offset partially the removal of the investment tax credit, and deletion of the

Table 4
Interest Rates Under Alternative Tax Regimes (Percent)

	Taxable Rate Implied by Fixed Capital Stock Model	Taxable Rate That Would Maintain Average Exempt Rates	Best Estimate of 10-Year Taxable Rate	Best Estimates of Tax-Exempt Rates	
				1-Year	10-Year
Current Law			11	5.5	7.7
Bradley-Gephardt	9.11	9.27	9.25 to 9.75	6.0	7.3
Kemp-Kasten	11.06	9.49	10.25 to 10.75	6.4	7.7
Treasury I	8.00	8.11	8 to 9	6.2	7.4
Treasury II	10.12	9.36	9.75 to 10.25	6.2	7.6

interest-indexation provision vastly dampens the negative effect of Treasury I on highly leveraged depreciable real estate.

To determine the single interest rate that would maintain investment in the aggregate, a simulation model was constructed (Hendershott, 1985). The model contains seven types of nonresidential capital, rental housing and owner-occupied housing. Households in six income classes with endogenous tenure choices are considered. The model allocates a given capital stock among the various capital components based upon the investment hurdle rates for the capital components, the price elasticities of demand with respect to the hurdle rates, and the elasticities of homeownership with respect to the cost of owning versus renting. The interest rate adjusts in response to tax changes so as to maintain the aggregate demand for capital at its initial level. As can be seen in the bottom row of table 3, the rate declines are roughly 3 percentage points with Treasury I, 2 points with Bradley-Gephardt, 1 point with Treasury II and no decline with Kemp-Kasten.

Reform-Induced Changes in Interest Rates

The first two columns of table 4 reproduce, for each reform, the interest rates provided by simulations of the capital allocation model and by calculations of the taxable rates that would freeze average tax-exempt coupons at their prereform level. As can be seen, the interest rates produced by the two methods differ by less than a quarter point for Bradley-

Gephardt and Treasury I and only about three-quarters of a point for Treasury II. These calculations indicate that the demand and domestic supply schedules in figure 3 would drop about equally except in the Kemp-Kasten case. With Kemp-Kasten, the demand for capital does not decline, owing to the provision of substantial investment incentives. However, marginal tax rates fall significantly, so the supply schedule shifts downward.

The third column is my best estimate of the impact of the various reforms on the level of taxable interest rates. The low end of the range is roughly an average of the first two columns; the high end allows for an offsetting influence of declines in net foreign saving. The rate declines (mid-point) range from $\frac{1}{2}$ percentage point with Kemp-Kasten to $2\frac{1}{2}$ points with Treasury I. The fourth and fifth columns contain my best estimate of the impacts on one- and ten-year tax-exempt coupons. These are obtained as the product of the taxable rate in column 3 and the rate ratio listed in table 1.⁸ Under Kemp-Kasten, short-term exempt rates are expected to rise by about a percentage point and long rates are unchanged. Under the other reforms, the increase in short-term rates is only one-half percentage point, and long-term rates decline slightly.

Financial Flows

The structure of financial flows would be altered by tax reforms in three ways. First, the composition of the underlying real capital stock and net investment flows could be changed; types of security issues that tend to mirror specific investment outlays would be affected correspondingly. Second, basic financing patterns could be reshaped, owing either to tax-reform induced desired changes or to prohibitions against financing investment in specific ways (most notably by tax-exempt issues). Third, to the extent that the various reforms would improve or reduce the competitive position of particular institutions, the level and form of financial intermediation would be affected. Treasury I would have far and away the greatest impact on financial flows of the four reforms, largely because of its interest indexation provision. Recognizing this, the discussion treats Treasury I separately from the other reforms.

Treasury I

Table 5 contains simulated estimates of the impacts of the four reforms on the distribution of the capital stock among owner-occupied

⁸The Kemp-Kasten calculation is based upon a rate ratio of 0.730 which would exist if the corporate tax rate were 0.4. The corporate rate is raised from 0.35 because higher tax rates would be necessary to render Kemp-Kasten revenue neutral.

housing, depreciable real estate (residential and commercial), and other structures (industrial and utility) and equipment.⁹ As can be seen, Treasury I would have an enormous impact on this distribution. Owner-

Table 5
Impacts of Reforms on the Distribution of the American Capital Stock
(Percentage change)

	Treasury I	Bradley-Gephardt	Treasury II	Kemp-Kasten
Owner-Occupied Housing	28	4	-3	-4
Depreciable Real Estate	-21	4	6	7
Equipment and Other Structures	-10	-5	-2	-1

occupied housing, fueled by a 15 percent increase in the homeownership rate (8 percentage points), would increase by 28 percent; depreciable real estate would decline by 21 percent (most being due to the decline in renting); and equipment and corporate structures would fall by 10 percent. This startling impact follows from the indexation of interest income and expense, except for home mortgage deductions. In a world of 5 percent inflation, the indexation would lead to a sharp reduction in interest rates. That home mortgage interest would still be fully deductible would trigger a marked shift toward homeownership and a general increase in the demand for housing services by owners.

The real-capital shifts of Treasury I imply a sharp increase in home mortgage issues and declines in other mortgage and bond issues and in business loans. The impact of these real-capital shifts would be reinforced by changes in household and corporate loan-to-value ratios. Households would have a strong incentive to arbitrage the differential indexation—to borrow more fully-deductible mortgage funds than they would under current law and invest the overage in partially-taxed debt assets. In contrast, corporate loan-to-value ratios should decline in response to the reduction in the tax advantages of debt caused by both interest indexation and the deductibility of half of corporate dividends. Issues of home mortgages would be further stimulated by the restriction against issues of single-family tax-exempt mortgage revenue bonds, which averaged \$10 billion in 1982 and 1983.¹⁰ With a 28 percent increase

⁹These data are long-run calculations assuming infinite price elasticities of factor supplies. In the short run, asset prices will be bid up or down, thereby inducing the necessary factor and real capital shifts. (Greater detail by asset category is contained in Hendershott, 1985.)

¹⁰The data in this paragraph and the next are from *The President's Tax Proposals to the Congress for Fairness, Growth and Simplicity*, 1985, Table 11.01-1, p. 284.

in owner-occupied housing flows and a 30 percent increase in the loan-to-value ratio, home mortgage issues would be two-thirds greater in the new "steady-state" than under current law. During the transition to this state, issues would more than double.

The percentage reduction in issues of other mortgages, taxable bonds and business loans would be less than the percentage increase in home mortgages because the decline in the underlying real capital is expected to be smaller and because restrictions on tax-exempt financing of these activities would significantly increase taxable issues. Tax-exempt multifamily rental housing bonds, private nonprofit hospital and education bonds, student loan bonds and industrial development bonds aggregated over \$40 billion in 1983. This was fully one-third of taxable business net debt issues in 1983 (only about one-sixth in 1984). As a result, declines in taxable issues in the steady state of only 10 to 20 percent should be expected. In contrast, long-term tax-exempt issues would likely be halved; the nongovernmental tax-exempt bond issues that the reform proposal would sharply curtail constituted 61 percent of 1983 long-term tax-exempt issues.

Treasury *Y*'s interest indexation feature would also have a notable impact on financial intermediation. A single example serves to illustrate the point. Consider a depository intermediary that invests solely in taxable instruments earning i (net of expected issues) and finances γ of this with deposits paying d and the remaining $1 - \gamma$ with equity. The after-tax income per dollar of assets is

$$\text{After-Tax Income} = (1 - \beta\tau)i - (1 - \beta\tau)\gamma d - (1 - \tau)o,$$

where τ is the relevant marginal tax rate, β is the fraction of interest taxed and deducted (currently $\beta = 1$), and o is the ratio of "net other expenses" to assets. Let $i = 0.12$, $d = 0.10$, $o = 0.02$, $\tau = 0.3$, and $\gamma = 0.95$, numbers roughly consistent with current data. Then

$$\text{After-Tax Income} = .7(.12 - .095 - .02) = .0035.$$

With indexation and an inflation rate of 0.05, $\beta = 0.545$ and

$$\text{After-Tax Income} = .82(.12 - .095) - .7(.02) = .0069.$$

Under these circumstances, the intermediary's profit rate would double. The increase in profitability would lead to relatively higher deposit (and lower loan) rates and greater financial intermediation.¹¹

¹¹Insurance companies would benefit even more than depository institutions from indexation because they have far more interest income than interest expense. However, other provisions of the Treasury proposals would tax these companies more heavily.

The Other Reforms

I turn now to the other three reforms, looking first at the data in table 5 on the real capital stock effects. Bradley-Gephardt would generally be favorable for real estate and unfavorable for other forms of capital. This follows directly from the removal of the investment tax credit for equipment and utility structures. Kemp-Kasten and Treasury II would have nearly identical effects at this level of aggregation. Because these plans partially offset the removal of the ITC with more favorable depreciation allowances, the negative impact on assets other than real estate is negligible. The declines in owner-occupied housing reflect a 5 percent decrease in the homeownership rate.

All three reform proposals include the same general restrictions on tax-exempt financing as Treasury I; thus net tax-exempt issues would be roughly halved. Multifamily and commercial mortgage issues would tend to increase under all three reforms, due to both the increase in real capital and the shift from tax-exempt to taxable financing.

The restriction on issues of tax-exempt single-family housing bonds would increase regular home mortgage issues, roughly offsetting the declines under Kemp-Kasten and Treasury II caused by slight decreases in owner-occupied housing. Home mortgage issues would tend to rise under Bradley-Gephardt due to both the increase in housing and the shift out of the tax-exempt market. Nevertheless, a decline in home issues should be anticipated. Like the Treasury plans, Bradley-Gephardt has three personal tax brackets, 0.14, 0.26 (income above \$40,000), and 0.30 (income above \$65,000). While interest earned by high-income households would be taxed at the higher marginal rates, mortgage interest expense would be deductible at only the base 0.14 rate. This should stimulate considerably greater owner-equity financing of owner-occupied housing, which would tend to reduce the demand for deposits as well as the supply of mortgage securities.

Tax Reform and Stock Prices

Equities are largely claims on real capital or, more precisely, the net cash flows generated by the capital for the shareholders, and the market value of equities should equal the risk-adjusted present value of these cash flows (Downs, 1985). To determine the impact of tax changes, then, requires analysis of how the changes would be expected to alter both expected net corporate cash flows and the rate at which they are discounted to obtain market values. A first step in this analysis is specification of the expected cash flows and market valuation under current law. The second step deals with the reforms. The analysis is for nonfinancial corporations only; the methodology employed is not readily applicable

to financial corporations.

The analysis computes "cash-out intrinsic values" (Brainard, Shoven and Weiss, 1980). That is, tax reforms are presumed to affect the value of the returns on existing capital only. To the extent that future investments are expected to earn economic rents (investments in the past 15 years do not appear to have earned any), the corporate tax rate cuts in all reform proposals would increase the expected after-tax rents and thus stock prices. Also, the calculations do not allow for an increase in the value of land, although the possibility of such increases is discussed briefly. The projected stock market increases, then, might be interpreted as conservative estimates.

The Value of Shareholders' Claims to Existing Capital

Under current law the after-tax cash flows in period t from each component (equipment and structures) of the existing fixed capital can be written as

$$CF_t = (1 - \tau) NOI_t + \tau TAXD_t - (1 - \tau) INT_t + \Delta DEBT_t, \quad (5)$$

where NOI is net operating income, INT is interest paid, $TAXD$ is allowable tax depreciation, and $\Delta DEBT$ is the change in outstanding debt financing fixed capital. If firms finance a constant fraction, b , of the market value of their fixed capital with debt at rate i , then

$$(1 - \tau) INT_t = (1 - \tau) ibq_t K_{t-1} \text{ and} \quad (5a)$$

$$\Delta DEBT_t = b\Delta (q_t K_{t-1}), \quad (5b)$$

where q_t is the ratio of the market value to replacement cost of the existing fixed capital stock and K_t is that replacement cost.

To understand better what is involved in projecting CF_t , it is useful to express both the tax depreciation term and K_t in terms of the current nominal fixed capital stock, K_0 :

$$\tau TAXD_t = \tau \theta_t K_0 \text{ and} \quad (5c)$$

$$K_t = \phi_t (1 + \pi)^t K_0, \quad (5d)$$

where π is the expected inflation rate. The θ_t are based upon tax depreciation schedules and decline monotonically; if K_0 consisted entirely of newly-placed, undepreciated capital, $\sum \theta_t = 1.0$. [Because the depreciable base is not indexed under current law, there is no inflation adjustment in (5c).] The ϕ_t measure the portion of the fixed capital stock existing when the reform passes that is projected to still exist t periods later. Thus the

ϕ_t decline monotonically from $\phi_0 = 1.0$ to $\phi_N = 0.0$, where N is the remaining service life of the "longest lasting" component of capital in K_0 . Estimates of the θ_t and ϕ_t depend on the precise history of K_0 : when it was put in place, its original service life, and what depreciation method was chosen.

The NOIs are also obviously related to the underlying fixed capital stock. I express this relation as

$$NOI_t = \rho_t^* K_{t-1} \tag{5e}$$

If technology were putty-putty and there were no costs to adjusting the capital stock, ρ_t^* would equal ρ_t , the current rental prices for equipment/structures (plus, possibly, a little extra for economic rents). With putty-clay technology and adjustment costs, ρ_t^* is a weighted average of past rental prices where the weights depend on the portion of the current capital stock put into place in past periods. In the simulations, the NOIs stemming from equipment and structures under current law are obtained by setting ρ_t^* equal to ρ_t . This procedure, I show below, does not lead to implausible current valuation. The impact of the tax reform is computed two ways: with ρ unchanged and with ρ shifted to the value generated by the tax reform. Because the "correct" measure for stock market valuation should lie in between these values, the estimated impact of the reform on valuation should be bounded.

The present value of the cash flows (going to equity holders) produced by each component of the existing fixed capital stock is:

$$PV_0 = \sum_{t=1}^N \frac{CF_t}{(1+e)^t} \tag{6}$$

where e is the nominal after-tax required return on corporate equity. As noted above, the q_t s used to compute the CF_t s are defined as MV_t/K_t . The market value of the capital stock (value of the debt and equity) is the discounted value of the nondebt cash flows:

$$MV_t = \sum_{j=t+1}^N \frac{(1-\tau) NOI_j + \tau TAXD_j}{(1+r)^{t-j}}$$

where the discount rate is the weighted average cost of capital, $(1-\tau)v_i + (1-v)e$. If $q=1$, then $MV_t = PV_t + DEBT_t$.

A portfolio equilibrium condition can be used to relate e to the interest rate, the expected inflation rate, and personal tax parameters. With the real and inflationary equity returns to shareholders taxed at rates τ_{er} and τ_g , respectively, the after-tax returns to shareholders can be

Table 6
Parameter Values for Stock Market Calculations

	Current Law	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten
Fraction of Interest Deductible (β)	1.0	0.545 ^a	1.0	1.0	1.0
Fraction of Dividends Deductible (γ)	0.0	0.5	0.1	0.0	0.0
Profits Tax Rate (τ) ^b	0.4924	0.37	0.37	0.342	0.389
Interest Rate (i)	0.11	0.085	0.10	0.095	0.105
Equity Rate (e)	0.1687	0.1704	0.1649	0.1685	0.1662
Hurdle Rate for Equipment (ρ_E) ^c	0.2260	0.2733	0.2468	0.2621	0.2424
Hurdle Rate for Structures (ρ_S) ^c	0.1542	0.1586	0.1405	0.1440	0.1302

^a Assumes a 5 percent inflation rate.

^b Incorporates a 6 percent state and local tax rate deductible at the federal level.

^c These data are computed in Hendershott (1985).

written as

$$(1 - \tau_{er}) (e - \pi) + (1 - \tau_g) \pi = R_m + \delta_e, \quad (7)$$

where R_m is the yield on risk-free tax-exempt securities and δ_e is the risk premium required on investment in corporate equity. Historically, firms have paid a constant share, p , of real earnings out as dividends (Auerbach, 1982). Thus we write

$$\tau_{er} = p\tau_{div} + (1 - p) \tau_{cg},$$

where τ_{div} is the tax rate on dividends and τ_{cg} is the tax rate applicable to real increases in share prices and equals τ_g under current law. In general, I assume $p = 0.4$, $\delta_e = 0.075$, $\tau_{div} = \tau_{imax}/2$ and $\tau_{cg} = (1 - \text{excl})\tau_{imax}/4$, where τ_{imax} is the maximum personal tax rate on interest income, excl is the capital gains exclusion, and the divisions by 2 and 4 reflect tax deferral and avoidance activity.

Table 6 represents the values assumed for key parameters under current law and under the tax reform proposals. Two parameters do not vary across the reforms: the loan-to-value ratio of 0.33 and the inflation rate of 0.05. With these parameters and the other assumptions, the computed value of the equity holders' claim on the existing fixed capital stock is \$899 billion. This number is not far from the rough market value estimate implicit in the Board of Governors' balance sheet accounts (1985). The market value of fixed capital equals the market value of

equity plus debt less the market value of assets other than fixed capital.¹² The market value of nonfinancial corporate equity at the end of 1984 was \$1639 billion, and the market values of inventories and land were \$754 and \$577 billion, respectively. Under the assumption that the market values of debt and financial assets equalled their book values, the market value of the fixed capital stock was \$962 billion.

Tax Reform and the Value of Shares

Tax reform could affect share values by fostering economic growth, opening new, highly profitable investment opportunities. Such effects are highly uncertain, however, and our analysis does not attempt to quantify them. Rather, we limit ourselves to deducing the impact of tax reform on the value of flows stemming from the existing fixed capital stock. The market values of land and inventories are presumed to be unaffected by the reforms.

To account fully for the reforms, a model must incorporate all their provisions. The initial Treasury plan proposed indexation of interest expense—only β of expense could be deducted, where β is negatively related to the inflation rate—and deductibility of γ of dividend payments, DIV_t . Treasury II continued the dividend deduction, although at a lower rate, dropped interest indexation, and added a recapture provision.

To account for the indexation of interest under Treasury I, the $1 - \tau$ multiplying the INT variable is changed to $1 - \beta\tau$. To incorporate the partial dividend exclusion (the deductibility of γ of dividends), the cash flows in (6) are multiplied by $1 + \tau\gamma$, where $\tau\gamma$ is the tax saving from the exclusion per dollar of cash flow to be paid out as dividends.¹³ To allow for a possible recapture provision, equation (6) is rewritten as

$$PV_0 = \sum \frac{(1 + \tau\gamma) CF_t}{(1 + e)^t} - PVRECAP, \quad (6')$$

where the last term is the present value of this provision.¹⁴ In this framework, the tax reforms affect the market value of equities by changing the corporate tax rate, τ , by introducing interest indexation ($\beta < 1$) and/or a

¹²This presumes zero off-balance-sheet assets (goodwill) and liabilities (unfunded pensions). Empirically, these can be nonzero but must be equal.

¹³While some of the increase in cash flows may be retained and reinvested, the present value of the cash flows will be unaffected if the new investment earns the discount rate, e .

¹⁴This provision puts 40 percent of the excess depreciation (tax depreciation less the straight line number reported in earnings and profit statements) taken in the 1980–84 period into taxable income in 1986–88 (12 percent each in 1986 and 1987 and 16 percent in 1988).

Table 7
Impact of Tax Reforms on Share Values (Percent)

	All Reform Provisions	Without Dividend Exclusion and Recapture
Bradley-Gephardt	10-13	
Kemp-Kasten	4-7	
Treasury I	20-30	8-16
Treasury II	9-10	9

partial dividend exclusion ($\gamma > 0$), by changing personal tax rates (τ_e), through "general equilibrium channels" (i , e , and ρ^*), and by special features such as the recapture provision of Treasury II.

The percentage changes in the market value of corporate equities due to reforms are listed in table 7. The changes are the sum of the impacts of the reforms on the equipment and structure PVs, divided by the \$1639 billion year-end 1984 market value of nonfinancial corporations reported by the Federal Reserve Board. Upper and lower estimates of share-price percentage changes develop from alternative assumptions about effects of the reforms on net operating incomes. Because the investment hurdle rates for plant and equipment are not altered by Treasury II (or, more correctly, the increase for equipment is offset by the decrease from structures), both assumptions generate the same estimate. For Bradley-Gephardt and Treasury I, the upper estimate reflects an increase in the NOIs based on the increase in hurdle rates; for Kemp-Kasten, the lower estimate reflects a decrease in the NOIs owing to a decline in hurdle rates. An additional set of estimates is developed for the Treasury plans to measure the effect of including or excluding the dividend exclusion (and the recapture provision for Treasury II) in the reform plans.

Because all reforms reduce the taxation on existing capital, all would increase stock values. The implied increases are about 10 percent for Bradley-Gephardt and Treasury II, only 5 percent for Kemp-Kasten, and a much larger 20 to 30 percent increase for Treasury I.¹⁵ About half of the latter comes from the 50 percent dividend exclusion; without the exclusion, the impact of Treasury I would not differ much from those of Treasury II and Bradley-Gephardt. For Treasury II, the small dividend exclusion would raise share values by roughly 3 percent, and the recapture provision would lower them by slightly less.

¹⁵These results assume that corporations receive full benefit of the decline in interest rates (all debt is short-term or can be costlessly refinanced). In the case of constant NOIs, the after-tax interest saving increases share values by over a percentage point only under Bradley-Gephardt (1½ points) and Treasury I (4 points).

The data in table 7 presume no impact of tax reform on land values. The reforms could raise land values significantly, however. Assume, along the lines of Feldstein (1980), that the net-of-tax return on land equals the real tax-exempt yield plus a risk premium:

$$\frac{(1 - \tau_L)F_L}{P_L} - \tau_g \pi = R_m - \pi + \delta_L,$$

where F_L is the marginal product of a unit of land, τ_L is the effective tax rate on real returns to land, P_L is the real price of land and δ_L is the required risk premium on land. If the tax-exempt rate is not changed by the tax reform (an assumption supported for all reforms except Kemp-Kasten by the analysis in Section I), the productivity of capital is unchanged, and minor changes in τ_g are ignored, then the percentage change in the real price of land is $\Delta\tau_L/(1 - \tau_L)$. If real returns on land were taxed at the full corporate rate, land values would rise by roughly 25 percent, and corporate equities would rise in value by an additional 9 percent because corporate land is currently valued at 35 percent of corporate equity.

Summary

Interest rates are determined by the supply of and demand for funds to finance real capital. Tax reforms such as cuts in marginal corporate and personal tax rates and interest indexation lower interest rates by shifting both the supply and demand curves downward. Reductions in "pure" investment incentives—in investment tax credits and the generosity of tax depreciation allowances—lower the demand curve only. The precise decline in interest rates depends on the magnitude of these curve shifts and of the interest-rate elasticities of investment demand, domestic saving, and net foreign saving.

Shifts in the domestic-supply and demand schedules are calculated for four tax reforms: Bradley-Gephardt, Kemp-Kasten, Treasury I and Treasury II. On the supply side, the downward shifts are estimated to be roughly 3 percentage points for Treasury I and about 1½ percentage points for the other three reforms. On the demand side, the downward shifts are roughly three points again for Treasury I, two points for Bradley-Gephardt, one point for Treasury II and no decline at all for Kemp-Kasten. The larger shifts for Treasury I are attributable to its interest indexation feature. The smaller demand shifts for Treasury II and Kemp-Kasten (no shift at all) are the result of the more generous tax depreciation allowances, especially under Kemp-Kasten, than exist under current law. Taking into account the shifts of both curves and allowing

for a dampening effect of net foreign saving, the rate declines from the four plans are roughly 2½ percentage points for Treasury I, 1½ percentage points for Bradley-Gephardt, 1 point for Treasury II and ½ point for Kemp-Kasten. Interest rates will decline with tax reform, but how much depends on how the reform is structured.

Financial flows will be altered by tax reforms to the extent that: (1) the composition of investment, especially between owner-occupied housing, depreciable real estate and other assets, is altered; (2) desired loan-to-value ratios are changed; and (3) particular types of issues are specifically limited by the reforms. All reforms would sharply restrict issues of tax-exempts for nongovernmental uses, issues which have constituted 60 percent of total long-term exempt issues in recent years. All reforms except Treasury I would also modestly reduce home mortgages, Treasury II and Kemp-Kasten because of a roughly 5 percent reduction in the demand for owner-occupied housing and Bradley-Gephardt because of a decrease in the desired loan-to-value ratio. In contrast, other issues, especially multifamily and commercial mortgages, would increase owing to an increase in depreciable real estate and the restrictions on tax-exempt issues for nongovernmental uses.

Far and away the largest changes in financial flows would occur in response to the interest indexation provision of Treasury I. This provision would sharply lower interest rates and, because home mortgage interest would still be fully deductible, the cost of debt financing for owner-occupied housing. The combination of more of this housing and a higher loan-to-value ratio would substantially increase home mortgage issues. Other taxable issues would fall due both to the reallocation of real capital toward housing and to a decrease in business loan-to-value ratios, owing to the reduced deductibility of interest (and the partial deductibility of dividends for corporations). This decline would, however, be mitigated by the shift from tax-exempt financing for nongovernmental purposes to regular taxable financing. Finally, interest indexation would favor growth of financial intermediaries with the greatest excess of interest income over interest expense.

The cut in the corporate income tax rate would raise the after-tax cash flows stemming from the existing capital stock. This and minor changes in the equity discount factor for these cash flows would raise stock prices by roughly 5 percent under Kemp-Kasten and 10 percent under the other three reforms. The 50 percent dividend exclusion of Treasury I would raise stock prices by about another 15 percent (\$250 billion). The smaller 10 percent dividend exclusion of Treasury II and its recapture provision about offset each other.

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Discussion

*James Tobin**

Patric Hendershott's ambitious and informative paper estimates quantitatively the effects of the several tax reform proposals on interest rates, asset prices, and capital stocks. In terms of Kopcke's dichotomy, the theory underlying Hendershott's calculations is neoclassical rather than "cash flow."

Tax Effects on Capital Demand and Supply Prices

Hendershott seeks first to quantify the shifts in the pre-tax interest rate that would hold constant the stocks of real capital desired by investing households and firms, mainly corporations. These are vertical shifts in stock demand curves. The second blade of his scissors is the savings supply curve. Hendershott estimates the shifts in the interest rate at which savers, owners of wealth, would be willing to hold the capital stocks. Estimates are disaggregated by types of capital: corporate and noncorporate; residential and business; structures (industrial and utility) and equipment; inventories; depreciable real estate; and owner-occupied housing.

These numbers represent impact effects. Hendershott is, in this paper, agnostic about the elasticities of the stock demand and supply schedules. In cases where the computed vertical shifts of the demand and supply curves differ at existing stocks, he does not try to tell us what changes in stocks and interest rates would maintain equality of demand and supply. Nevertheless his results are quite striking. They underscore the qualitative conclusions about the various reforms that have emerged

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in some of the previous discussions.

For the aggregate capital stock, Hendershott concludes that in most of the proposals the vertical downward shifts of demand and supply are not much different from each other, in terms of interest rates. Kemp-Kasten is the exception, providing a slight boost to the stock demand price (interest rate) while lowering the stock supply price. The other reforms lower both demand and supply prices but create little gap between them at the existing stock. Treasury I generates the largest reduction, around 300 basis points, in both demand and supply prices.

Capital Reallocations and Their Welfare Effects

However, Hendershott's calculations indicate striking differences among the proposals in the allocations of capital among different types. Treasury I would drastically increase the share of owner-occupied housing and decrease the shares of depreciable real estate and of business plant and equipment. In previous sessions speakers have noted that Treasury I, by tightening the tax treatment of nonresidential capital while sparing the privileges of owner-occupied homes, would reallocate capital towards residential capital. Hendershott's calculations indicate that this effect is very large.

What are the welfare effects of such reallocations? The status quo and all the proposed reform packages are "second-best" regimes. It is hard, perhaps impossible, to evaluate and rank them. We know, for example, that in the present regime the differences in effective tax rates among types and durabilities of investment are sources of inefficiency, thanks especially to ERTA, TEFRA, et al. Treasury I eliminates most of these. At the same time, Treasury I is likely to limit total accumulation of business capital for many years to come. How do we balance the one effect against the other? Likewise, does the improved efficiency within the business investment sector promised by Treasury I make up for its accentuated misallocation of saving between residential and nonresidential use? Hendershott's methods cannot answer questions like these. Maybe John Shoven's general equilibrium simulations can.

I have little quarrel with Hendershott's methodology as far as it goes. He makes a lot of simplifying assumptions, but he could hardly get numerical estimates otherwise. Tax effects are intrinsically very nonlinear. Hendershott calculates average or aggregate effects by averaging or aggregating all the variables relevant to an individual saver or investor. He gets his economy-wide estimates by entering those numbers in the nonlinear formula appropriate to an individual. For example, his complicated calculation of the effects of cuts in marginal tax rates and other reforms on the difference between tax-exempt and taxable interest

rates assumes that the marginal price-making market participants are the same before and after the reform. Any tax reform would introduce so many different changes in the positions and behaviors of market participants that we cannot have great confidence in such assumptions. But I cannot suggest a better practical procedure.

Tax Rates and Risk-Sharing

A substantial omission from Pat's paper, and from the whole discussion, is any consideration of the effects of the tax reforms on *risks* of capital accumulation, for aggregate capital and its various components. The analyses and calculations proceed wholly in terms of average returns and expected values. Yet reduction in tax rates, corporate and personal, means that the Treasury is assuming less of the risk in the same proportion as it takes a lower share on average. (This reduction in risk-sharing is somewhat mitigated in those proposals where capital gains and losses are subject to the same tax rates as ordinary incomes.) The welfare effects of reallocations of risk-bearing between investors and general taxpayers are as relevant as those of the changes in expected after-tax returns. Hendershott assumes that the structure of after-tax rates of return on tax-exempts, taxable government securities, equities, and other assets will remain the same under the reforms. But in view of the uneven changes in assets' risk characteristics, this does not seem likely.

Incentives with or without Windfalls

In the final section of his paper, Hendershott computes the changes in valuations of existing equities in capital stock that the several reforms would bring. These are dramatic in Treasury I, because it would exempt half of dividend payments from corporate profits tax. There would also be capital gains to holders of long-term bonds with taxable interest, especially in Treasury I but also in the other proposals except for Kemp-Kasten. These are windfalls; they do not add to the incentives to for new investment. The spirit of all the proposals is to accept such windfalls. These proposals make no effort to confine incentives to new investment. In contrast, in 1962 the investment tax credit (ITC) was chosen as the instrument to encourage business capital formation precisely because it affected marginal investment decisions and minimized windfall transfers from the Treasury to holders of existing assets. Even if one were to accept the very different philosophy of today's tax reformers, one could hope they would seek to capture some of these windfalls by a transitional capital gains tax.

Investment Incentives and the Macroeconomic Policy Mix

The ITC is repealed in all the proposals. That fact led me to reflect on why it was introduced in the first place in the early 1960s. Some of its architects and proponents are here today—Dick Musgrave, Joe Pechman, and I. We wanted to boost investment, both to fuel the recovery from the two recessions of 1957–58 and 1960 and to lift the growth rate of potential output. We would have liked to do so by reducing interest rates, but we were constrained not just by congenial central bank conservatism but by the fear of capital outflows and gold losses if U.S. rates were not internationally competitive. The ITC, applying only to domestic investment, was a way out of that box, one that didn't lose many bucks of revenue for its investment bang. We couldn't afford to lose much revenue because balanced budget discipline was strong in those days, in Democratic administrations. Moreover, the economists' original proposal limited the ITC to investment in excess of depreciation claimed on the tax return, and limited deductions for depreciation to the taxpayer's share in ITC-subsidized investment.

The rationale of ERTA in 1981, and the policy mix then advocated by Martin Feldstein, bear some superficial resemblance to the rationale of the ITC in the Kennedy administration. In 1981 high interest rates were justified partially on international grounds; they would buy the United States some disinflation in a floating exchange rate world. They were also justified as a deterrent to residential construction, on the ground that it was excessively favored by the tax law. Business investment would be spared the deterrence of high interest rates by accelerated cost recovery as well as by the ITC. This attempt to redress the imbalance between residential and nonresidential investment was not part of the 1982 program. It turned out that the 1981 policy mix not only penalized housing but also devastated United States foreign investment. And now the Administration proposes to reverse ERTA, and seeks political points for correcting its own mistakes.

The Long-Run National Propensity To Save

In the long run, which Hendershott does not discuss, the capital intensity of the economy will be governed by the nation's propensity to save. I optimistically assume that the Fed will see to it, across cycles and decades, that the real interest rate of the economy balances investment demand and saving supply along a path of real economic growth that maintains unemployment roughly constant on average, though perhaps at a higher rate than I would personally like. This being the case, the effects of tax reforms on capital accumulation will ultimately depend mainly on their effects on the nation's long-run propensity to save, on

the wealth-to-income ratio the nation desires. More precisely, this propensity will determine our accumulation of domestic plus foreign capital—a more important matter than domestic capital alone. A large resident capital stock is not a great blessing if it is mortgaged to the rest of the world at rates equal to its marginal productivity.

What are the long-run effects of the tax reforms on the national propensity to save? They reduce the wedge between the pre-tax marginal productivities of capital, here and overseas, and the after-tax rates received by savers. I am ready to believe this effect is positive, but I don't know by how much. I am sure that demand for wealth is nowhere near infinitely elastic at any after-tax rate of return. Many people have finite horizons, even shorter than their lifetimes, because of liquidity constraints. The interest-elasticity of savings supply is a big issue. The paper at hand understandably gives no answer, and the question has received surprisingly little attention at this conference. In answering it, one would have to consider the negative effects on capital accumulation of the taxes or public debts that replace the revenues lost by reducing taxation of capital incomes.

On this issue, one proposition I am quite confident about is the following: The explosive growth of public debt relative to GNP and national wealth, resulting from the budget policies of the Administration, is a much bigger threat to the national propensity to accumulate productive wealth than can be countered by the proposed reductions in the wedge between pre-tax and after-tax capital incomes. (Incidentally, anyone who believes that private domestic saving is highly elastically available without raising after-tax returns has no reason to worry about "crowding out.")

The Wasted Opportunities

It is most unfortunate that proposals for tax reforms should at this time take the center of the stage away from the need to restore the revenue-raising capabilities of the federal tax system. The reforms are supposedly revenue-neutral, but the chances are that, if any reform at all is enacted, it will be a revenue-loser. When the history of this period is written, I suspect, it will be the verdict that people in Washington, some with the best of intentions and some not, spent their time and energies on the wrong problem.

Moreover, the cause of tax reform may in the end be set back by the whole episode. Opportunities for real tax reform are rare. If they are to be used to best advantage, then the whole web of taxation should be on the table, not just the income taxes to which current reform proposals are confined—for no reason other than lack of time. The agenda should

include taxes on consumption, sales, particular commodities, value added, and inheritances. It should include refundability of credits and exemption values for the poor, cumulative lifetime tax accounts, and other innovations. We would need a bipartisan or nonpartisan blue ribbon commission, like the Canadian Carter commission on taxation or our own Greenspan commission on social security, to study the whole system and prepare the intellectual and political ground for reforms. Instead we had a 10-month internal study by Treasury staff, circumscribed by preemptive mandates that limited the range of alternatives to be considered and ignored the implications of reform proposals for related taxes and transfers. Then the Administration retreated from the staff's proposals in response to lobbying until now, if there is any legislation at all, it will lack any unifying set of principles and objectives. Retreat may well become rout before a bill undeservedly labeled "tax reform" emerges from the Congress. It's a shame.

Discussion

*Barry P. Bosworth**

This very useful paper covers a wide range of issues involved in the taxation of capital income, although there is perhaps not as much as promised in the title about the effects of tax reform on financial institutions. I think the major point of the paper is its emphasis on incorporating induced changes in interest rates into the evaluation of any tax reform proposal that changes both personal and business taxes. The issue is important because most of the current proposals envision a shift in the point of collection of taxes from that at which income is received to the point at which it is earned.

Several previous studies have looked at the overall effect of tax changes on capital income by assuming a constant after-tax rate of return and then adding corporate and personal taxes together to compute the overall tax wedge between the return that investments earn and the return that savers receive. Alternatively, Hendershott undertakes the analysis by considering the demand and supply of capital separately. He finds that, under most of the current proposals, reduced taxation of capital income when it is received by investors (the supply side) would allow the interest rate on taxable assets to decline significantly while maintaining the same after-tax return. On the other hand, increased taxation of capital income at the point where it is earned (the demand side) also shifts the demand curve down—firms would make the same investments only at a lower cost of funds. The result is roughly matching shifts of demand and supply that leave the quantity of capital approximately unchanged, but at lower market interest rates. I have some technical quibbles with the methodology that Hendershott uses, but they

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would not alter his basic conclusions.

I am not sure that the method used by Hendershott is superior to the calculation of the overall tax wedge (effective tax rates), but it does bring out several points not highlighted by the other approach. In particular, he argues that the Treasury I method of inflation indexing would not work for financial institutions; furthermore, the failure to index mortgage interest rates would dramatically increase the opportunities to use mortgages as a means of tax avoidance. Hendershott also lays out an interesting and useful method for evaluating the effect of tax changes on corporate stock values.

There are several additional issues of great interest to financial markets that are not taken up in the paper. First, it is remarkable how times change. Much of the pressure for tax reform in the 1970s resulted from concern about the distorting effects of inflation, interacting with taxes, on capital formation. Yet, most evaluations of alternative proposals today simply ignore the sensitivity of the tax wedge to variations in inflation. Thus, the Treasury I proposal gets very little credit for its approximate neutrality with respect to inflation.

Second, the analysis pays inadequate attention to the importance of debt versus equity financing. Several other authors, particularly Don Fullerton, have emphasized this factor, but nobody has developed a model that incorporates debt financing as an endogenous characteristic of the tax system. The issue is important because far more interest is reported as an expense of business than ever shows up as income earned by investors. The differential treatment of interest expenses and interest income sharply alters earlier arguments by Martin Feldstein and others that inflation increased effective tax rates on capital. Once account is taken of the effects of inflation on interest rates and thus tax deductions, its impact on investment is far more ambiguous and very dependent on the extent to which debt financing is used. For example, I would doubt that even the most standard conclusion that the tax system favors investment in equipment over investment in structures can be shown to be true, given the variety of different financial arrangements that are possible. Structures investments, for example, often carry a much higher level of debt financing, and thus benefit more from the deductibility of interest payments. The issue is also important because at least one of the plans, Treasury I, would dramatically alter the attractiveness of debt versus equity financing.

My concern is that this type of single-case evaluation of the effect of tax reform on capital formation gives an undue impression of precision to the estimates. It also leads to an undue emphasis on the size of the average tax rate, and ignores other factors such as the degree of neutrality of the tax system with respect to: (1) the choice among assets; (2) changes in the rate of inflation; and (3) changes in the method of financing. In addition, there is an interest, particularly at the level of macroeco-

monic policy, in the sensitivity of investment to changes in market interest rates. If the tax system shelters investment from the effects of changes in the cost of funds, the variation in interest rates required to achieve the goals of overall stabilization policy will, under some conditions, be increased.

Finally, I was interested in another issue that is explored in Hendershott's paper, and that is the role of foreign capital flows in any evaluation of tax reform. First, net foreign investment, the current account, should be treated as a form of investment. From a welfare perspective, we should be primarily concerned with national saving, not domestic investment. Given any overall rate of national saving, those resources should be allocated between domestic and foreign investment so as to maximize the rate of return to Americans. If we assume for the moment that national saving is fixed, any increase in the incentives for domestic investment simply increases foreign capital inflows, causes an appreciation of the exchange rate, and leads to a larger current-account deficit. The rise in the exchange rate in turn reduces the attractiveness of domestic versus foreign investment, leading to an automatic offset to the original tax stimulus.

Thus, the critical issue is not the effect on domestic investment, but its impact on domestic saving. From this perspective the results of the last five years are not encouraging to those who believe that a reduction in capital income taxation will sharply raise national saving rates. In the absence of laboratory experiments, we could not have had a better test of that hypothesis than that provided by events of the last five years. Real rates of interest have increased drastically, marginal tax rates are much lower, and financial deregulation made those higher rates of return available to a wider range of savers. Yet, the overall private saving rate did not change. In fact, national saving has fallen dramatically as increased government dissaving has not been offset by behavior in the private sector. It appears that the most effective means of increasing the national saving rate would be to focus on reducing the budget deficit, not on tax reform. However, it may be too early to draw conclusions about the effects on private saving behavior of changes in the rate of return, because of the differential effects on older-age cohorts who have previously accumulated some wealth and younger cohorts who have not.

The degree of openness of the economy is also critical in Hendershott's analysis of the extent to which shifts in the point of collection of capital income taxes will change overall investment incentives. In an open-economy analysis, if other countries treat capital-income recipients in the same way as the United States, a reduction in the U.S. tax on its recipients will not reduce market interest rates; thus, there will not be an interest-rate offset to the increased tax on capital income at the point where it is earned.

The Effect of Tax Simplification on Educational and Charitable Organizations

*Charles T. Clotfelter**

The tax code in the United States historically has provided quite a favorable environment for nonprofit institutions. Not only are such institutions usually exempt from taxation, but contributions made to them are deductible in the individual, corporate, and estate taxes. Other tax provisions, such as the exclusion of scholarships and certain fringe benefits from income, the use of tax-exempt bond financing, and tax credits for research support, have also aided educational and other nonprofit organizations. Although there has been no comprehensive analysis comparing the impact of these various provisions, it is clear that the charitable deductions in federal taxes provide a subsidy for contributions and that private donations constitute a very important source of support for nonprofit institutions. Table 1 shows the relative importance of private donations to the nonprofit sector by type of organization. Educational and research institutions in 1980 received 15.5 percent of their operating revenues from contributions and another 5.5 percent from endowments, most of which were created by private gifts. Religious organizations, with some 90 percent of their revenues from these two sources, were most dependent on private giving; health services, with only about 10 percent, were least dependent by this measure.

Most tax reform and simplification proposals currently being discussed would alter the favorable treatment of charitable contributions and nonprofit institutions. Motivated by dissatisfaction with the complexity and high rates of the present income tax, most proposals would

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Table 1
Receipts of Nonprofit Organizations, by Source, 1980

Type of Organization	Total (Billions)	Percentage Distribution of Receipts by Source				
		Contributions	Dues, fees, charges	Endowments	Other Private	Government
Health Services	\$74.3	8.9	48.7	1.4	6.7	34.3
Education/Research	36.7	15.5	53.0	5.5	9.5	16.4
Religious Organizations	18.0	86.1	—	4.4	9.4	—
Social Services	15.9	30.2	25.2	3.8	6.9	34.0
Civic, Social and Fraternal Organizations	5.5	25.2	27.3	3.6	7.3	36.4
Arts/Culture	5.0	62.0	10.0	2.0	2.0	24.0
Foundations	4.2	19.0	—	81.0	—	—
Legal Services	0.3	33.3	—	—	—	66.7
	\$159.9					

Note: Percentages may not add to 100.0 due to rounding.

Source: Hodgkinson and Weitzman (1984, p. 45).

replace the current system with a structure featuring a broader tax base, fewer deductions, and lower tax rates. However, the same tax rate cuts that promise improved economic incentives and taxpayer compliance would also bring reductions in subsidies for expenditures now favored by the income tax, such as contributions. Owing to the deduction for charitable contributions, the current income tax effectively subsidizes gifts at the rate of a taxpayer's marginal tax rate in much the same way that some of the costs of homeownership and certain other activities are subsidized. Any change in the income tax that includes a reduction in rates of taxation will likewise tend to reduce the rate of subsidy. Any restriction or elimination of the deduction would also cut the subsidy rate. Similar changes in the corporate or estate taxes would have comparable impacts on subsidy rates. While it remains to consider the magnitude of the impact of such changes in subsidy rates, it is certainly clear that tax simplification as currently envisioned could have a marked impact on rates of tax subsidy for charitable giving.

This paper examines the likely impact of tax simplification on educational and other nonprofit institutions eligible to receive tax-deductible contributions. Among the areas of possible impact, private contributions receive most of the attention largely because of their importance as a source of support, but also partly because our understanding of other effects is not well developed. Contributions by individuals are by far the most important form of giving, accounting for over four-fifths of the total,¹ so giving by individuals is dealt with first and at

¹Individuals accounted for about 88 percent of contributions made by corporations, estates and individuals in 1984, according to estimates in American Association of Fund-Raising Counsel (1985, p.7).

greatest length. The first section of the paper discusses the impact that taxes in general have on charitable contributions by individuals. There is a very brief review of previous econometric analyses of charitable giving, followed by a consideration of the impact of the 1981 tax cut. The next section presents simulations showing the likely impacts of several tax proposals on contributions by individuals, based on an econometric model of giving. These simulations suggest that the reduction in subsidy rates implicit in most current tax reform proposals will have a significant impact on the level of individual giving. The following section focuses on one aspect of individual giving that is especially important to educational and cultural institutions: gifts of appreciated property. The paper goes on to consider other likely effects of tax simplification, including the impact on corporate gifts, volunteering, and other aspects of non-profit institutions. There is a brief concluding section.

Tax Policy and Individual Giving

Few would argue that taxes are the most important influence on charitable giving. There is considerable evidence, however, to indicate that taxes can have a significant effect on contributions. Economists identify two separate effects. First, taxes obviously affect after-tax income, and the level of after-tax income is highly correlated with the level of contributions. Other things equal, an increase in an individual's tax liability will tend to depress giving by decreasing net income. Second, taxes affect the net cost per dollar, or price, of giving. If contributions are deductible in calculating taxes, then making a gift reduces tax liability, and the after-tax cost of giving a dollar becomes less than a dollar. For example, a taxpayer in the 35 percent bracket enjoys a tax reduction of 35 cents for each dollar contributed. The net cost is therefore only 65 cents per dollar of contributions.

Econometric analyses indicate that both net income and the net cost per dollar are significant factors in explaining giving patterns of individuals. Specifically, an increase in net income of 10 percent is associated with increases in giving on the order of 7 to 8 percent. A 10 percent increase in the net cost per dollar is usually associated with declines in contributions of more than 10 percent, often between 12 and 13 percent. On the assumption that two hypothetical situations differ only by the prevailing tax regime, the effect of changes in tax law can be simulated

by applying the changes in net income and net cost per dollar implied by each law.²

The income and price elasticities underlying these magnitudes clearly are of critical importance in determining the size of the impact of any change in tax law. When revenue-neutral proposals are compared, the effects of changes in after-tax income among taxpayers tend to cancel out in the aggregate, leaving the price effects as the dominant tax influence on contributions. Accordingly, a great deal of effort has been devoted to econometric estimates of the price elasticity of charitable giving. In assessing the implications of this econometric evidence for tax changes, policy analysts have paid particular attention to the magnitude of this price elasticity and to the possibility that it might vary by income class.³

As a measure of overall price responsiveness, an elasticity on the order of -1.3 seems to be a representative value based on what is now a rather large number of empirical studies. An elasticity on this order is representative of studies that focus on low-income and middle-income households as well as studies focused on the wealthy.⁴ There is, of course, variation among studies in actual point estimates, just as each individual estimate is subject to statistical error. Furthermore, there is considerably more uncertainty concerning the price responsiveness of households at lower income levels than those at middle and upper incomes. If the price elasticity does in fact vary by income, there seems to be more evidence to suggest that the elasticity grows (in absolute value) as income rises, rather than vice versa.⁵ For this reason, the simulations presented below are based on two alternative econometric models, one assuming a constant price elasticity (and income elasticity) and one assuming variable elasticities. In the variable elasticity model, both the income and price elasticities rise in absolute value with income. The price elasticity, for example, is -0.3 for the average taxpayer in the \$5000–\$10,000 class and -2.7 for the average taxpayer with over \$1 million in income.⁶ The basic price elasticity used in the constant elastic-

²Consider a simple constant-elasticity model of giving: $G = AY^aP^bX^ce^v$, where G is contributions, Y is net income, P is the price of giving, X is a set of other factors influencing contributions (such as attitudes, age, family composition, factors that influence the perceived need of charitable organizations and other non-tax factors), v is an error term, and A , a , b , and c are constants. The model can be used to predict giving in any period 2 based on giving in a base period 1 and changes in explanatory variables from one period to the next: $G_2 = G_1(Y_2/Y_1)^a (P_2/P_1)^b (X_2/X_1)^c$. If the other factors, denoted by the X 's, are assumed not to change over time (the *ceteris paribus* assumption), the change in giving is then a function of tax-induced changes in price and net income.

³For a review of this literature, see Clotfelter (1985a, Chapter 2).

⁴For a comparison of estimated elasticities, see Clotfelter (1985a, pp.56–63; and 1985c, p. 1276). For a critique of constant-elasticity models, see Rudney (1985).

⁵For a discussion of the variation in the price elasticity by income, see Clotfelter (1985a, pp. 66–71).

⁶See appendix table A-1 for representative price and income elasticities by income level.

ity model is -1.27 , based on estimates of Clotfelter and Steuerle (1981). As one way of reflecting the uncertainty about this parameter, overall simulations using extreme low and high values of the price elasticity are also presented for comparison.⁷

Another way in which the price elasticity might vary was suggested recently in the Treasury Department's explanation of its proposed floor for the charitable deduction:

The proposal would have some effect on charitable giving, but the impact is not expected to be significant. It is doubtful that the first dollars of giving, or the giving of those who give only modest amounts, are affected significantly by tax considerations. Rather, contributions also depend on factors such as financial ability to give, membership in charitable or philanthropic organizations and general donative desire. As potential giving becomes large relative to income, however, taxes are more likely to affect the actual level of donations. Under the proposal, the current incentive would be maintained for the most tax sensitive group—taxpayers who give above-average amounts. (U.S. Treasury Department 1984, Vol. II, p. 70).

This argument would be consistent with two hypotheses. First, it might imply that the price elasticity grows for any individual as his contributions increase (with income fixed). In other words, the price elasticity would not be constant even for a given individual. Alternatively, the statement would be consistent with the notion that there are systematic differences in price sensitivity between big givers and small givers at any income level. While either possibility is plausible, existing econometric work does not provide evidence by which they may be judged.

Despite the relatively high degree of consensus among econometric studies of charitable giving regarding the effects of taxes, it is useful to ask how well the resulting estimates predict actual trends in contributions. As noted above, most estimated models explicitly account for only a few of the possible influences on giving, including taxes. Thus, these models are seldom appropriate for assessing changes in giving due to factors other than taxes. Given that rather important proviso, one can apply the basic model used in the simulations below to predict the effect of one recent tax change, the 1981 tax cut. Because of the reduction from 70 to 50 percent in the top marginal tax rate enacted in 1981, the price of giving increased substantially for upper-income taxpayers. Assuming that there had been no change in any determinants of contributions other than price and after-tax income, one can use estimated price and

⁷Excluding the extreme highest and lowest price elasticity estimates among 14 studies summarized in Clotfelter (1985a, Table 2.12) yields approximate upper- and lower-bound values of -0.9 and -2.3 .

income elasticities to calculate a predicted change in contributions.

Table 2 shows actual and predicted changes in average giving by income class between 1980, the year before the tax bill was passed, and 1983, the second full year following passage.⁸ Predicted contributions declined in all income classes and declined markedly for incomes of \$100,000 and over, the latter as a result of the sharp increases in the price of giving for these taxpayers. In comparison, actual contributions rose in two of the first six income classes and declined sharply in the highest three classes. While not predicting changes precisely, the model does provide a useful set of predictions regarding the pattern of changes across income groups. Contributions for the top income classes are predicted to fall the most, and this in fact was the case. The predicted values tend to underestimate giving at lower incomes, and this could well indicate the influences of other, nontax effects. For the top four income classes together, the model predicts a decline in average contributions of 19.7 percent; the actual decline was 18.4 percent.

The Impact of Current Proposals

Current tax reform proposals seek to lower tax rates by broadening the tax base, thus keeping revenues approximately constant. Table 3 shows the extent of tax rate reduction implied by four of the most prominent proposals. Compared to the current maximum rate of 50 percent, these tax proposals have maximum rates that range from 25 to 35 percent. In general, tax reform proposals can affect giving in four ways. First, reform proposals can eliminate the deduction or restrict it to taxpayers who itemize their deductions. If no tax credit is substituted, the elimination of the deduction can result in a significant increase in the net cost per dollar of giving. The provisions affecting the deductibility of contributions for each proposal are noted in table 3. Less obviously, changes that make itemization less attractive may also affect the number of taxpayers who receive an incentive. Second, any change in the rate of tax will affect the net cost. A reduction in rates—specifically the rate at which gifts are deducted—will tend to increase the net cost of giving. Third, reform proposals may affect the attractiveness of contributing appreciated assets. Currently, a taxpayer who makes a gift of appreciat-

⁸The first year, 1982, could well have been affected by decisions of taxpayers to accelerate planned 1982 gifts into 1981 in order to take advantage of the higher tax rates.

In addition, a constant 50 percent gain-to-value ratio was assumed and predicted contributions were adjusted for the likely incomplete adjustment in giving behavior between 1981 and 1983.

Table 2
Actual and Predicted Changes in Contributions between 1980 and 1983

Income	Average Contributions (1980 dollars)		Percentage Change in:			
	1980 actual	1983 actual ^a	Net Income ^b	Price ^c	Actual Contribu- tions	Predicted Contribu- tions ^d
Under \$5,000	173	137	-15	0	-21	-7
\$5,000 under \$10,000	436	415	-16	+3	-5	-10
\$10,000 under \$15,000	513	532	-15	+5	+4	-11
\$15,000 under \$20,000	523	559	-16	+5	+7	-11
\$20,000 under \$25,000	565	551	-6	+7	-2	-8
\$25,000 under \$30,000	624	605	-15	+9	-3	-13
\$30,000 under \$50,000	858	767	-13	+13	-11	-15
\$50,000 under \$100,000	1,725	1,427	-13	+23	-17	-20
\$100,000 under \$200,000	4,668	3,929	-8	+47	-16	-28
\$200,000 under \$500,000	13,808	10,025	-9	+57	-27	-32
\$500,000 under \$1,000,000	47,433	27,735	-7	+61	-42	-33
\$1,000,000 and over	207,089	104,330	-1	+88	-50	-38

^a 1983 values were deflated using the GNP price deflator, which rose 20.7 percent between 1980 and 1983. *Economic Report of The President 1985*, p. 236.

^b Net income = adjusted gross income - taxes after credits.

^c Price = $C(1-m) + (1-C)(1-m-0.5mc)$, where C = proportion of contributions in cash, m = marginal tax rate, and mc = marginal tax rate on capital gains income. The marginal tax rate for 1980 is adjusted for the effect of the maximum tax on earned income. See Clotfelter and Salamon (1982). Prices of giving were computed for the first dollar of contributions for joint and single taxpayers separately in each class; then a weighted average was calculated based on the number of taxpayers in each filing category.

^d The model used was $G^*_{83} = G_{80} (Y_{83}/Y_{80})^{.78} (P_{83}/P_{80})^{-1.27}$ and $G_{83} = (G^*_{83})^{.60} (G_{80})^{.40}$, where G is actual contributions, G* is the long-run level of contributions, Y is net income, and P is price.

Data sources: U.S. Internal Revenue Service, *Statistics of Income—1980, Individual Income Tax Returns* and Hosteller and Holik (1984–85).

Table 3
Maximum Tax Rate and Provisions for Contributions:
Current Law and Selected Tax Proposals

Law or Proposal	Maximum Tax Rate	Provisions for Individual Contributions
1985 law	50%	Itemized deduction; 50% deduction for nonitemizers
Treasury I	35	Itemized deduction over 2% of AGI; constructive realization for appreciated gifts
Treasury II	35	Itemized deduction; constructive realization for appreciated gifts in minimum tax
Bradley-Gephardt	30	Deduction (at 14%)
Kemp-Kasten	25	Deduction

Table 4
Factors Affecting Itemization: Current Law and Selected Proposals

Law or Proposal	Zero Bracket Amount for Couples	Allowable Deductions as Percent of Current	Estimated Percentage of Taxpayers Itemizing
1985 law	\$3567 ^a	100	39
Treasury I	3800	60	29
Treasury II	4000	57	27
Bradley-Gephardt	6000	86	27
Kemp-Kasten	3500	75	33

^a \$3400 in 1984, indexed using annual GNP price deflator, not rounded.

ed assets not only receives the benefit of the deduction for the market value but in addition does not have to pay the capital gains tax on the contributed property which would have been due if indeed the gain had been realized. This added advantage is eliminated by any proposal that limits the deductible amount to basis or requires capital gains tax to be paid for such gifts. Finally, contributions can be influenced by floors or ceilings that limit the deductibility of contributions.

Table 4 focuses on one aspect affecting the incentive to contribute, namely, the proportion of taxpayers who itemize their deductions. This proportion depends on the number of deductions a particular proposal allows as well as the threshold level for itemization. Among these proposals, the threshold level ranges from \$3,500 to \$6,000. The average value of allowable deductions falls between 14 and 43 percent as compared to current deductions. The estimated percentage of taxpayers who itemize ranges from 39 percent under current law to 27 percent under

the President's tax proposals (hereafter, Treasury II) and the Bradley-Gephardt proposal.⁹

Before turning to the simulation results, it is useful to summarize the major provisions in the Treasury I and Treasury II proposals. The Treasury I plan would, first, repeal the above-the-line charitable deduction for nonitemizers. Second, contributions by itemizers would be deductible only to the extent that they exceeded 2 percent of adjusted gross income (AGI). For taxpayers whose contributions fall under this threshold, there would be no tax incentive for giving. Third, the special benefit of donating gifts of appreciated assets, presently in the tax law, would be eliminated. The deduction in such cases would be limited to the inflated basis of the asset or market value, whichever is less. In the case of appreciated assets, this treatment is equivalent to a requirement that capital gains be realized before gifts are made. Fourth, the reduction in allowable itemized deductions under the Treasury I proposal would reduce the number of itemizers, as shown in table 4, thus reducing the number of taxpayers who receive an incentive to give. The Treasury II proposal would also repeal the charitable deduction for nonitemizers and reduce the number of taxpayers who itemize. It drops the 2 percent floor and relegates the constructive realization of appreciated gifts to the minimum tax.¹⁰ Both proposals, by virtue of their cuts in tax rates, would raise the net cost of giving for most of those who were still eligible to deduct contributions.

The Model

In order to estimate the effect of these and other proposals on charitable giving, I incorporated the economic model of giving described above in a computer simulation model that embodies a number of assumptions regarding the growth of income and other economic variables into the future. The data that formed the basis of the simulations are

⁹As described in Clotfelter (1985b), the calculation of taxes and tax rates is designed to reflect the most important features of each proposal without incorporating all changes. In addition, some approximations are used where necessary data are not available. In the case of the Treasury I and Treasury II plans the \$5,000 interest ceiling was applied simply to all non-mortgage interest, though in fact it is to be applied to interest other than mortgage on the principal residence and interest over investment income. Under the Treasury II plan, miscellaneous deductions are added to employee business expenses and made an above-the-line adjustment subject to a 1 percent floor. I assumed that 75 percent of such expenses, prorated over all taxpayers, would be deductible.

The proportion of taxpayers predicted to itemize for any given income class in the simulation model depends in part on the aggregate ratio of allowable deductions under the proposal in question to deductions under existing law. The estimated value of this ratio under the Treasury II proposal was 0.57, compared to a ratio of 0.60 under the Treasury I plan. See Clotfelter (1985b, Appendix).

¹⁰See below for a discussion of gifts of appreciated assets.

published tax return information for 1982. Income and other dollar amounts were "aged" to 1985 using per capita nominal rates of growth of GNP. The resulting income and other dollar quantities at each income level and for each of four types of tax returns were subjected to the definitions and tax rates of the various proposals in order to calculate tax liability and tax rates. Where the proposals called for indexation, such changes were made based on projected rates of inflation. The simulations of tax liability do not account for all aspects of each proposal due to the need for unpublished data. In each case, however, the most important aspects of each proposal are reflected in the simulations as well as all of the major provisions directly affecting charitable giving. Using these proposals, net income and the net cost of contributions per dollar were calculated for four representative households in each of 14 income classes, or 56 representative households per proposal. For each representative unit, the parameters from an econometric model of contributions were applied to contributions in 1982 to project a giving level under the proposal in 1985.

As with other simulations, the numbers produced by this model are point estimates subject to statistical and other errors common to econometric simulation in general. The estimates refer to the likely long-run level of contributions that would have been observed if the proposal in question had already been in effect for several years prior to 1985 as has the present law. Finally, these simulations employ an automatic revenue adjustment so that the tax plans considered, with the exception of the Treasury I and II plans, will be revenue-neutral. In most cases, tax rates are adjusted proportionately so that each proposal will raise the same revenue as actual law in 1985. The Treasury I plan was designed to raise 8.5 percent less revenue than current law and the Treasury II proposal 7 percent less, with increases in the corporate income tax making each entire package revenue-neutral.

Table 5 summarizes the simulation results for the two basic models. The estimate of total contributions in 1985 is on the order of \$60 billion. By comparison, the *Giving U.S.A.* (1985, p.7) estimate for contributions by individuals in 1984 is \$61.55 billion. Since there is no detailed description of the methodology used by *Giving U.S.A.* it is impossible to know the reason for this difference, but one possible explanation is that my estimates cover taxpayers only and exclude nonfilers.¹¹ The third line in the table shows the likely level of contributions under Treasury II. Using the constant elasticity model, contributions are predicted to be \$49.5 billion under that proposal, compared to \$60.4 billion under current law, for a difference of \$10.9 billion, or 18 percent in total giving. The variable

¹¹The GAO (1979, pp.5,7) reported that, out of the 68 million taxpayers required to file, over 5 million did not file returns.

Table 5
 Predicted Contributions in 1985: Current Law and Various Alternatives

Law or Proposal	Constant Elasticity Model		Variable Elasticity Model	
	Amount (Billions)	Percentage Change from 1985 Law	Amount (Billions)	Percentage Change from 1985 Law
1985 law	\$60.4	—	\$58.7	—
Treasury I	48.1	-20	47.6	-19
Treasury II	49.5	-18	48.7	-17
Bradley-Gephardt	46.7	-23	45.4	-23
Kemp-Kasten	52.6	-13	49.8	-15
Treasury II with 100% Nonitemizer Deduction	55.7	-8	52.0	-11

elasticity model predicts much the same degree of decline, with total giving under the Treasury II plan \$10 billion below the actual 1985 level. While sizable, these predicted declines are smaller than those associated with the Treasury I proposal of 1984, which imply declines of 19 to 20 percent in giving. The Treasury II plan's less severe effect is the result of its restoration of the current favorable treatment of gifts of appreciated assets and its elimination of the 2 percent floor on the charitable deduction.

For comparison, table 5 also shows the predicted effects of other widely discussed tax proposals. The Bradley-Gephardt bill, which would allow all taxpayers to deduct contributions at a basic tax rate of 14 percent, would cause giving to fall by about 23 percent relative to current levels. The Kemp-Kasten bill would, like Bradley-Gephardt, retain the deduction for all taxpayers, though tax rates would be cut; contributions would fall on the order of 13 to 15 percent. A modification of Treasury II in which nonitemizers are allowed a full charitable deduction would cause total giving to fall on the order of 8 to 11 percent—much less than under the actual proposal. Using the Treasury II proposal as a base, the simulations indicate that the addition of a full deduction for nonitemizers would increase *total* contributions by individuals by 7 to 13 percent.

To illustrate the pivotal role played by the price elasticity, table 6 shows calculated total giving for smaller and larger values of the parameter.¹² Under the assumption of an inelastic response, the two Treasury proposals imply declines of 16 and 15 percent, compared to the 18 and 19 percent in the basic constant elasticity case. By contrast, a large elasticity such as -2.3 implies much bigger declines, of 30 and 26 percent, respec-

¹²See appendix table A-1 for representative price and income elasticities by income level.

Table 6
 Predicted Contributions under Alternative Constant Price Elasticity Assumptions
 Dollar Amounts in Billions

Law or Proposal	Price Elasticity		
	-.9	-1.27	-2.3
1985 law	\$60.4	\$60.4	\$60.5
Treasury I	\$50.5	\$47.6	\$42.6
Percentage Change from 1985 Law	(-16)	(-19)	(-30)
Treasury II	\$51.5	\$49.5	\$44.7
Percentage Change from 1985 Law	(-15)	(-18)	(-26)

tively. Although the econometric work on this question tends to support a single elasticity of about -1.3 or a variable elasticity such as that used in this paper, it is important to emphasize that there is still uncertainty concerning the precise specification of economic models of giving.

Using survey data on the pattern of contributions by income level, one can calculate the likely impact of tax proposals by type of organization. Proposals that reduce contributions from wealthy taxpayers, for example, will tend to have a disproportionate impact on gifts to educational and cultural institutions because such taxpayers tend to favor those organizations in their giving.¹³ Due to the reduction in the top marginal tax rate, the Treasury II proposal would probably cause the largest percentage reductions in giving at upper income levels. Accordingly, as table 7 shows, the largest percentage declines under that proposal are in gifts to higher educational and cultural institutions. The smallest impact is in religious giving. Despite the loss of deductibility at lower income levels, the increase in price there has a smaller impact, even with the constant elasticity model, than that felt at higher incomes. Table 8 shows a similar pattern for most of the other proposals. Where the rate of subsidy for gifts falls the most—to 14 percent in Bradley-Gephardt—gifts to higher education and cultural institutions fall the most. Adding a full charitable deduction for nonitemizers to the Treasury II proposal would have its major impact on contributions to religious organizations.

Limitations of the Analysis

In concluding this section it is important to reemphasize the limitations of the present analysis. There are a number of sources of possible

¹³The assumed distribution of giving by type of organization over the income range is given in appendix table A-2. It was calculated by combining the proportion of religious gifts reported in the Gallup survey (Gallup Omnibus 1979, p.8) for incomes below \$50,000, with the distribution reported in Morgan et al. (1977, Table 38, p. 208) for incomes above \$50,000 and a prorated distribution based on the latter for incomes under \$50,000.

Table 7
Projected Impact of Treasury II, by Type of Organization

Type of Organization	Estimated Contributions in 1985 ^a (\$ billions)	Percentage Change in Giving from 1985 Law ^b	
		Constant Elasticity Model	Variable Elasticity Model
Religious	37.4	-17	-15
Higher Education	3.7	-22	-27
Other Education	1.0	-22	-25
Combined Appeals	5.1	-19	-18
Medical	5.4	-19	-18
Cultural	.8	-25	-34
Other	6.9	-18	-18
Total	60.4	-18	-17

^a Estimates use constant elasticity model. (See text.)

^b Simulations adjusted revenues to be 7 percent below 1985 level.

error in these simulation estimates: statistical errors in estimating coefficients used in the econometric models; errors in estimating the proportion of itemizing taxpayers; errors in estimating the contributions by nonitemizers based on 1973 survey data; probable changes in the distribution of giving by type of organization over the last decade; errors arising from our limited knowledge of gifts of appreciated assets; and forecast errors in the underlying economic variables used, among others. In addition, the tax proposals are not simulated exactly in every detail, although the revenue adjustment tends to mitigate the effect of any errors in calculating tax liabilities. The current data are aggregated, and thus are less appropriate in examining behavior with respect to thresholds such as percentage floors in contribution deductions. Using aggregate data also makes it impossible to reflect the impact of changes in the distribution of tax prices. If tax reform caused many high-income taxpayers to begin having significant tax liabilities, for example, the price of giving for such taxpayers would fall. Furthermore, the underlying models relate to long-run levels of giving, that is, levels that would be reached over a period of years under a given tax regime.

Finally, models such as those used here may fail to reflect fully the range of possible taxpayer reaction to tax changes. One example is the possibility that, faced with a floor for the deductibility of charitable contributions, taxpayers might well choose to "bunch" their giving in alternate years in order to have more of their contribution dollars deducted. The greater this bunching behavior, the less significant would be the effect of a floor. A more important variation in taxpayer behavior would

Table 8
 Estimated Individual Contributions by Type of Organization, Current Law and Selected Proposals, 1985
 Billions of Dollars

Type of Organization	1985 law	Treasury I	Treasury II	Bradley-Gephardt	Kemp-Kasten	Treasury II with 100% Nonitemizer Deduction
Religious	37.4	30.4	31.0	30.2	33.9	35.2
Higher Education	3.7	2.7	2.9	2.4	2.8	3.1
Other Education	1.0	.7	.8	.6	.7	.8
Combined Appeals	5.1	4.0	4.2	3.8	4.3	4.7
Medical	5.4	4.3	4.4	4.2	4.7	5.0
Cultural	.8	.6	.6	.4	.5	.7
Other	6.9	5.4	5.6	5.1	5.8	6.3
Total	60.4	48.1	49.5	46.7	52.6	55.7

Note: Simulations use constant elasticities model. Revenue neutrality assumed except for Treasury II (7 percent reduction) and Treasury I (8.5 percent reduction).

be the possible response of donors to changes in the aggregate level of contributions in the economy. If donors perceived that total contributions were declining and that nonprofit organizations were suffering as a result, a shift in the donations function might occur, implying a greater level of contributions for a given net cost and net income level for an individual. Although some speculation and research has addressed the question of whether public expenditures "crowd out" private giving, there is little hard evidence to go on in assessing the possible impact of a significant decline in overall giving on the contributions of individuals. If the income tax law changes drastically, as envisioned in many of these proposals, it is not inconceivable that charities would redouble their efforts to raise money by pointing out the increased need for gifts. Such "systems effects" cannot readily be built into existing models of charitable giving, but they cannot be dismissed as possibilities affecting future giving.

Gifts of Appreciated Assets

Gifts of appreciated assets merit special attention because of their importance for certain types of organizations, especially educational and cultural institutions. The current treatment of such gifts allows the donor an additional tax advantage on top of the charitable deduction in that no tax is levied on the accrued capital gains of such assets. For example, a taxpayer in the 50 percent bracket who gives away stock with a basis of \$200 and a market value of \$1000 reduces his tax liability by \$500 through the deduction and also avoids a capital gains tax of \$160 ($.5 \times .4 \times \800). In comparison to selling the asset, making the deductible gift reduces his potential consumption by only \$340 ($\$1000 - 500 - 160$). In discussions of tax reform, this treatment encounters two objections. First, it allows some capital gains income to go untaxed, even though the donor receives a deduction for the full market value of the asset. Because most of its advantage accrues to higher income individuals, this provision reduces the progressivity of the income tax. Second, the overvaluation of donated assets has been a persistent problem for tax administrators. Nonprofit organizations, for their part, stress the value of the current favorable treatment, noting the importance of large "leadership" gifts in fund drives as well as the sheer magnitude of large gifts made in the form of appreciated assets.

Two prominent tax reform plans, Treasury I and Treasury II, seek to eliminate or reduce the current favorable treatment for gifts of appreciated assets. Under Treasury I, donors would be able to deduct no more than the adjusted basis of a donated appreciated property, a treatment that is equivalent to constructive realization of the capital gain. The

Treasury II proposal removes this provision from the normal tax calculation but places a similar provision into the minimum tax: unrealized gains on such gifts would be counted as a "preference item." For taxpayers with preference items in excess of \$10,000, this feature offsets the exclusion of capital gains on the asset.

Due to the importance of appreciated assets in giving to nonprofit organizations, this section focuses on the impact of various provisions on the net cost of making such gifts. In addition, it considers the implications of current knowledge about capital gains and appreciated asset giving for econometric models of charitable contributions.

Calculating the Price of Giving Appreciated Assets

The net cost to a taxpayer of donating an asset is the potential consumption forgone due to the gift after the effects of taxes are taken into account. It is useful to distinguish four components that go into the calculation. First, the value of the asset itself is the gross cost, the forgone potential consumption in the absence of taxes. If one assumes that the rate of return on assets is equal to the discount rate and that bequests are valued the same as consumption, then the present value of the forgone consumption for an asset—the gross cost—will be its market value. The impact of this gross cost is of course reduced by the second component of net cost, the value of the tax deduction. Where V is the asset's market value and m is the taxpayer's marginal tax rate, this reduction is $-mV$. A third component is the present value of any capital gains tax that would otherwise have been paid if the asset had not been contributed; this also reduces the cost of giving. Since capital gains are taxed only when realized, this cost reduction applies only if the taxpayer would otherwise have realized the gain. Finally, there may be an explicit tax penalty on gifts of appreciated assets, which would increase the net cost of the gift.

These components are shown in table 9 under different tax regimes, where B is the asset's basis, $G(=V - B)$ is the gain, r is the rate of return and discount rate, and x is the ratio of the current price level to that prevailing when the asset was purchased. If the asset had not been donated, it could have been held for T years and then realized ($R=1$) or passed on as a bequest without realizing it ($R=0$). The first line of the table shows that only two of the four components of net cost are involved for a gift of cash. The net cost for a gift that does not cause the marginal tax rate to change is $V(1 - m)$; the net cost of the last dollar is $1 - m$. For an appreciated asset gift, current tax treatment allows an additional reduction in cost equal to the present value of the capital gains tax if the asset would otherwise have been sold.

Table 9
Net Cost of Giving \$ V: Cash and Appreciated Assets

Type of Gift and Tax Regime	Components of Cost				Net Cost
	Gross Cost	- Tax savings due to deduction	- Tax that would have been paid to realize gain (present value)	+ Tax penalty for gifts of appreciated assets	
Cash					
Deduction	V	-mV			V(1 - m)
Appreciated assets					
Current Law	V	-mV	$-.4mR(V(1+r)^T - B)/(1+r)^T$		$V(1 - m - .4mRg^*)$
Constructive Realization (with Current Law)	V	-mV	$-.4mR(V(1+r)^T - B)/(1+r)^T$	+ .4mG	$V(1 - m + .4m(g - Rg^*))$
Treasury I	V	-mx _T B	$-mR(V(1+r)^T - x_T B)/(1+r)^T$		$V(1 - mx_b - mR(1 - x_T(1 - g^*)))$
Treasury II	V	-mV	$-.5mR(V(1+r)^T - B)/(1+r)^T$		$V(1 - m - .5mRg^*)$
Current Minimum Tax	V	-.2V	$-.2R(V(1+r)^T - B)/(1+r)^T$		$V(.8 - .2Rg^*)$
Treasury II Proposal Minimum Tax	V	-.2V	$-.2R(V(1+r)^T - B)/(1+r)^T$	+ .2G	$V(.8 - .2Rg^* + .2g)$

V = value of asset in year 0
 G = gain in year 0
 B = basis in year 0 (b + g = 1)
 b = B/V
 g = G/V
 x = price inflation from purchase to year 0
 x_T = price inflation from purchase to year T
 m = marginal tax rate on ordinary income
 R = 1 if alternative disposition is to realize asset
 = 0 if alternative disposition is not to realize asset
 r = rate of return and discount rate
 g* = $1 - b/(1+r)^T$

An explicit penalty would be levied on gifts of appreciated property under a constructive realization provision, as shown in the third line. In the case that the asset would otherwise have been sold immediately, this provision makes the price of donating the asset equivalent to the price of giving cash. If the asset would not have been sold otherwise, however, constructive realization makes it *more* expensive to give the asset than to give cash. The Treasury II proposal's treatment of appreciated asset gifts in the minimum tax has a similar explicit penalty. The same effect is also obtained implicitly in the Treasury I treatment.¹⁴

Table 10 illustrates the calculation of the net cost of giving appreciated assets under six tax regimes for various combination of gain-to-value ratios and alternative disposition assumptions. For the purpose of these calculations, the expected rate of return is assumed to be 10 percent. For the Treasury I calculation, prices are assumed to have risen by 30 percent since the asset was purchased, and the expected future rate of inflation is assumed to be 7 percent. Three gain-to-value ratios are illustrated: 0.2, 0.5, and 1.0. Assumptions regarding alternative disposition include immediate realization, realization after 1, 10 and 20 years, and holding the asset for bequest. Prices under current law range for these cases from 0.3 to 0.5. If an asset would have been sold otherwise, the price is reduced the higher the gain-to-value ratio, a ratio that tends to rise over time. If the asset would never have been sold, the gain-to-value ratio is irrelevant, and the price is equal to the price of giving cash.

In comparison to their treatment under current law, gifts of appreciated assets would be more costly under constructive realization, the Treasury II proposal, or the Treasury I plan. The difference is particularly striking for the Treasury I plan in the all-appreciation case. The price of giving such assets would rise from 0.3 to 0.65 if the alternative were realization and from 0.5 to 1.0 if the alternative were bequest. The table also allows a comparison between the current alternative minimum tax and the minimum tax proposed under Treasury II. The constructive realization penalty in the latter has the effect of increasing the cost as a function of the amount of unrealized capital gains.

Likely Values

The preceding calculations indicate, under various specific assumptions, that there are clear differences in the price of giving appreciated assets among various tax regimes. But which of these various assumptions are most realistic? In order to simulate the likely effects of a tax change, or for that matter to estimate the effect of taxes on giving, it is necessary to make rather definite assumptions regarding the asset's al-

¹⁴Auten and Rudney (1985, p. 535) also make this point.

Table 10
Price of Giving an Appreciated Asset under Alternative Tax Treatment:
Top Bracket Taxpayer

Tax Regime and Top Tax Rate	Alternative Disposition	Initial Gain-to-Value Ratio		
		.2	.5	1.0
Current Law ($m = .5$)	Sell immediately	.46	.40	.3
	in 1 year	.45	.44	.3
	in 10 years	.36	.34	.3
	in 20 years	.32	.31	.3
	Bequeath	.5	.5	.5
Constructive Realization ($m = .5$)	Sell immediately	.5	.5	.5
	in 1 year	.49	.49	.5
	in 10 years	.40	.44	.5
	in 20 years	.36	.41	.5
	Bequeath	.54	.60	.7
Treasury I Proposal ($m = .35$)	Sell immediately	.65	.65	.65
	in 1 year	.64	.64	.65
	in 10 years	.56	.59	.65
	in 20 years	.50	.55	.65
	Bequeath	.64	.77	1.0
Treasury II Proposal ($m = .35$)	Sell immediately	.62	.56	.48
	in 1 year	.60	.55	.48
	in 10 years	.53	.51	.48
	in 20 years	.50	.49	.48
	Bequeath	.65	.65	.65
Current Minimum Tax	Sell immediately	.76	.70	.6
	in 1 year	.75	.69	.6
	in 10 years	.66	.64	.6
	in 20 years	.62	.61	.6
	Bequeath	.8	.8	.8
Treasury II Proposal Minimum Tax	Sell immediately	.8	.8	.8
	in 1 year	.79	.79	.8
	in 10 years	.70	.74	.8
	in 20 years	.66	.71	.8
	Bequeath	.84	.90	1.0

Note: For these calculations, $r = .10$, $x = 1.3$, $x_T = x(1.07)^T$. See appendix tables A-3 and A-4 for calculations of the ratio of gain in the year of sale to value in the base year.

ternative disposition and its gain-to-value ratio, among other variables. The first of these is of course counterfactual by its very nature, and perhaps the best that can be hoped for is a well-informed guess. If R is taken to be the probability that an asset will eventually be sold, then the expressions given in table 9 become the expected price of giving an asset. Thus estimates of that probability are needed in order to calculate

the price.

Gain-to-value ratios of donated assets are in principle measurable, but such data have not been collected in any systematic way. We do, however, have some circumstantial evidence indicating that the average ratio is well over zero and that it probably rises with income. It is clear from published tax return data that the portion of contributions made in noncash form rises with income. Common observation suggests that the bulk of these noncash gifts at lower and middle incomes consists of used household articles, not appreciated assets. This impression is supported by table 11, which compares survey responses on gifts of stock to tax

Table 11
Noncash Contributions, by Income, 1973

Income	Percentage of Contributions Other Than in Cash ^a	Percentage of Givers of \$100 or More Whose Largest Gift Included Corporate Stock ^b
Below \$50,000	7	0
\$50,000 under 100,000	15	6
\$100,000 under 200,000	26	16
\$200,000 under 500,000	40	20
\$500,000 and over	55	31

Sources: (a) U.S. Internal Revenue Service, *Statistics of Income—1973, Individual Income Tax Returns* (Washington: Government Printing Office, 1976), Table 2.5, p. 53.

(b) Morgan, Dye and Hybels (1977, p. 187).

return data on noncash gifts. Whereas noncash contributions accounted for 7 percent of total giving for itemizers with incomes below \$50,000, none of those surveyed in that income class had given stock as a part of their largest gift. By comparison, almost a third of contributors with income over \$500,000 gave stock as a part of their largest gift.

Further indication of the size and variation of gain-to-value ratios has recently been provided by Auten and Rudney (1985), who present data from a sample of tax returns on the basis and gain for two classes of assets that were *sold*, rather than donated. Arrayed by income level in table 12, these data indicate that average gain-to-value ratios tend to rise with income. For corporate stock, the average ratio rises from 0.29 to 0.71 from the bottom to the top class. The rise for real estate is less, 0.30 to 0.46. As indicators of gain-to-value ratios for *donated* assets, these ratios must be taken as lower-bound estimates. In choosing which assets to sell and which to donate, taxpayers clearly benefit under current law by picking those with the highest gain ratios to give away.

What then can one conclude about the parameter values necessary to compute the price of giving assets? First, the average gain-to-value

Table 12
Ratio of Gain to Sales Price for Assets Sold, 1971–1975

Adjusted Gross Income	Corporate Stock	Real Estate
Less than zero	.29	.30
\$1–20,000	.32	.32
\$20,000–50,000	.30	.38
\$50,000–100,000	.30	.37
\$100,000–200,000	.43	.42
\$200,000–500,000	.51	.48
\$500,000 and over	.71	.46

Source: Auten and Rudney (1985, Table 4).

ratio for donated property almost certainly rises with income. Not only does the share of appreciable assets among all donated property rise with income, but the average gain-to-value ratios of those assets also appear to increase with income. Still, the value of these ratios cannot be determined except by direct examination of gifts of property.¹⁵ As to the question of alternative disposition, it is very likely that the probability that a donated asset would otherwise have been sold is a decreasing function of its gain-to-value ratio.¹⁶ These two factors thus tend to offset one another, to what degree it is impossible to say.

For purposes of illustration, it is useful to consider the specific function $R = (1 - g^*)^c$, where R is the probability that an asset would otherwise have been sold, g^* is the gain-to-value ratio when the asset is sold ($g^* = 1 - b/(1 + r)^T$), and c is a constant parameter. As g^* increases, the probability of eventual sale declines. Table 13 illustrates this relationship for an assumed distribution of average gain ratios and two values of the parameter c . For example, a ratio of 0.9 is assumed for assets donated by the top income class. The two parameter values imply probabilities for the asset otherwise being sold of about 0.6 and 0.3 in this class. Using these illustrative assumptions, the expected gain-to-value ratio Rg^* is roughly constant under each parameter value for the top four income groups.

Although it is not possible to calculate definite values in this case, the available evidence suggests two tentative conclusions. First, it is probably unrealistic to base policy judgments on calculations assuming both a high gain-to-value ratio *and* a high probability of sale. Assuming

¹⁵A recent survey of Harvard alumni may yield such information relevant to contributions to higher education.

¹⁶In correspondence, Gerald Auten has suggested, however, one exception to this general proposition. In the case of an entrepreneur who founds a company and then decides to sell most or all of his or her interest in the firm, both the gain-to-value ratio and the probability of realization would tend to be high.

Table 13
Illustrative Gain-to-Value Ratios and Probabilities of Sale

Income (\$1000)	Assumed Gain- to-Value Ratio of Donated Noncash Property (g^*)	Probability of Sale $R = (1-g^*)^c$		Expected Gain-to-Value Ratio Rg^*	
		$c = .25$	$c = .50$	$c = .25$	$c = .50$
Under 20	.2	.95	.89	.19	.18
20-50	.4	.88	.77	.35	.31
50-100	.6	.80	.63	.48	.38
100-200	.7	.74	.55	.52	.39
200-500	.8	.67	.45	.53	.36
500 and over	.9	.56	.32	.51	.28

Note: $g^* = 1 - b/(1+r)^T$. See table 9.

that appreciated property gifts have virtually no basis may be accurate for many high-income taxpayers, but the likely alternative for these taxpayers is bequest, not sale. Second, an assumption of a constant expected gain-to-value ratio may not be an unreasonable approach. Most econometric studies have in fact used the assumption of an expected gain-to-value ratio of 0.5, basing that value on statistical fit in estimated giving equations.¹⁷ This assumption was also employed in the simulations presented in the current paper.¹⁸ For comparison, two sets of simulations were carried out using the illustrative distributions of expected gain-to-value ratios given in table 13, and they yielded estimates quite close to the baseline constant ratio case. For example, the decline in estimated total giving occasioned by the Treasury II proposal was 18 percent for both values of the parameter c , just as in the basic simulation. Contributions by taxpayers with incomes over \$75,000 (in 1982 dollars) are estimated to decline by 24 percent if $c = .25$ and 23 percent if $c = .50$, as compared to a 24 percent decline in the basic simulation.

Based on these two tentative conclusions, table 14 recapitulates the comparison of alternative proposals using two "likely" cases of donations of appreciated property: a 50 percent gain-to-value ratio with the alternative of immediate sale and a 90 percent ratio with the alternative of bequest. For a taxpayer at the top tax bracket, the Treasury II proposal would raise the price of giving such assets 40 and 30 percent, respectively. The Treasury I proposal would be much less favorable, increasing the price 63 and 90 percent. Finally, the Treasury II minimum tax proposal would raise the price 14 and 22 percent.¹⁹

¹⁷See Feldstein (1975) for an example or Clotfelter (1985a, pp. 52-53) for a summary.

¹⁸For the Treasury I proposal, immediate realization is also assumed.

¹⁹By comparison, the percentage increase due to the Treasury II minimum tax for the less likely case of no basis and alternative sale, noted by Lindsey (1985, table 1 and pp. 8-9) is 33 percent.

Table 14
Price to High-Income Taxpayers Donating Appreciated Asset:
Current Law and Alternative Proposals

Law or Proposal	Price	.5	Price	.9
		Immediate Sale Percentage increase from current law		Bequest Percentage increase from current law
Current Law	.40	—	.50	—
Treasury I	.65	+ 63	.95 ^a	+ 90
Treasury II	.56	+ 40	.65	+ 30
Current Minimum Tax	.70	—	.80	—
Treasury II Minimum Tax	.80	+ 14	.98	+ 22

^a Assumes 30% inflation from basis year.

Other Effects of Tax Reform

Tax reform proposals would likely have effects on the nonprofit sector that would go well beyond the impact on contributions by individuals. Proposals that would alter the structure of the corporate taxes would have effects qualitatively similar to those expected to result from changes in the personal tax. In addition, changes in personal taxation are likely to influence volunteer behavior. Finally, apart from effects on such charitable activity, tax reform may well bring other changes in the treatment of nonprofit institutions, their employees, and those they serve.

Corporate Contributions

The corporate tax, like the individual income tax, provides for a charitable deduction. Although it is subject to a ceiling, this deductibility has in practice been virtually universal. A number of econometric studies have addressed the relationship between corporate tax rates under deductibility and the level of corporate giving. In comparison to studies of individual giving, studies of corporate contributions are less numerous and subject to more severe data limitations. The work that has examined the role of taxation indicates that contributions tend to increase as the net cost declines, as is the case with personal donations. The price elasticity appears to be markedly smaller in absolute magnitude, however, the range of most likely values being between -0.2 to -0.5 . Income elasticities tend to be close to unity, but the effect of income is

likely to be small in revenue-neutral proposals.²⁰

Focusing just on the price effect, one can use the existing elasticity estimates to assess the likely impact of various tax proposals. For current law and four alternative proposals, table 15 gives the maximum marginal

Table 15
Range of Likely Price Effects of Tax Proposals on Contributions by Corporations Paying the Highest Tax Rate

	Maximum Corporate Tax Rate	Provision for Charitable Contributions ^a	Percentage Reduction Due to Price Effect with Price Elasticity of: ^b	
			-.2	-.5
Current Law	46	Deduction	—	—
Treasury I	33	Deduction	- 4	- 10
Treasury II	33	Deduction	- 4	- 10
Bradley-Gephardt	30	50% Deduction	- 9	- 20
Kemp-Kasten	30	Deduction	- 5	- 12

^a Provisions for ceilings and carryovers not included.

^b Percentage change is $100(1 - ((1 - jm)/(1 - m_0))^h)$, where m and m_0 are the maximum marginal tax rates in the proposal and in the current law, respectively, j is the percentage of contributions that may be deducted under the proposal, and h is the assumed price elasticity.

corporate tax rate and describes the treatment of corporate contributions. These provisions vary as widely as do the comparable features of the corresponding personal tax proposals. Top rates vary from 30 percent to the current 46 percent. The charitable deduction is limited to 50 percent in Bradley-Gephardt. These various provisions translate into a net cost of corporate giving at top rates that ranges from 54 to 85 cents per dollar contributed. Applying a lower-bound elasticity of -0.2 to these differences implies that corporate giving would drop by roughly 4 percent under the Treasury II proposal and 9 percent under Bradley-Gephardt. The reductions would be correspondingly larger if the elasticity were -0.5 : 10 and 20 percent, respectively. Even at this upper bound, however, the percentage declines in corporate giving are unlikely to approach the magnitude of those for individual contributions.

Volunteering

The few econometric analyses of volunteering that have included tax variables suggest that donating money and volunteering time are complementary goods. If the price of donating money falls, an individual is likely to increase the amount of volunteered time. This finding is

²⁰See Clotfelter (1985a, Chapter 5), for a discussion and extension of this empirical work.

consistent with the common observation that generous donors tend to be active volunteers, and vice versa. The difficulties encountered in econometric analysis of volunteering are even more severe than those for corporate giving. Consequently, there are few estimates of the relevant parameters, and those estimates are not very precise.²¹ For the purpose of illustrating the approximate magnitude of the impact of tax reform on volunteering, it is useful to use an estimate of the cross-price elasticity between volunteering and the price of making deductible gifts. Estimates in Clotfelter (1985a) imply an elasticity on the order of -0.25 for women. To illustrate the likely magnitude of this effect, the Treasury II proposal would raise the average price of giving (weighted by the number of taxpayers) from 0.86 under current law to 0.94, or about 9 percent. This elasticity implies a reduction in volunteering hours of only about 2 percent. Therefore, while the likely effect of tax reform would be to reduce volunteering, the size of the effect would probably not be great.

Other Consequences

Recent tax reform plans, both proposed and enacted plans, have contained provisions with specific effects on education and other non-profit organizations apart from any impact on charitable giving. One set of provisions affects the compensation of employees. The taxation of certain fringe benefits and the limitation on the deductibility of expenses have been two devices used in tax reform proposals to broaden the tax base and improve horizontal equity. For example, the provision in a number of current tax reform plans that would tax all or part of employer-provided health and life insurance would raise the cost to employers of providing a given level of compensation and also encourage more compensation in salaries rather than fringe benefits. A more dramatic impact would be produced by provisions affecting the compensation of employees in educational or nonprofit institutions. The 1984 tax law, for example, made most tuition remission programs taxable to faculty and staff. A similar effect would be achieved by limiting the deductibility of educational travel, often used by faculty members. Provisions such as these tend to raise the cost to educational institutions of attracting faculty members, many of whom ultimately have job options in other industries unaffected by such provisions. To the extent that job mobility in the short run is limited, the effect will be a reduction in real income of professors. While the elimination of tax-free compensation can usually be defended on the basis of horizontal equity or economic efficiency,

²¹For a discussion of this topic, see Clotfelter (1985a, Chapter 4).

provisions such as these have the familiar transitional inequities that appear when markets have adjusted to the pre-existing tax law.

Tax reform provisions can raise the costs of operation in other ways as well. For example, Treasury II would limit the use of tax-exempt bonds for construction at private colleges and universities. And, the cost to students would be raised by taxing as income the amount of scholarships that exceed tuition.²² Like the provisions having a differential impact on faculty, these features will have the effect of raising costs, decreasing demand, or lowering the real income of its employees and students.

In considering these possible effects on nonprofit organizations, it is useful to keep in mind the enormous potential for reallocation that might result from fundamental tax reform. For example, if tax reform has the effect of drastically reducing investments in tax shelter activity, significant reallocation of resources could occur among sectors in the economy that might well benefit many nonprofit institutions.

Conclusion

In assessing the impact of tax reform and simplification proposals on educational and nonprofit organizations, this paper has devoted most of its attention to contributions by individuals to those institutions. The relative attention paid to charitable contributions suggests, however, less about the relative importance of various effects than it does about the amount of research that has gone into assessing those effects. This said, the impact of tax reform on charitable giving is likely to be sizable. Reductions in long-run giving of 15 percent and more are projected for the major tax plans currently under discussion. Reductions are likely to be even more severe for institutions that depend on gifts from high-income taxpayers, such as colleges and universities. In concluding, it is important to reemphasize the limitations enumerated in the section "Limitations of the Analysis" and elsewhere in the paper. Not only are the estimates subject to various measurement and statistical errors, but the possibility remains that, faced with a dramatic decrease in the incentive to give, nonprofit institutions would solicit harder and donors would become more receptive, at given price and income levels. Such "shifts in demand" cannot be simulated based on past behavior. Whether they are likely is an open question.

²²For a summary of the impact of Treasury II on higher education, see "How President's Tax Proposal Would Affect Higher Education," *Chronicle of Higher Education* (June 5, 1985), p.1.

Table A-1
Illustrative Elasticities Used for Variable Elasticity Model: Joint Taxpayers

1982 Income (000)	Price	Elasticity Value	Income
\$ 0 under 5	0		.50
5 under 10	-.28		.47
10 under 15	-.46		.54
15 under 20	-.61		.54
20 under 25	-.73		.55
25 under 30	-.78		.59
30 under 40	-.86		.61
40 under 50	-.95		.64
50 under 75	-1.04		.68
75 under 100	-1.17		.71
100 under 200	-1.31		.78
200 under 500	-1.64		.79
500 under 1,000	-2.07		.78
1,000 +	-2.70		.75

Table A-2
Percentage Distribution of Contributions, by Income of Donor
and by Type of Organization

Donor Income ^a (000)	Type of Organization						
	Religion	Higher Education	Other Education	Combined Appeals	Medical & Health	Cultural	Other
\$ 0 under 5	72.0	3.5	0	7.1	11.6	0	7.1
5 under 10	71.0	3.7	0	7.3	11.0	0	7.3
10 under 15	69.8	3.8	0	7.6	11.4	0	7.6
15 under 20	76.7	3.0	0	6.0	8.5	0	6.2
20 under 25	76.1	2.2	0	6.5	6.5	0	8.7
25 under 30	70.3	2.7	0	8.0	8.0	0	10.8
30 under 40	64.3	3.3	.2	9.4	9.2	0	13.5
40 under 50	64.3	3.3	1.6	8.1	6.4	0	16.1
50 under 75	63.4	5.4	6.7	7.6	4.4	2.7	9.6
75 under 100	55.1	7.4	9.0	8.8	5.2	4.3	10.0
100 under 200	22.7	13.3	1.7	14.3	15.7	5.8	26.4
200 under 500	14.6	27.9	8.3	14.5	16.0	8.3	10.3
500 under 1,000	10.5	35.5	7.9	13.2	14.5	7.9	10.5
1,000+	12.3	32.9	4.1	8.2	8.2	12.3	21.9

^a 1982 dollars

Source: Gallup (1979) and Morgan, Dye, and Hybels (1977).

Table A-3
 Ratio of Present Value of Gain in Year T to Value of Asset in Year 0
 (Equivalent to gain-to-value ratio in year T)

$$g^* = 1 - b/(1+r)^T$$

		Initial gain-to-value ratio ($g = 1 - b$)		
		.2	.5	1.0
Year of Sale	0	.2	.5	1.0
	1	.27	.55	1.0
	10	.69	.81	1.0
	20	.88	.93	1.0

$$\text{Present value of gain} = \frac{V(1+r)^T - B}{(1+r)^T} = V(1 - b/(1+r)^T)$$

$$= V - B/(1+r)^T$$

Table A-4
 Ratio of Present Value of Adjusted Gain in Year T to Value of Asset in Year 0

$$(1 - x_T b / (1+r)^T), x_T = x(1.07)^T, x = 1.3$$

		g			
		x_T	.2	.5	1.0
Year of Sale	0	1.3	-.4	.35	1.0
	1	1.39	-.1	.37	1.0
	10	2.56	.21	.51	1.0
	20	5.03	.40	.63	1.0

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Discussion

*C. Eugene Steuerle**

Since 1917 special treatment for charitable contributions has been allowed in the individual income tax. Although there has been much research since that time on the interaction between the tax system and charitable contributions, in the last decade this research has tended to emphasize the impact of the existing treatment of charitable deductions, and changes in that treatment, upon total contributions.

Charles Clotfelter's recent paper is an extension of this later literature. Although the paper does not present any new evidence on the effect of price or income changes on charitable giving, it does simulate the effect on charitable contributions of various changes in the tax law under certain assumptions about the responsiveness (or elasticity) of giving to changes in price and income. As is usual, Dr. Clotfelter should be commended for performing his task well; his several papers on major tax reform represent an important contribution to the recent debate on that issue.

My comments will focus on four issues. In many cases, these comments relate as much to the recent literature on charitable contributions as to Dr. Clotfelter's excellent extension of that work.

First, we must constantly remind ourselves that what we don't know about charitable giving dominates what we do know. We still explain only a small portion of the variance in patterns of giving across individuals. Moreover, one has to be very careful in using existing data, especially simulation results, given the mixed nature of the econometric evidence.

Second, recent simulations of changes in current law provide us

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with only a small part of the evidence we need to address the tax reform question. Even if the reported results are correct, additional attention needs to be given to examining other social costs and benefits of policy changes.

Third, the existing literature often fails to establish certain efficiency or equity goals or targets and then focus upon which sets of policies can best or most efficiently meet those standards. Achieving efficiency or maximizing social welfare is at the very heart of policy research. To be more specific, if our standard is to aid a certain group, then our focus as scholars should be extended from measuring the impact of a particular policy upon that group to asking which policies are most targeted to the goal at hand. This type of focus would enhance recent examinations of changes in the treatment of appreciated property and of a floor on itemized contributions, for instance.

Finally, there is a significant probability that the failure of major tax reform will actually result in a weaker, not a stronger, charitable sector.

Caution in Interpreting the Empirical Data

My first point is one that is often made when limited econometric evidence is used to simulate major effects in the economy. We simply must be cautious.

In the area of research on charitable contributions, such caution is required on several accounts. First, research to date tells us only a little about incentives to give. Only a modest amount of the variance in giving is explained by regressions. Even what is explained opens up some important questions. For instance, why does a population with a high price elasticity demonstrate an income elasticity that indicates that the more a person earns, the smaller the percentage of his income he will give to charity?

Second, to the extent there is a consensus on elasticities and responsiveness, it derives primarily from the use of cross-sectional data. Time series data do not generally support the high elasticities found in cross-sectional data, although the two results can be reconciled if one assumes that persons respond to changed incentives only with a lag of many years. If there is a lag, however, then we must be even more careful in trying to interpret the one-time 1981–83 evidence which shows selective income classes, but not the population as a whole, decreasing their rates of giving after the passage of the 1981 tax act. Findings of certain survey questionnaires also have not supported the standard cross-sectional evidence, and while we must exercise great caution with data from surveys, I do not believe they can be ignored totally.

Third, there is strong multicollinearity between independent varia-

bles in the regressions upon which recent simulations have been performed. Moreover, if tax rates differ among persons with similar incomes, it is not usually because they face different tax structures, but rather because they take different amounts of other deductions and exemptions. Much behavior, such as use of IRA accounts, is actually determined simultaneously with the choice of the level of charitable contributions.

Fourth, there are difficulties with both the measure of income and the measure of price in most of these studies. The income variable is very poorly measured for the wealthy, an issue to which I will return later. As for the price variable, it is usually not the price of the last dollar of contributions but, because of other problems, is often the price of the first dollar of contributions. I could go on, but let me emphasize that these cautionary remarks apply to most of the recent work on charitable contributions, including my own.

Evaluating Tax Reform in the Aggregate

While simulations are useful, they provide us with only minimal information by which to judge the value of tax reform. Since Clotfelter has himself made this observation, my comments are merely an extension of his own remarks. When comparing the trade-off between base broadening and rate reduction, almost everyone will admit that the issue of charitable deductions is only a small part of the broader tax reform issue. A similar limitation applies with respect to those provisions more directly affecting charitable deductions. We can simulate, for instance, the responsiveness of taxpayers who give small amounts of money to charity. How do we deal with the fact that no administrative arm of the government has any feasible way of checking on the validity of the claims of those deducting such small amounts of money? Taxpayer compliance data indicate that auditors detect overstatements of contributions on over one-third of all returns claiming charitable contributions. The value of any tax incentive must be judged in part by its administrability.

A related concern is that measuring changes at one point in time may be misleading. Why do we measure the impact on charity of reducing the number of itemizers, while no mention is made of periods in which the number of itemizers has increased? Should current proposals with respect to non-itemizers be compared to a law that provides significant incentives only in 1985 and 1986, or to the law that applies before and after those years? Absent a theoretical basis for choosing comparisons, we at least need a more historical view of costs and benefits from tax reform; changes in the law must be viewed in an historical context in

the same way that changes in stock market values must be related to cyclical troughs as well as peaks.

Measures of Efficiency

Analyzing the relative efficiency of particular approaches to charitable giving would be an especially useful addition to the recent literature, especially when floors on giving and limitations on gifts of appreciated property are discussed. Actually, the initial work here has tended to show little effect from those two proposed changes in the tax laws.

For proposals containing floors and limitations on gifts of appreciated property, of course, there likely will be some response to change in price. If special treatment of appreciated property is opposed, the argument is usually that such treatment is inequitable. Suppose, however, that our standard was efficiency. Since the measure of efficiency usually proposed is the change in charitable contributions per dollar of revenue cost, could the special treatment of appreciated property be argued as efficient by this standard? No, not at all. For instance, if we need to give additional incentives to high-income taxpayers because they are likely to have higher price elasticities, then why give special treatment to capital gains property? Since a variety of alternative mechanisms would target the incentive even better, the current rule violates the efficiency standard.

The floor on contributions presents a better case. Let us suppose once again that the efficiency standard is to maximize charitable contributions per dollar of revenue cost. Then I contend that a floor, whether at 1 percent of income, 2 percent of income, or some other level, is one of the most efficient mechanisms for achieving that result. Under certain fairly weak hypotheses, it can be proven that if there is any independent source of price elasticity among taxpayers, then persons giving charitable gifts above a floor amount would be more likely to have higher price elasticities. One does not need the stronger hypotheses put forward in Clotfelter's paper: a price elasticity that grows with the income of the individual, or systematic differences in price sensitivity between big-givers and small-givers. Thus, when a floor on the deduction for charitable giving is being examined, the assumption that all persons at a given income level have the same price elasticity tends to set an upper bound on the absolute value of a decline in charitable giving.

The Charitable Sector As Winner or Loser

A final and most important issue is whether the charitable sector

will come out ahead by the failure of the proposed tax reform. I cannot reach a definite conclusion with existing information, but I can offer two pieces of evidence that suggest the results may be just the opposite of what is usually argued.

First, I believe that the failure to deal with the steady erosion of the tax base for individual and corporate taxes will inevitably mean a decline in tax incentives for charitable giving. In recent years, there has been a strong tendency to replace income taxation with social security taxation, and there are very strong pushes today to substitute excise and value-added taxation. With the existing tax code, I do not expect these tendencies to abate, nor do I think that the charitable sector can count on future increases in marginal tax rates to compensate for declines in the income tax base. Recall that there are no charitable incentives whatsoever in existing excise, value-added, and social security tax structures. A failure to build a viable income tax system almost inevitably means a long-term decline in incentives for charitable giving.

Second, my own research on giving patterns of the wealthy shows clearly that most wealthy persons do not realize much in the way of capital income. More recent data published by the Treasury Department have also shown that the majority of taxpayers with \$250,000 or more in total positive income are now also owners of partnerships generating sizable losses for tax purposes. The income tax incentive simply does not apply to most of the economic income of the wealthy.

As a simple example, someone with \$2,000,000 of wealth recognizing 2 percent of that wealth, or \$40,000 in income, only has an incentive under current law to give up to \$20,000 in cash or \$12,000 in appreciated property to charity. Someone recognizing no income has no incentive. Obviously, the very wealthy are only a minority of taxpayers, but so are those who give appreciated property. If educational institutions receive most of their contributions from wealthy persons, these institutions might well be better off in a system in which recognition of income was a more normal event than they are in the current system. As I have indicated before, the line of causation is not from tax rates to charitable contributions, but rather from tax rates to decisions to recognize income and take a multitude of deductions. In this type of world, much of the incentive for charitable contributions can already be lost by the time such an incentive applies to the remaining tax base.

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The Effect of Tax Simplification on State and Local Governments

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The essence of any serious program of federal tax simplification is the same today as it was when Pechman first broached the idea more than 30 years ago: include as taxable income a larger share of economic income and subject that broader base to much lower marginal rates of tax. The lower marginal rates themselves will reduce the relative attractiveness of whatever tax shelters remain. As part of the base broadening, nearly all federal tax reform plans would narrow—in some cases eliminate—deductibility of state and local taxes. These proposals are an extension of a trend that began with the exclusion of excises and license taxes in 1964, extended to gasoline taxes in 1978 and was seriously considered for the sales tax in the debate that led to TEFRA in 1982. Current tax reform plans also either eliminate tax-exempt borrowing or restrict it by removing tax exemption from some types of borrowing.

The Deductibility of State and Local Taxes

Eliminating or substantially restricting deductibility raises the net costs of state-local taxes to itemizers; if their voice is politically effective, there should be some reduction in the revenue raised by currently deductible taxes, especially in the states with relatively high tax rates, with possible effects on the level of state-local spending and on the structure

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of state-local revenue systems. If their voice is ineffective, there should be, in the long run, an impact on the location of economic activity, because net interstate tax differentials will be higher than they were before deductibility was reduced or eliminated.

The Rationale for Deductibility

At one extreme, if all taxes imposed by state and local governments are used to buy either ordinary private goods that happen in some places to be provided by something called a unit of government (perhaps in large part so provided simply *because* of federal income tax deductibility) or what are sometimes called "club goods," then deductibility is both inequitable horizontally and inefficient, as an inducement to overspend on some goods and services, with possible inefficiencies in the location of economic activity. Even apart from deductibility's effect on the distribution of tax burdens by income class, no case could be made for it, and all the consequences of its removal would be to the good.

At the other extreme, if all the proceeds from currently deductible taxes were used to finance pure public goods, then each individual's taxes are involuntary payments not attached to any specific benefits to that individual, and therefore reduce his or her ability to pay income taxes. Pure public goods do generate benefits but those benefits are unrelated to the taxes paid to finance them and must be disregarded in comparing the relative taxpaying ability of individuals and households. Thus, taxable income *should* be measured net of these taxes. The only hitch in this argument is that public goods do confer benefits over different geographic areas. If the benefits *stop at the state lines*, then there is no case for the federal government to recognize state and local taxes as an impediment on ability to pay, since all federal taxpayers within the state, as a group, have benefits that offset the taxes paid. Federal deductibility, under the circumstances assumed, would treat taxpayers with the same net ability to pay differently in different states. Federal recognition of the impact of state and local taxes on ability to pay therefore should extend, in an ideal fiscal system, only to taxes imposed to finance public goods whose benefits spill over state lines.

This equity argument is mirrored on the efficiency side: public goods provided by the state-local sector that have significant positive externalities (external to the state providing) will be under-supplied in the absence of a federal subsidy for their provision. The trouble with this proposition is that the "transfer efficiency" of deductibility of taxes as a subsidy is exceedingly low. This is because the state and local governments gain revenue only to the extent that voters are willing to bear higher state-local taxes, now that deductibility has lowered the net costs

of one dollar of tax payments to something less than one dollar. If the price elasticity of demand for state-local expenditure is -0.5 (a widely used figure that many now believe to be on the high side), the marginal tax rate of itemizers is 30 percent and itemizers are decisive in state-local decision making, then state-local revenue will be increased by 15 cents for each 30-cent loss in federal revenue. If itemizers are not decisive, the figure will be much lower.

If the transfer efficiency is that low, then it would take a relatively small increase in federal matching grants for specific purposes¹ to offset the loss in allocational efficiency—the under-supplying of state-local public goods with benefit spillovers—that eliminating deductibility would cause, even if those spillovers loomed large in state-local spending. They probably do not, however, even in the most generous of estimates. At least one-third of spending financed from state-local tax revenue is for public safety, transportation, local environmental services and general government administration, a mixture of private goods and public goods with few if any interstate spillovers. About one-half is for education, where surely spillovers account for far from 100 percent of spending. The remaining one-sixth is for explicitly redistributive activities in health, welfare and housing, where the interstate spillovers may be considerable (but even here there are private goods aspects). A high estimate might be that interstate benefit spillovers are associated with about 20 percent of state and local tax-financed expenditures (that is, above and beyond the spillovers already presumably paid for from federal grants); a low estimate would set the figure at well below 10 percent.

Of course, for policy purposes, one must be concerned about whether, at the margin, these percentages are different. The fiscal crises of the 1970s in major cities and states, and their responses to reductions in federal grants during the 1980s, suggest that redistributive expenditures are seen as marginal at the state-local levels. If this is so, then the extent of interstate benefit spillovers affected by the withdrawal of deductibility may be considerable. So some subsidy, beyond present federal grants, should be provided for state-local spending.

While some argue for discriminating among tax forms or disallowing of one or the other of the currently deductible taxes, these arguments are not very persuasive. In 1982, deductibility of sales taxes was under attack in part on the ground that the payment of sales taxes involved

¹ The grants literature makes it clear that matching categorical grants not only should be, but actually are, far more stimulative of state-local spending than are unconditional grants like general revenue sharing; for a review of that literature, see Gramlich (1977). Oakland (1985) argues that the transfer efficiency of deductibility may be greater than that of general revenue sharing. In contrast, Noto and Zimmerman (1983) consider general revenue sharing to have the better of the argument, based on the observed "flypaper effect," explored in Courant, Gramlich and Rubinfeld (1979), which Oakland asserts may be an aberration tied to the specific circumstances of the 1970s.

some degree of voluntary choice. But the difference in the degree of volition among a broad-based sales tax, the property tax (one can buy or rent a cheaper house) and the income tax (there is also the choice between work and leisure) seems far too insignificant to be an element in tax policy-making. Differential treatment of the property tax with regard to deductibility is closely connected with the polar views on the appropriate federal income tax treatment of owner-occupied housing: if one sees favorable discrimination as all wrong, then deductibility of the property tax should be removed, whatever is done with respect to other state and local taxes. If one sees virtue in tax subsidies to owner-occupied housing, then property tax deductibility should be retained, whatever is done with respect to other taxes.

Some case can be made for differential treatment of property tax deductibility, aside from the owner-occupied-housing question. The property tax is the province of local governments and a larger fraction of local spending is for private goods and public goods whose benefits are realized in small geographic areas than is the case for state governments. Another reason for differential treatment of the property tax is connected with its incidence, which presumably is quite different from that of state and local income and sales taxes.

Whatever the theoretical case may be, a powerful pragmatic argument can be made against differentiating among the tax forms: state and local governments can offset the federal revenue effects by changing the composition of their tax systems. To be sure, the shift might never completely undo the federal tax reform, but it could go a long way within a few years. The question of the effects on the composition of state-local revenue systems is treated further in a later section of the paper.

Effects on the Aggregate Level of Public Spending

The removal of deductibility, or its substantial narrowing, may lower after-tax incomes and raise the price of public spending financed from previously deductible taxes. How large are the resulting income effects and substitution effects likely to be?

A generally accepted estimate of the income elasticity for aggregate state-local spending is +0.6 or, alternatively, an increase in expenditure of about nine cents for each one dollar increase in income (see Inman, 1979, and Gramlich, 1977). So, if state and local taxes had not been deductible in 1982—and all other provisions of federal tax law had been unchanged—after-tax personal income would have been \$24.5 billion lower, and state-local spending financed from own-source revenue would have been about \$2.2 billion lower.

The effect is not only small; it is also irrelevant to consideration of deductibility in the context of revenue-neutral federal tax reform (the

income effects are not irrelevant in considering the differential impact among the states, although they will be small here too). The price effect is the one of importance in this context. With the exception of a reform plan that provides a threshold expressed as a percentage of adjusted gross income, below which state-local taxes are not deductible, all other proposals for limiting deductibility raise the net cost, at the margin, of state-local tax payments to those who claim itemized deductions, and thus have a price effect.

Accepting -0.5 as an uneasy consensus on price elasticity, the next question is the size of the price change. In theory, that should be the price increase confronting the median voter; if the median voter is an itemizer, it is the marginal tax rate for the voter divided by the present price, one minus the marginal tax rate. If the median voter is not an itemizer, prices do not increase at all. The data allow us to estimate the marginal tax rate for itemizers by income class and by state, but it is not clear just how to identify the median voter. Kenyon (1985) places that voter in the \$25,000 to \$30,000 range of adjusted gross income for 1982, on the basis of Census data on voting by income level. She then calculates a weighted price for state-local services financed by deductible taxes of .85, in the income class containing the median voter. Thus, elimination of deductibility would raise the price by about 18 percent.

If the price elasticity is -0.5 , then state-local tax rate reduction in response to voter pressure should in time reduce by 9 percent the revenue from taxes that are currently deductible. Or, if the uncompensated price elasticity is -0.5 and the compensated price elasticity therefore -0.4 (with an income elasticity coefficient of $+0.6$ and state-local spending at 10 percent of aggregate income), that revenue will decline by about 7 percent. But this revenue finances only a fraction of total state-local government spending—about 27 percent in 1982–83. So the expected decline in total state-local spending from all sources of revenue is a bit less than 2 percent—and it would be a good deal lower if the “correct” price elasticity is significantly lower than a (compensated) -0.4 . It would also be lower if voters decided to increase nondeductible revenue sources to partially compensate for the loss of deductible revenues.²

Thus, the effect on the aggregate level of state-local spending from the ending of deductibility is likely to be very small (and smaller still if deductibility is narrowed, rather than ended entirely). Given that the additional spending induced by the presence of deductibility is in part in the form of private goods and wholly local public goods—which is both inefficient and horizontally inequitable—there seems very little basis to argue for continuation of deductibility from the standpoint of the aggre-

² Inman's 1985 paper finds substantial degrees of both complementarity and substitution between deductible and nondeductible revenue sources.

gate level of public spending. If there is a case for deductibility, it must be based on the national interest, if any, in the composition of the revenue systems of state and local governments and/or the national interest in the interjurisdictional disparities in the effects of ending deductibility.

The Structure of State-Local Revenue Systems

It is likely that the existence of deductibility has encouraged state and local governments to rely more heavily on deductible personal taxes than on alternative revenue sources, including user charges, non-deductible taxes paid by households (mainly selective excises) and taxes paid by businesses (which will remain deductible in any conceivable tax reform plan). Therefore, we might expect the end of deductibility to foster a shift to those other revenue sources.

Increased use of selective excises seems the least likely of these possibilities, because the most popular objects of such excises—alcoholic beverages, cigarettes, motor fuel and (at the local government level) public utilities gross receipts—usually are subject to high rates of tax already.³ Conceivably, the end of deductibility might reduce the opposition to higher rates of taxation of motor fuel in some states (although the post-1973 experience should convince us that the political decision-makers believe that low taxes on gasoline have the appeal in most states that rent control has in New York, Cambridge and Santa Monica), and perhaps some new “demerit good” with price-inelastic demand (legal marijuana?) in the future may attract excise taxation. But these seem unlikely and minor occurrences.

Increased reliance on user charges would be welcomed by most analysts, if the user charges were properly designed. However, if we look beyond New England, user charges already finance a considerable share of expenditures for private goods provided through state and local governments, with the non-trivial exceptions of education (at all levels), public transportation (the only service for which the share of finance coming from user charges has declined since 1970), and local expenditure for roads and streets. For example, local government costs for sewerage are now wholly user-charge-financed, a big change from 20 years ago, and user-charge financing (and privatization) have increased for refuse collection and disposal.⁴ Although the easy opportunities for user charge financing have generally been taken already (even Boston and

³ As of 1982, combined federal-state-local selective sales tax revenue amounted to the following percentages of the dollar volume of sales (measured variously) excluding those taxes: motor fuel, about 13 percent; alcoholic beverages, about 21 percent; tobacco products, about 37 percent; and electric, gas and telephone utility sales, about 4 percent. Calculated from NIPA, *Statistical Abstract* and Census of Governments data.

⁴ For a discussion of the change in reliance on user charges by local governments during the 1970s, see Netzer (1983).

New York no longer subsidize water supply, as they did until a few years ago), the elimination of deductibility should make some of the more difficult opportunities more attractive.

One difficulty here is that the potential efficiency advantages of user charges depend entirely upon proper design. Conventional user-charge designs—flat transit fares, admission charges to facilities and events with considerable unused capacity, uniform all-hour tolls on bridges, motor vehicle registration fees as highway-user charges, for example—can be less efficient than general taxes. Unconventional designs seem hard to sell, even to sophisticated politicians, and marginal cost pricing does not seem to mix well with populism, especially populism of the right.

A likely response to the elimination of deductibility of taxes paid by households would be a shift to taxes paid by businesses, which remain deductible, although the shift will be contained by worries about adverse effects on economic development. Increased state corporate income tax rates and narrowing of various tax-reducing features would be one response. Another would be to sweep more intermediate business purchases into the net of the general sales tax (in concept, one of the most unneutral tax actions possible, although the quantitative effects overall may be small).

No doubt, the movement toward classification in the property tax would be encouraged. As of the 1982 Census of Governments, 17 states and the District of Columbia had formal constitutional or statutory provisions for taxing different classes of real property at different effective rates, in all or some parts of the state. Business property is almost always in the higher effective rate classifications. Most of these provisions were adopted within the last decade, as part of the response by homeowning voters to the combination of rapid increases in housing prices and improved assessment administration. An alternative, of long tradition in a few states in the south, would be to provide very large homestead exemptions, such that the tax base was reduced essentially to business property.

The elimination of deductibility also could result in shifts in relative reliance among the state and local deductible taxes and in changes in the specific features of those taxes. Most important are state and local income taxes. About half of the dollar amount of the total deductions for taxes paid is for individual income tax payments, and well over half the U.S. Treasury's revenue loss due to state-local tax deductibility is attributable to income taxes alone.⁵ Moreover, recent empirical work by Kenyon (1985) and Inman (1985) finds that residents' savings from deductibility are an important determinant of a state or local government's

⁵ U.S. Congressional Budget Office (1985), pp. 291–293.

dependence on income taxes. This implies that the loss of deductibility is likely to significantly reduce reliance on personal income taxes.

If the elimination of deductibility does lead to a major movement to reduce the importance of individual income taxes in the state-local tax structure, this will be a sharp reversal of a major, but largely unremarked, trend over the past 20 years or so. Most of us are familiar with the observations that the state-local sector relies a lot less on own-source revenue than it did 20 years ago (although more than it did at the peak in federal aid in 1978); that nontax revenue has increased somewhat more than tax revenue; and that, within the tax component, the role of the property tax has decreased sharply. There has been less commentary, however, about the role of individual income taxes per se.

Between 1962 and 1982–83 (using Census Bureau data here), the percentage distribution of state-local tax revenue by major type of tax changed as follows:

	<u>1962</u>	<u>1982–83</u>
Property	45.9	31.4
Individual income	7.3	19.4
Corporate income	3.1	5.0
General sales	14.5	22.8
Selective sales	18.0	12.4
All other	11.2	9.0

Thus, the relative role of the consumption taxes as a group has changed very little; selective sales taxes declined in importance while general sales taxes increased, a result consistent with the ending of deductibility of the former between 1962 and 1982–83. The real change was the displacement of the property tax by the individual income tax, mostly as a result of deliberate choices to shift from local taxation, largely based on the property tax, to state government taxation, based on other sources. The increase in the individual income tax percentage was a result of new adoptions of the tax; increases in the rates of many existing taxes (not consistently, for the period was marked by numerous rate reductions as well as rate increases); and the rapid growth of money income, with tax structures usually quite good at capturing that growth. At the state government level, the individual income tax increased from 13.3 percent of total tax revenue in 1962 to 29.0 percent in 1982–83, for all states combined. Moreover, the increase in reliance on the individual income tax was widespread, not concentrated in a few states (although 11 states continue to have no general income tax).

One obvious way to mitigate the elimination of deductibility for individual taxpayers in states with an income tax is to flatten the rate

structure (or its equivalent in exemptions and credits). However, to avoid a loss of revenue, states will have to raise taxes for some taxpayers, presumably those who do not itemize now and who therefore will not lose from the elimination of deductibility. Not only will this be unpopular (itemizers in 1982 accounted for fewer than 50 percent of federal taxpayers in all but five states, according to the data in Kenyon, 1985), but it also will reduce the responsive of tax revenue to growth in money income.

To some extent, rate reduction can occur without revenue loss in those states whose income tax base is tied to the federal definitions of taxable income, because the state's own income tax base will expand automatically. Thirty-five of the 39 income tax states have such linkages, in one form or another.

In short, the one quantitatively important effect on the state-local revenue structure that is highly likely to occur is lesser dependence on state income taxes as part of the revenue system of the sector as a whole, and probably some flattening of income tax rates.

The National Interest in the State-Local Revenue System. Does it really matter, to the country at large, if the states revise their revenue systems as this analysis suggests? The general answer is yes.

First, if user charges are substituted for currently deductible taxes to finance services with private-goods characteristics, the country will be better off if the new user charges are at all sensible in design. There will be efficiency gains, and most of us would argue that any real equity changes are likely to be to the good, with less subsidizing of well-off users by poorer non-users.

Second, greater reliance on selective excises seems not in the national interest. The efficiency losses from taxes with a narrow base and considerable potential for substitutability are greater than the dead-weight losses from broader-based taxes, quite apart from questions about the costs of administration. (Administrative costs are very low for public utilities taxes but far from trivial for the other selective excises, if a high order of compliance is the target.) Few still believe that consumption of motor fuel and public utility services is price-inelastic.

Third, public finance economists do not think much of state and local business taxes. Both are typically replete with provisions that are unneutral in effect with respect to sectors, inputs and location. Hence, greater use of this revenue source would not be expected to improve the efficiency of the national tax system. The only countervailing possibility is that the political desire to shift the tax burden to business might lead the states to adopt value-added taxes in place of existing business taxes. A value-added tax would generate substantial additional revenue and permit reductions in the currently deductible personal taxes. Since a state-level value-added tax is not the equivalent of a tax on final con-

sumption in that state, it might be easier to sell. The neutrality attributes of value-added taxation afford efficiency gains.

Fourth, from the national perspective, a reduction in the use of property taxation should reduce the progressivity of the national tax system. The effect should be quite small, but if the tax simplification plan adopted is really intended to be distributionally neutral, like Treasury I, that effect might be considered a drawback. The ideal property tax, from the standpoint of efficiency, is one that is completely uniform, not only across jurisdictions, but across types of assets. Therefore, if the end of deductibility promotes more differential taxation of types of assets, that is, shifts the burden from housing to business-owned assets, it is also promoting some loss in efficiency. That shift may be the most likely response to the elimination of deductibility, and the dollar amounts could be large over time.

The overall conclusion here is that from the national standpoint, the end of deductibility may create more losses than gains in the revenue structure; this negative balance stems from the likelihood that dumping property taxes on business will be a widespread response. The losses are not huge, but even so make a case for the narrowing, rather than elimination, of deductibility.

Interjurisdictional Variation in Effects

In political terms, the disparities in impact among the states constitute the most important effects of ending deductibility. Within the context of a federal revenue-neutral tax reform, the elimination of deductibility will result in substantial transfers among federal taxpayers in different states.

The reason for the disparate effects is of course the variation in the ratio of state and local taxes to income. Total state-local tax revenue in 1982–83 ranged from 8.9 percent of personal income in New Hampshire to 15.3 percent in New York, with the median at 10.5 percent (this excludes two outliers, Alaska and Wyoming, with their huge revenue from severance taxes on resource extraction). However, the range for deductible personal taxes is considerably greater than the range for all state and local taxes combined.⁶ The variation is especially great for high-income households.

Kenyon (1985) gives the distribution of states by net gains and losses per capita as follows (again, excluding Alaska and Wyoming):

⁶ There is less variation in corporate income tax rates than there is in personal income tax rates among the states, and a few of the states without personal income taxes do have corporate taxes. Moreover, property tax exemptions and classification schemes produce a higher order of interstate variation in effective rates of property taxes on owner-occupied housing than on the less favored types of property.

Estimated Net Changes in Federal Tax Liability for 1982
with End of Deductibility

\$ Change per capita	<u>Number of States with</u>	
	Gains	Losses
0-9.99	5	3
10-24.99	11	4
25-49.99	9	6
50-74.99	6	3
75 or more	1	1
Totals	32	17

On a per capita basis for the country as a whole, potentially deductible state-local taxes in 1982-83 amounted to \$657, and total state-local tax revenue to \$1,216. It would not be difficult for those states with a net saving or loss of less than \$25 per capita to offset the aggregate federal tax change for their residents by changing state tax provisions. But for 10 states the net loss to resident taxpayers is not at all trivial, and for 15 states the net gain will be seen as very worthwhile.

Is it a matter of national concern that New Yorkers lose \$2.0 billion (\$115 per capita) from the elimination of deductibility and attendant rate reduction while Texans gain \$1.3 billion (\$84 per capita)?⁷ It clearly would be in the national interest for such a transfer to take place if the current deductibility amounts to a subsidy to New Yorkers—paid by Texans and others in the 34 states that now lose net from deductibility—to spend extravagantly on services with no benefit outside the state's boundaries, or simply to pay high salaries to a swollen civil service. Are those the facts?

It is difficult to tell from the data at hand. Superficially, table 1 seems to support the opponents of deductibility. Residents of 13 states and the District of Columbia will lose substantially from the ending of deductibility. In 1982-83 per capita state-local expenditure financed from tax revenue in these states was \$387 more, or 40 percent higher, than tax-financed expenditure in the rest of the states. Of the differential, about 30 percent was accounted for by the lesser proportionate use of nontax revenue. Employment-related variables—staffing relative to population, public employee compensation levels, and employee retirement spending—together accounted for 35 percent of the differential, and spending for welfare, net of federal aid, accounted for another 18 percent. The remaining one-sixth of the differential was accounted for by a variety of

⁷ It should be kept in mind that this analysis ignores the other aspects of federal tax reform plans. It has been estimated that New York residents will gain, net, from Treasury II—which is *not* revenue-neutral with respect to the individual income tax—about \$31 per capita in 1987, although the gain for New Yorkers is proportionally far below the national average. New York State Special Deputy Comptroller (1985).

Table 1

Analysis of Differences in State-Local Expenditure Per Capita between States^a Whose Residents Lose Significantly from the Ending of Deductibility and All Other States, 1982–83:

	Total per capita difference in state-local expenditure, less federal aid	\$517
Less:	Per capita expenditure financed from nontax revenue from own sources	<u>130</u>
Equals:	Additional per capita expenditure financed from state-local tax revenue	<u>\$387</u>
Causes of additional expenditures from state-local tax revenue (in per capita amounts):		
	Lesser use, proportionally, of nontax revenue ^b	\$118
	Higher number of employees in relation to population ^c	18
	Higher salaries per employee ^d	93
	Higher expenditure for employee retirement	25
	Higher expenditure for public welfare, net of federal aid for welfare	70
	Other causes, net	<u>63</u>
		<u>\$387</u>

^a The states whose residents would have lost more than \$10 per capita in 1982, without deductibility, in descending order: New York, Maryland, Minnesota, the District of Columbia, Delaware, Wisconsin, Michigan, California, Massachusetts, Oregon, New Jersey, Rhode Island, Utah and Hawaii.

^b Nontax revenue accounted for 23.8 percent of total expenditure less federal aid for the losing states and 29.5 percent for the other states.

^c Employees per 1,000 population were about 3.5 percent higher in the losing states than in the other states.

^d Wages and salaries per full-time equivalent employee averaged \$21,325 in the losing states and \$17,403 in the other states.

Source: U.S. Bureau of the Census, Governments Division, 1982–83 data.

other expenditures, including interest on debt and transfer payments not classified under the welfare function.

So, close to two-thirds of the differential is explained by factors that may involve discretionary action by state and local decisionmakers—the decision not to rely much on user charges, as in Massachusetts; the decision to staff extravagantly, as in the District of Columbia; the decision to pay high salaries, also in the District; past decisions that produce generous employee pension plans, once again in the District. But things are not that simple. The mix of expenditure—and the allocation of responsibilities between the public and private sectors—very much affect the use of nontax revenue sources. Most of these states have no major public power operations, an important generator of nontax revenue. It hardly is consistent with the argument against deductibility to assert that the states without public power systems “over-tax” because the data for them show less reliance on user charges. On the other hand, in numerous cases a feasible choice for user charges rather than taxes has been rejected—as is so characteristic of New England—and deductibility encourages that uneconomic decision.

Similarly, the level of expenditure for personal services is partly a matter of choice, partly a matter of pressures that politicians have no power to ignore, such as court orders and other federal requirements with respect to prisons, mental hospitals, and special education; regional differences in wage rates and living costs; and the accident of being the point of entry for large numbers of immigrants (California and New York). The same considerations apply to spending for welfare purposes: there is an element of choice, but discretion is less than complete unless the public and officials are prepared to tolerate very high levels of distress indeed. To be sure, in the long run, substantially lower levels of spending for what now seems socially necessary purposes in the high spending states will produce migration of problem populations to other states: a harsher prison regime will affect the distribution of miscreants; a more porous safety net will speed the dispersion of immigrants away from the initial points of entry.

During the past 15 years, there have been numerous budgetary "crises" in the state-local sector, some clearly cyclical (and thus amenable to solution by various short-term expedients), but some—especially in economically weak places—evidently of a secular nature, requiring a lower level of spending in the absence of rescue from without (and perhaps even with such a rescue, as occurred in the New York City fiscal crisis of 1975). What expenditure has been reduced in these crisis situations? Almost invariably, there has been a reduction in labor costs in real terms, some combination of reductions in real wages and reductions in staffing. The reductions in staffing usually have been sharpest in connection with social services and education. Also, states in crisis have frequently reduced the level of public assistance payments in real terms, and restricted the scope of and eligibility for various social services.

It is not necessarily the case that the reduction in staffing reduced, proportionately, the level of social and educational services provided—and thus the extent of redistribution through public spending—but the pattern suggests that officials and voters saw the pre-crisis package of public spending in a way that gives some support to deductibility. There was a slice of the spending that was a very private good indeed—excess wages to public employees in that jurisdiction, which could be eliminated. There was another slice, protective services, whose benefits were perceived as equal to at least 100 cents on the tax dollar, that should be cut as little as possible. And there was a large slice of redistributive spending, with benefits to median voters well below 100 cents on the tax dollar, to be cut substantially. Presumably, the sudden, large downward pressure on expenditure that would be caused by the end of deductibility in high tax areas would result in a similar pattern of spending reductions, with itemizers viewing social services and other redistributive activities as being of low benefit to them.

If, as seems to be the case, the redistribution branch (to use the Musgrave terminology) is especially large in the high-tax states, then deductibility can be supported on the ground that the high taxes are not simply a result of local political decisions in which there is no national interest. Instead, deductibility is a subsidy for redistribution that is appropriate, given the probable absence during the next few years of federal grant aid to support redistributive spending at the state-local level that is now financed from state-local taxes. However, this position is by no means unchallenged in the public finance literature. Gramlich and Rubinfeld (1982) found a pro-rich bias in public spending in Michigan, which may be characteristic of some other high-tax states and which is compounded by federal tax deductibility.

Redistributive expenditure is not the only aspect of the national interest that is at issue in connection with the interjurisdictional effects of ending deductibility. With the end of deductibility, the absolute magnitudes of differential interjurisdictional tax burdens are likely to rise sharply, and that should produce some locational shifts over time. The shifts might be especially pronounced if political pressures lead the states to substitute business taxes for currently deductible personal taxes.⁸

In theory, the country will be better off, not worse off, from the migration that follows the elimination of deductibility, if the principal effect of deductibility had been to lower the tax price of entirely local or private goods. In that case, deductibility surely was encouraging people to locate inefficiently. If, on the other hand, externalities and redistribution loom large in the present pattern of gross differentials in state-local taxes, the migration that will be induced by the ending of deductibility will be inefficient.

Kenyon (1985) has a useful hypothetical illustration of the migration question, reproduced in table 2. She puts the question in terms of how residents perceive the value of benefits from net local tax payments, with a low ratio of benefit value to tax payments an indication of inefficiency in government production and of the presence of externalities. An alternative formulation would include all redistributive expenditure in the zero-benefit category (for itemizers), as well as "defensive" expenditures that are designed to make a city as tolerable for itemizers as competitive locations. (High-income taxpayers in most large central cities probably view a large fraction of their state-local tax payments as

⁸ Note that the locational effects need not be restricted to the states whose residents as a whole are net losers from the end of deductibility. The end of deductibility will widen the differentials in state-local tax burdens as such; the lower marginal rates of the federal income tax may offset the end of deductibility for any individual, but those lower marginal rates are available anywhere in the country, so migration to avoid high state-local taxes makes sense regardless of the net federal tax liability change.

Table 2
Possible Effects of Tax Deductibility on Migration^a

	(1) Gross Taxes	(2) Taxes Net of Deductibility	(3) Perceived Value of Benefits	(4) Before Deductibility	(5) After Deductibility
<u>CASE 1: Perceived Benefits = $\frac{1}{4}$ Taxes</u>					
High-Tax City	\$12,000	\$9,000	\$ 3,000	\$3,000 incentive to move from high-tax to low-tax city	\$2,000 incentive to move from high-tax to low-tax city
Low-Tax City	\$ 8,000	\$6,000	\$ 2,000		
<u>CASE 2: Perceived Benefits = $\frac{1}{2}$ Taxes</u>					
High-Tax City	\$12,000	\$9,000	\$ 6,000	\$2,000 incentive to move from high-tax to low-tax city	\$1,000 incentive to move from high-tax to low-tax city
Low-Tax City	\$ 8,000	\$6,000	\$ 4,000		
<u>CASE 3: Perceived Benefits = $\frac{3}{4}$ Taxes</u>					
High-Tax City	\$12,000	\$9,000	\$ 9,000	\$1,000 incentive to move from high-tax to low-tax city	No incentive for migration
Low-Tax City	\$ 8,000	\$6,000	\$ 6,000		
<u>CASE 4: Perceived Benefits = Taxes</u>					
High-Tax City	\$12,000	\$9,000	\$12,000	No incentive for migration	\$1,000 incentive to move from low-tax to high-tax city
Low-Tax City	\$ 8,000	\$6,000	\$ 8,000		

^a Tax and benefit levels are assumed. A federal marginal tax rate of 25% is also assumed.
Source: Reproduced from Kenyon (1985).

producing zero benefits in these senses.)

If Case 4 is a good description of the real world of state-local finance, then deductibility's influence on location is entirely pernicious: people have an incentive to move to a high-tax location to receive benefits at a below-cost tax price. If the real world is like Case 1, and the gap between the value of benefits and taxes is largely due to externalities and redistribution, then the elimination of deductibility would increase the existing incentive for inefficient locational shifts.

Opinion among public finance economists, like opinion generally, has shifted to the right in recent years. A few years ago, there was little doubt expressed in the literature that a substantial part of the disparities in taxes and spending was connected with the composition of the population and the consequent redistributive aspect of state-local finance. In a classic article in 1974, Bradford and Oates explored the consequences, in theory and empirically for northeastern New Jersey, of consolidating all local governments in a large metropolitan area into a single unified government. They predicted substantial inefficiencies in a Tiebout sense, a good deal of income redistribution and a pronounced locational effect; that is, reduction of the incentive of the affluent to move to income-segregated suburbs to escape taxation for redistributive purposes. This was consistent with the findings in the literature of urban economics that large U.S. metropolitan areas were a good deal more decentralized than would be predicted by nonfiscal variables alone. If Bradford and Oates had included the elimination of deductibility as one of their scenarios, they surely would have predicted an exacerbation of the incentive for the affluent to shift to income-segregated communities, and they would have seen this both as a consequential loss in equity and as locationally inefficient.

The literature of the past dozen or so years sees multilevel public finance rather differently. As summarized succinctly by Gramlich (1985a), subnational governments play a useful role in the economic stabilization branch; income redistribution is best done at the local level, on the whole, although Gramlich himself argues that long-term interstate migration and the existing large disparities in public assistance levels argue for a direct federal income support system. In the allocation branch, the present division of functions does closely match the nature of the benefits generated by the various functions. The last position is based on viewing elementary and secondary education as generating little other than private benefits to children and their parents. If the present distribution of responsibilities among the levels of government is close to right, and the system of grants from the federal government to the state and local governments not too defective, then the subsidy in deductibility has no positive merits to offset its demerits as an inefficient stimulus to overspending on public services without positive spillovers.

In effect, it serves as a gift to high-income people and an inducement to inefficient patterns of residential location; it is, to use Gramlich's adjective, pernicious.

About 65 percent of deductible taxes are paid to state, not local, governments, and state individual income and retail sales taxes surely are very far from being wholly or largely benefit taxes. If deductibility could be restricted to residents of large central cities and other low-income places (as proposed in Gramlich 1985b), then there would be only efficient locational effects. But this is perhaps the most unlikely of political outcomes.

One final point can be made about the interjurisdictional effects, this one political, not economic. The American federal system works on the basis of simultaneous interregional bargaining over many points; the bargaining is continuous and depends on the current positions. The inflicting of large windfall losses on particular states or regions does not fit this bargaining pattern: the fact that some places did well in the past because of a set of arrangements that are now seen as poorly conceived has never justified reversing those arrangements, if only because the people who will lose today are not those who gained in the past, because of both mortality and mobility. Perhaps the classic example is federal policy with respect to Western water resource development and the distribution of federal water. In comparison with the inefficiencies and inequities in these policies, state-local tax deductibility is Pareto-optimal. Those inefficiencies and inequities are now widely recognized, but the policies have not been reversed, only slowly and marginally modified; reversal and the windfall losses associated with reversal strike most Americans, not only real property owners in the arid West (the winners from past federal policies), as unfair and inconsistent with the politics of our federalism. The complete elimination of deductibility would be of that political character.

This argument appears, in more formal terms, in Hochman (1973): fiscal institutions tend to be capitalized and reversal of longstanding practices can lead to haphazard patterns of gains and losses, perhaps more harmful socially and politically than the ills that were to be corrected by the reform in question. As Hochman put it recently (in a comment on an earlier version of this paper):

The tax code is but one aspect of Federal law; but it was not a painting created in isolation. All of the other legislation that affects state and local relations and defines the federal system, etc., was enacted under some assumptions, perhaps implicit, about the tax code, the constitution, etc.

While this is an argument against any non-incremental reform of the tax structure, it is peculiarly apposite for a reform, the central feature

of which (in Treasury II) is a drastic change in the system of fiscal federalism and the balance of interregional relations. Treasury II is incremental in virtually every other feature (for example, taxability of fringe benefits); it is radical when it deals with the federal structure.

Conclusions on Deductibility

It is both attractive and useful to view the finances of state and local governments as if they were all manifestations of a Tiebout world, in which state-local taxes are the equivalent of prices paid through voluntary exchange in markets and locational choice is the process through which these markets are cleared. A great deal of worthwhile analysis has flowed from that construct. If we use the construct, then there is no argument at all for tax deductibility (other than the political one in the preceding paragraph): deductibility inefficiently increases aggregate spending, induces state and local governments to use the revenue instruments that they would otherwise disdain (in particular, steeply graduated personal income taxes), and provides incentives for inefficient locational patterns (in particular, encouraging high-income people to live in high-tax jurisdictions). But in a world with externalities and redistribution at the state-local level and long-established institutions and practices, the argument must change.

It does not change greatly with respect to the effect on the aggregate level of state-local spending. The elimination of deductibility might cause some loss in spending for externalities and redistribution, but since the total effect would be so small—a reduction of less than 2 percent of total spending—the efficiency and equity losses on this score must be trivial.

The effects of deductibility, or its elimination, on the revenue structure of the state-local sector are in practice somewhat equivocal. Elimination would marginally encourage substitution of user charges for personal taxes, an efficient result if the charges are properly designed but not if they are the conventional clumsy lot. There would also be an inducement to substitute business taxes for personal taxes, which is probably undesirable, and to rely more on selective sales taxes that are not now deductible, which is even less desirable. Reduced reliance on the property tax would lower the progressivity of the national tax system, as would reduced reliance on state-local personal income taxation (how much depends on the actual form of the tax cuts that state and local governments make). So, the likely revenue structure effects are mostly undesirable, although perhaps not strongly so.

The interjurisdictional effects in the real world are harder to appraise. Based on the view that the non-Tiebout aspects of the finances of the states and of large central cities predominate for those units, I con-

clude that the losses from complete elimination of deductibility will exceed the gains, in regard to interjurisdictional effects. Together, these conclusions suggest restricting, rather than eliminating, deductibility: raising tax prices, but not to 100 cents on the dollar (for example, by only permitting the deduction of some fraction, not 100 percent, of personal taxes paid), and also employing a threshold—appropriate for *any* personal deduction alleged to be provided in order to refine the measurement of ability to pay, including charitable contributions.

Exemption from Taxation of Interest on State and Local Bonds

If after tax revision the interest on some debt obligations of state and local governments continues to be exempt from federal taxation, the lower marginal rates will reduce the value of the exemption to holders of the debt, thus making them less likely to buy such obligations unless their yields rise relative to yields on taxable obligations. Although the efficiency and equity costs of tax-exempt borrowing seem a good deal higher than those of deductibility of state and local taxes, complete elimination of deductibility is more popular in current tax reform plans than is complete elimination of tax-exempt borrowing.

The Demand for Municipals

If the only change in the federal income tax being contemplated were to reduce the top marginal rates to 35 percent for individuals and 33 percent for corporations, there should be some reduction in the demand for tax-exempt fixed-income securities and—if the supply is unchanged—an increase in yields.⁹ Nevertheless, demand should not collapse, under the conditions that have prevailed for most of the past 15 years, during which time the spread between yields on similar long-term tax-exempt and taxable bonds generally has been less than 30 percent. At a 30 percent spread, the tax-exempt bond continues to offer a higher net yield than a taxable bond, even after top marginal rates are reduced to 35 and 33 percent.

However, interest costs to state and local governments over time will be higher for several reasons. First, average rates relative to taxable securities must be somewhat higher over the years than they have been in the past, since we would be unlikely to experience again periods

⁹ An excellent summary of the likely effects of the proposed changes in the treatment of tax-exempt securities can be found in Gurwitz (1985).

when the spread was greater than 35 percent. Second, the spread on short-term borrowing has been 40 percent or more for most of the past 15 years, so the cost of short-term tax-exempt borrowing surely will increase.

The third reason is a bit less obvious. Up to this point, the assumption has been that the investor's decision is confined to the choice between taxable and tax-exempt fixed-income securities of similar quality. But of course investors' choices and investment objectives range more widely. There are questions about liquidity, risk and the opportunity for capital appreciation, in addition to considerations of current after-tax returns. Indeed, in well-functioning markets, the net return on municipals should *never* be greater or less than the net return on equivalent-quality taxable bonds, unless investors are acting on these other considerations. With lower marginal rates, one might expect tax-exempt obligations to be less attractive relative to some other types of investments.

The reduction in marginal rates is by no means the only feature of tax simplification plans that would affect the demand for municipals. Treasury I and II both propose that commercial banks no longer be permitted to deduct interest paid to finance the carrying of tax-exempt securities (since 1984, only 80 percent of those costs have been deductible). That might substantially reduce commercial banks' willingness to hold municipals, and thus lead to increases in yields for the maturities favored by commercial banks.

Other features will work to increase the demand for tax-exempt obligations. As other tax shelters are closed down, demand will shift to those that continue to operate. The elimination of the investment tax credit and changes in depreciation rules will work in this direction, especially through their effects on limited partnership and leasing deals. In addition, if the maximum marginal tax rate on capital gains is reduced by less than the marginal rate on ordinary income (as in Treasury II, a reduction from 20 percent to 17.5 percent for capital gains), there should be a marginal shift from investment for capital gain to investment for current income, and that might spill over to municipals.

"Private-Purpose" Municipal Bonds

The principal effects on tax-exempt borrowing come in most proposals from restrictions on the supply side, in the form of limits on the types of new borrowing for which the interest will continue to be tax-exempt. Most important are restrictions on advance refunding bonds and prohibition of tax-exempt borrowing for "private purposes." Private purpose is defined in Treasury I and II as use of more than 1 percent of the proceeds directly or indirectly by any person other than a state or

local government, except where the facilities built are used by all members of the general public on the same basis.

What those words would mean in practice is not at all clear, for in some sense almost all state and local facilities are "used" mainly by private parties—public schools by pupils, public hospitals by patients, jails by prisoners, water and sewer lines by households and business establishments connected to the lines, transportation facilities by shippers and passengers. Moreover, that use is seldom offered on precisely the same basis for all members of the general public, for there is generally some degree of inherent exclusivity which produces differentiation in access: the first house on a single-family lot has the exclusive access to the water and sewer lines passing in front of the house; school districts usually allocate pupils to schools on the basis of residence; there may be queuing for some types of hospital beds. Presumably, the tax reformers do not aim to eliminate borrowing in any of these cases, but their targets seem not all that different, taking the words of the definition literally. The principal targets, according to Treasury I, are bonds for industrial development, pollution control, student loans, nongovernmental hospitals, multi-family housing and owner-occupied housing, which in 1983 accounted for 62 percent of the dollar volume of all new long-term tax-exempt offerings.¹⁰

The notion that some purposes for tax-exempt borrowing are essentially "private," while other purposes are appropriately "public," calls for some non-arbitrary dividing line between the two classes. It appears that in most discussions the dividing line is based on some unarticulated readings of history: state and local governments have "traditionally" performed certain functions for which they often borrowed money, but "traditionally" did not borrow money for all sorts of things that now entail tax-exempt borrowing.

The trouble is that the historical record is full of examples of state-local borrowing for what is now often called private-purpose tax-exempt borrowing. As late as 1950, the states had very little debt for purposes that are unequivocally public: about 30 percent of their outstanding debt was for highways (highways usually have positive externalities only because users rarely pay high enough charges); about 42 percent for grants and loans to veterans (of which a large share went into the purchase of single-family houses); and about 5 percent for other loans to private parties, for housing and to farmers. Ten years later, with a huge

¹⁰ ACIR (1984) contains a state-by-state listing by type for 1983, citing the Treasury as the source. The interstate variation is considerable: in four states, these types of borrowing amounted to less than 20 percent of all new long-term borrowing, while in four others the percentage was 80 or more. Also the composition of "private-purpose" issues by type varied considerably.

increase in state debt, 45 percent was for highways (mostly for toll roads), 16 percent each for veterans, farm and housing credit and another 8 percent for such "private purposes" as port facilities and electric power plants. As late as 1970, such purposes accounted for about half of state debt. Local governments too have a long history of borrowing for purposes whose character is private in important ways. In 1863, New York City borrowed for the most private of purposes: to pay the bounties that could keep young men from being conscripted into the Union army. By the late nineteenth century, city governments commonly were putting in streets, sidewalks, street lighting and water and sewer lines—all financed by borrowing—in close conjunction with subdividers' plans for new housing development on the edges of built-up areas. There was substantial municipal borrowing for transit purposes—streetcar lines and later rail systems in the biggest cities—with the facilities always operated by private companies and often owned by them as well. Municipal public utilities—in no way different from their private counterparts—were widespread by the turn of the century, in water supply, electric power and gas. Until around 1950, utilities accounted for about half of all municipal debt.

Another problem with the dividing line between public and private purpose in the current discussions is that the Treasury and others seem infatuated with the nominal ownership of the assets: If a governmental entity is the owner and operator, then the borrowing may have a public purpose; if a nongovernmental entity is the owner and operator, the purpose must be private, regardless of the function carried out. But governmental and nongovernmental ownership and operation are often close substitutes, notably with regard to hospitals and education, where historical accident very often has determined the extent to which there is private provision by nonprofit organizations. Similar conditions of substitutability exist with regard to housing finance and a good many other things.

This substitutability suggests that restrictions on tax-exempt borrowing that rely primarily on the legal status of the entities involved will be defeated by state legislation that redefines that status. Thus, Congress will be compelled to list, in detail, permissible and impermissible uses of funds borrowed under tax exemption. Presumably, there is nothing constitutionally improper about this, but—given that there is no "tradition" to provide the dividing line and that money is fungible, so clever people will find ways around the restrictions—it seems both foolish and impractical to do so. To a considerable extent, then, the proposal amounts to a federal tax on the choice of mechanisms made by state and local governments in their borrowing, which hardly seems to serve any national purpose.

Industrial revenue bonds—and any other borrowing to finance ac-

tivities of ordinary taxable entities (for example, industrial water pollution control) where the tax exemption accorded the interest payments on the debt is the sole or principal element of public subsidy—provide one exception to the conclusion that in practice sensible dividing lines will be hard to draw and not make much sense once drawn. Such borrowing could be eliminated by simply denying businesses any deduction for rent or interest payments if the underlying indebtedness is tax-exempt. That would not preclude state and local governments from finding other subsidy devices; however, it would end the conventional device of simply passing through the interest tax exemption.¹¹ A similar provision could be applied to tax-exempt borrowing for single-family house mortgages that are not confined to households with relatively low incomes (by making the mortgage interest not deductible on Schedule A for taxpayers with incomes above, say, \$30,000).

Of course, some would argue that the tax exemption should not apply to the financing of any assets whose services are private goods in the economists' sense of the term. That position has logic but it is far from the position in the Treasury and other proposals, which would allow tax exemption for some bonds issued to finance the production of private goods but deny tax exemption for others. One could also argue that the tax exemption on borrowing ought to be eliminated entirely because most of the subsidy "leaks" into spending for which there is no national interest at all, such as borrowing to construct a new city office building—permissible under the Treasury plan since the proceeds are clearly used by no one other than the city government.

Another line of attack on tax-exempt borrowing in general is that it is an inefficient subsidy to state-local capital spending because the Treasury's loss in tax revenue is so much greater than the value of the subsidy to state and local governments. And in any case, why should the federal government subsidize state-local capital spending, involving one kind of input, rather than spending for operating purposes, involving mainly labor inputs, or spending for transfer payments? The inefficiency argument has been well explored in the literature for more than a quarter of a century, and an obvious solution offered: the states and local governments to issue taxable bonds, in return for a direct federal subsidy of interest payments, set at an appropriate rate that continues the subsidy but at a lower cost to the Treasury.¹² That deal, however, is not on offer

¹¹ Industrial development bonds per se accounted for 34 percent of all "private-purpose" bonds issued in 1983 (ACIR, 1984), and over 50 percent of such borrowing in 12 states. The 1982 tax law provides that industrial development bonds will no longer be tax-exempt after 1986.

¹² Presumably, the transfer efficiency of tax-exempt borrowing will be improved by the federal income tax rate structure in the Treasury plan. That is, the spread between taxable and tax-exempt yields is likely to be closer to the (lower) marginal rates paid by investors in state-local obligations than is now the case.

now: the Treasury proposal on "private-purpose" bonds owes nothing to the transfer-efficiency argument.

Public finance economists generally disapprove of subsidies directed at particular inputs in the state-local sector rather than subsidies for outputs that are considered in the national interest (see, for example, Zimmerman, 1984 and 1985a). If particular inputs are to be subsidized, a case could perhaps be made for federal subsidy of borrowing costs. Interest rates are highly volatile over time, more so than most other input costs, and interest rates matter a lot for the financing of long-lived assets for which most state-local borrowing is undertaken. The federal government is the major determiner of interest rates, through its macroeconomic policy and its management of its own finances. Therefore, in an era of high interest rates for which federal policy bears much responsibility—the last 15 years or so—it maybe appropriate that the federal government subsidize this particular input, rather than others.

The case for ending tax exemption for "private-purpose" municipal bonds may be weak, but suppose the proposal is enacted: what will its effects be? Gurwitz (1985) has a good summary. First, there would be a flood of new financings to get under the wire, as happened in the last quarter of 1984 in the face of a far less rigorous tax change. Second, considerable ingenuity will be devoted to altering the legal arrangements for the now-proscribed type of borrowing to get within the tax-exemption net, for example by substituting direct public ownership and operation of waste-to-energy facilities for contracts with private owners and operators. Paradoxically for these times and this Administration, the change will slow the move toward private provision of public services.

Third, where it is impossible to circumvent the proscription, the cost of capital to the beneficiaries of these types of borrowing will rise. Fourth, there will be some reduction in the volume of tax-exempt borrowing, how much depending on the precise language of the legislation, the Treasury regulations issued pursuant to that legislation and the court decisions subsequently, and the ability of state and local officials to find ways around the restrictions. Gurwitz sees the reduction as "unknown but probably substantial," industry observers see it as enormous, but it could also be very small in the end.

Finally, whatever the decrease in the volume of tax-exempt financing, that decrease will reduce interest rates for the remaining tax-exempt borrowing. Only a few careful estimates of the magnitude of the decrease are available, and they vary by a factor of more than ten to one. (See ACIR, 1984, p. 127, and Zimmerman, 1984.) The low estimates suggest that a 25 percent reduction in the volume of new offerings might

reduce interest rates by as little as 1 percent (not percentage points), the high estimates by more than 11 percent.¹³

Other Effects on the Supply of Municipals

State and local borrowers, particularly the larger, more frequent and more aggressive borrowers (New York's Municipal Assistance Corporation (MAC) is a prime example), often issue bonds to refund outstanding bonds prior to the earliest date at which they can be called for redemption. This is done to smooth future debt service schedules (the usual motive of MAC), to take advantage of lower market interest rates, or to escape from restrictive bond indenture provisions. The original issue remains outstanding, with the proceeds of the new issue put into escrow to meet the scheduled interest and redemption payments on the original issue. On the grounds that the practice results in "twice as many bonds being outstanding as are required for a given project" (U.S. Treasury, 1984, vol. 2, p. 295) and thus increases the federal revenue loss associated with tax-exempt bonds, the Treasury proposes to limit refunding bonds to those whose proceeds are used immediately for redemption of outstanding bonds. The Treasury also alleges that the additional volume of tax-exempt bonds outstanding "raises the interest rates that must be paid to finance state and local government projects" (p. 296).

The reasoning is peculiar. It ignores the specific use of the proceeds of the advance refunding issues: they are invested in special U.S. Treasury obligations issued for this purpose, whose maturities and interest rates precisely match those of the original issue, with those obligations held by a trustee. That means that money is lent to the Treasury at interest rates lower than those it must otherwise pay, thereby offsetting most of the additional revenue loss from the greater amount of outstanding tax-exempt bonds. Moreover, rational participants in the market for municipals will not view the original issue as an ordinary tax-exempt issue any longer, for the original issue has been in effect converted to an issue of Treasury securities that should trade as low-coupon Treasuries, rather than as part of the outstanding volume of obligations of the refunder. Therefore, the effect of advance refunding on the level of yields on state-local obligations should be negligible.

The Treasury proposal thus seems a pointless restriction on the ability of state and local governments to minimize their borrowing costs by

¹³ In addition to the other criticisms of the "private-purpose" bond prohibition, it appears that the Treasury's estimates of the revenue gains are grossly exaggerated. A Coopers & Lybrand study for the Public Securities Association, using plausible methods and assumptions, finds that the cumulative revenue gain for the fiscal 1986-90 period will be less than \$2 billion, not the \$13 billion the Treasury estimates. Public Securities Association, 1985.

adept debt management practices. If the proposal is adopted, the long-term effect (after an initial flood of issues to beat the deadline) will be to raise the cost of capital to municipal borrowers. They will be unable to exploit temporary interest rate declines and likely will make sure that future new issues, especially during periods when interest rates are high, can be called for redemption at early dates, a provision that will have a cost in the form of higher interest rates on the original offerings. The overall supply effect should be relatively small, however, because advance refunding issues (unlike "private-purpose" issues) tend to appear only when the spreads between taxable and tax-exempt issues are large.

At one time, it was possible for state and local governments to earn considerable amounts by borrowing at tax-exempt yields and investing the proceeds in higher-yielding taxable securities. The current law and Treasury regulations impose complicated restrictions on such arbitrage. The restrictions, however, vary by type of obligation and still permit significant arbitrage earnings under certain circumstances, so that state and local governments still have an incentive to manage their borrowing so as to maximize the earnings. The Treasury proposes to eliminate virtually all such arbitrage. The Treasury argues that the present situation increases the volume of tax-exempts outstanding, by encouraging borrowers to issue more bonds than are necessary for a project and to issue them sooner or keep them outstanding longer in order to maximize reinvestment earnings, and by making economic some issues that because of high issuance costs would be uneconomic otherwise. On the other hand, it has been argued that, because reinvestment earnings are expected to defray part of project costs in many cases, a larger initial issue would be required to replace those earnings. The Treasury seems to have the better of this argument.

If deductibility of state and local taxes is eliminated, the effects on the volume of state and local borrowing and the levels of yields will be mixed. First, if the elimination of deductibility triggered tax rate reductions in forms analogous to Proposition 13, then the units of government affected surely would be seen as less creditworthy. They would have to pay higher interest rates and at worst they would not be able to borrow at all for a time, which would reduce yields for everyone else. Second, the combination of the ending of the federal subsidy to current tax revenue and the continuation of the subsidy to borrowing would make borrowing seem a sensible substitute to current-revenue financing. While the two are far from complete substitutes, at the margin a good deal is possible, such as borrowing for longer terms and borrowing rather than current financing of quasi-durable assets (for example, police cars). This too would result in higher interest rates, holding other things constant. Third, there would be some offsetting effects on issuers in

states with high income tax rates where the interest exemption is confined to within-state issuers, as in New York, Minnesota and California. The effective rate of state and local income taxes would be higher and therefore the value of the interest exemption increased significantly, inducing residents to replace whatever out-of-state municipals they hold with in-state obligations.¹⁴

Conclusions on Tax-Exempt Borrowing

The effects of the full package of Treasury proposals with respect to state and local tax-exempt borrowing—after the initial efforts to beat the deadlines—will be a mixture of positive and negative impacts on volume of offerings and rates of interest. The lowering of marginal tax rates and the disallowing of banks' carrying costs will reduce demand somewhat, while the elimination of "private-purpose" and advance refunding bonds will reduce supply (on the assumption that not all "private-purpose" offerings can be legitimized by institutional changes). On balance, it seems likely that supply will be more restricted than demand, which should mean marginally lower interest costs on the remaining borrowing.

Is this desirable? Or, rather, which features of the entire package are desirable, from the standpoint of the national interest? One thing must be said first: the case for eliminating tax exemption entirely is stronger than the case for any one of the Treasury proposals that are specific to tax exemption per se. The Treasury proposals reject the former case, and have to be assessed within the context of a substantial volume of continued tax-exempt borrowing. In that context, the restrictions on "private-purpose" and advance refunding borrowing rate poorly, as badly-designed and economically pointless actions that further undermine political federalism. On the other hand, restrictions on arbitrage are indeed proper if there is to be tax-exempt borrowing, and the Treasury proposal is superior to the present web of regulations. The disallowance of banks' carrying costs also seems an appropriate concomitant to tax exemption of interest earnings.

Summing Up

The deductibility of state and local taxes and the exemption of interest on state and local obligations are highly imperfect instruments of federal compensation for the uneven incidence among state and local governments of special burdens or responsibilities for the production of

¹⁴ Proctor and Rappaport (1985).

positive externalities. But then most policy instruments are far from perfect. Are these so imperfect that they warrant the treatment proposed in the Treasury plan—complete elimination of deductibility and substantial restriction of tax-exempt borrowing?

My own answer to the question, as indicated previously, is that there is indeed a plausible case for complete elimination of the tax exemption on state and local borrowing, but no persuasive case for the major restrictions the Treasury proposes. On the other hand, with respect to deductibility, the persuasive case is for restriction, not abolition.

The more ardent advocates of elimination appear convinced that the national-interest benefits per dollar of revenue lost to the Treasury from deductibility are close to zero, while the more outspoken defenders sometimes read as if they believed that those benefits exceeded 100 cents on the dollar of revenue loss. In the absence of hard fact, the debaters rely on agreeable suppositions (of the type some leading politicians use even when facts are at hand) about the character of the state and local spending differentials supported by deductible taxes. The suppositions agreeable to me suggest that the national-interest benefits per dollar of revenue loss to the Treasury are less than 50 cents, but far above zero. So deductibility may be a fourth-best way to generate those benefits, as compared to a third-best set of conventionally designed federal grants and to a second-best set of properly designed grants (say, those spelled out by Gramlich, 1985). But neither of those superior alternatives is on offer. The fourth-best is not an infrequent or dishonorable solution in public life.

Of course, if one believes that domestic government is evil (except, possibly, when it regulates private morals), then it is highly appropriate to use the happy occasion of tax simplification for more than one purpose, to shrink the size of subnational as well as national government. Even for that purpose, the elimination of deductibility is a clumsy instrument, but it is at hand.

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This paper was made possible in part by funds granted by the Charles H. Revson Foundation. The statements made and views expressed are solely those of the author.

Discussion

*Edward M. Gramlich**

I have approximately the same efficiency objectives as Dick Netzer and I agree with almost all of the technical arguments in his wide-ranging and balanced paper. I do get to a somewhat different bottom line, however. On deductibility of state and local taxes generally, he favors an intermediate approach between continuation and the Treasury's proposed complete elimination. I can see an intermediate approach that is preferable to complete elimination, but it is not the one he, or anybody else, favors. Barring that, I am with the Treasury in favoring complete elimination. On the tax preferences for state and local borrowing, he favors complete elimination, but is not impressed with the Treasury's case for partial restriction of borrowing preferences. I favor complete elimination too, but I would take the Treasury's partial restriction measures as a second best.

In my remarks I will make a few comments on tax reform in general, and then discuss deductibility and borrowing preferences separately. I do not repeat Netzer's arguments in those many cases where I agree totally, but just jump in where I feel the weighting of various pros and cons should be different.

Tax Reform in General

As has been said often at the conference, the worst two words in the whole tax reform discussion are "revenue-neutral." It is as if the United States is starting off in a position where its wealth accumulation ratio (defined to include net exports as part of capital formation) had not

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declined, and as if fiscal policy were innocent in any decline. I state things in this awkward way to indicate that the problem I am thinking of is the large budget deficit, but the reason I am thinking of it is not that I fear budget deficits per se, but that I don't like to see my generation go on consumption binges, and we appear to be embarking on a big one.

Given this initial condition, my objective in any tax reform measure would be to end with a substantial reduction in the budget deficit. Tax increases do not have to cover the entire deficit, of course, but base-broadening should be one of the first things considered in raising the \$100 billion or more required to bring fiscal policy back into balance. To quote none other than David Stockman, it seems "preposterous" to limit tax reform possibilities by the revenue-neutrality constraint. Accordingly, my point of view throughout will be that the country needs to cut back fiscal policy by \$100 billion or more.

Presently about \$35 billion is given away by state and local tax deductibility and another \$20 billion by borrowing preferences. Is there merit in these subsidies? On balance I find about zero merit, which is less than Netzer finds, though he doesn't find anything close to full merit. My preference would be to get rid of the subsidies—preferably with some adjustments to cover some social losses—but as a political strategy I am happy to take complete elimination now and worry about those losses some other day.

Tax Deductibility

On its surface, the deductibility of state and local taxes appears to be one of the most pro-rich subsidies there is. The vast majority of taxpayers with a taxable income over \$30,000 itemize and claim this preference; very few with a taxable income under \$20,000 do so. Why then are the conservatives proposing to kill the subsidy and the liberals so obsessed with retaining it?

Assuming noble motives and intelligence on the part of liberals, the answer must be some sort of a "social offset." The benefit appears to go to the rich, but actually goes to somebody else or for some other purpose. Dick comes up with three broad social offsets.

State and Local Spending

Eliminating deductibility will raise the tax price of state and local spending and reduce it, and that is socially bad if there are benefit spillovers that should be paid for outside of the district. Netzer correctly (in my view) places little stock in all this. The impact on spending should be modest given low price elasticities and the fact that most voters do not

itemize, and it is hard to think of many spillovers where there is not already some categorical grant that shares the burden. I have no disagreement with Netzer here, except that I place even less stock in this argument for a reason that he mentioned but I think did not give sufficient emphasis.

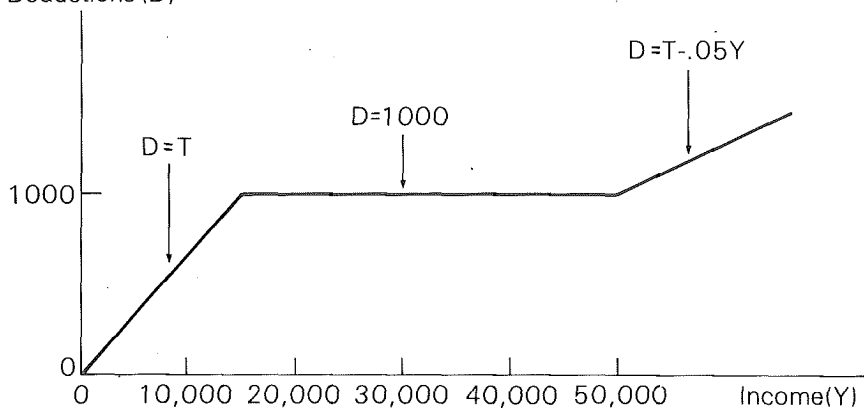
The problem with the argument is not merely that a minority of voters itemize, it also involves who is doing the itemizing. In a separate paper that Netzer had not seen when he wrote his, I used some micro data in Michigan to try to compute, more precisely than some of the prevailing estimates, in my humble opinion, the impact of eliminating deductibility on median spending demands. For overall local spending, I found a 5 percent reduction, close to the 2 percent number Netzer feels is reasonable. But there is no reduction at all in a low-income place like Detroit, where relatively few voters itemize, and more than a 10 percent reduction in a high-income place like the Detroit suburbs, where most voters itemize. What we have is a measure that helps the people in high-income areas support their schools, which are already good, and doesn't help at all people in low-income areas, where schools are not good. I am strongly opposed to such a subsidy, even if it can be shown that schools have external benefits and that aggregate school spending will drop when deductibility goes.

One should, of course, insert some caveats in making this argument. To the extent that states have power equalization plans that help poor districts with their schools, some partial deductibility of state taxes may be called for. The same is true for AFDC and Medicaid, two state-funded programs that directly help the poor. While I would favor adjustment of the matching grants supporting these programs to maintain spending on them, I also think that these impacts are modest enough that I would take complete elimination of deductibility even without the offsets.

As a final point here, failure to recognize this rich community-poor community point can lead to some pervasive mischief in attempting to reform the tax code. I use as evidence the treatment of deductibility in the early House Ways and Means Committee modification of Treasury II, something not covered by Netzer. As the figure shows, taxpayers can deduct actual state and local taxes (excluding sales taxes) up to \$1000, then \$1000, and then actual taxes less 5 percent of income when that total exceeds \$1000. There would appear to be a public spending price effect for very poor and very rich communities. (Income numbers have been inserted in the figure, based on prevailing national averages; they would be lower or higher in different states depending on the size of revenues and expenditures.) But even this appearance is deceiving, because very few in low-income communities now itemize and even fewer will, under the Ways and Means bill. Hence there will now be a price

Deductions in the Ways and Means Committee Bill

Deductions (D)



$$D = \begin{cases} T, & T < 1000 \\ 1000 & \\ T - .05Y, & (T - .05Y) > 1000 \end{cases}$$

Price of public
spending reduced when $\frac{\partial D}{\partial T} > 0$

effect only in a few extremely rich communities. Over time, if the \$1000 amount is not indexed, the price subsidy will be extended to more communities, but still on the top end of the community income distribution. What looks like a compromise between those wanting to eliminate and those wanting to preserve deductibility then becomes a highly perverse, almost sinister, incentive for public spending in just the richest communities—all because Congress apparently does not recognize the unholy interaction between income stratification and itemization. I wish Netzer had brought the point out more forcefully, and I really wish Congress would take intercommunity equity into account in forming its deductibility provisions.

State and Local Revenues

I had thought that any social offsets here would be minor. Presently user charges, arguably the most economically efficient state and local revenue source, are not deductible, and other less efficient taxes are. It would seem that putting all revenue sources on the same basis, or on a level playing field, to use present-day jargon, would be a step in the right direction. It still may be, but Netzer has persuaded me to be careful with the argument. On the one hand, many user charges are not that efficient since they have not been designed with principles of marginal cost pricing in mind. On the other hand, we are likely to get an increase in generally inefficient business taxes, which still remain deductible.

Netzer's general discussion here covered all the bases and I have little to add. However, I am left with a vague sense that he overemphasizes the potential inefficiencies in any new user charges imposed by states and localities. There can't be that much difference between average and marginal costs in the long run for a range of services such as transportation, refuse collection, and even higher education, and in a competitive world there can't be that much scope for nuisance taxes on business. Netzer makes the case for a slight social offset; my own best guess after reading his argument is that the offset is either zero or not an offset at all.

Migration

Here Netzer argues two new points. The first is that there could be a reduced incentive for rich people to live in poor areas now that they no longer get the subsidy for living in areas where their own tax prices are high. In the paper cited above, I tried to work through all this for my Detroit area voters, and find, with Netzer, that there is something to the argument. Other things equal, tax prices do seem to be higher for rich people if they live in poor areas, and they can benefit by moving if deductibility goes. But they do not seem to benefit very much, because the real quantity of public goods consumed is higher in the rich areas, and the net impact is modest, again on the order of 5 percent of tax payments. Frankly, I would doubt that many people would relocate for fiscal differentials this small, but in the long run, who can say? In any event, if this is a worry, the sensible way to protect against it is to retain deductibility for low-income areas but not high-income areas. The last point is put in just to show that I too can think up cockamamie schemes that nobody else in the world takes seriously. As above, I would propose it seriously if I had more confidence that such an idea would not get bent totally out of shape in the hurly-burly of political horse trading on tax reform plans.

Netzer's second point here is a good one, albeit a frustrating one. It is that whatever the social inefficiencies of deductibility, they have been capitalized and taking them away now is horizontally inequitable. This is, of course, an argument against *any* radical tax reform or expenditure reform—really an argument that the United States should stay locked into its consumption binge. I am so strongly opposed to that notion that I can find lots of counterarguments. Given the publicity tax reform has received, some reverse capitalization may have already taken place. To maintain intergenerational horizontal equity, some present-day fiscal subsidies must be given up, even if they are capitalized. To maintain horizontal equity between the East and the West in this country, fiscal subsidies must be given up simultaneously. If giving up deductibility is

the way we get water and farm subsidies to be cut back, so much the better. But I admit that on this one there is no very good objective response.

My overall verdict here is that I make a negative out of Netzer's first offset, a zero out of his second, and I'll go along with part of his third. Hence he gets positive offsets on balance and wants to restrict but not eliminate deductibility; I get zero offsets on balance and agree with the Treasury on eliminating deductibility.

Borrowing Preferences

The second half of Netzer's paper involves borrowing preferences, some of which will be attacked by the Treasury. Netzer doesn't like the preferences, a point on which we have no disagreement, but he doesn't like the attacks either. I confess to being basically out of my depth in the world of tax arbitrage, but I do find merit in the attacks.

A recent paper by Gordon and Slemrod helps in bringing order to this messy area by identifying several types of arbitrage. Assume a taxable interest rate r , an after-federal-tax interest rate $r(1-t)$, and a state/local nontaxable interest rate s . If these rates differ, as they will in our present tax structure, three types of arbitrage are possible:

1. Communities can borrow at the nontaxable rate s and invest at the higher taxable rate r . This form of blatant arbitrage is illegal, but it is hard to know how well the Treasury enforces restrictions against it. Netzer argues that the result of lots of shifts is that we simply cannot tell what will happen to s relative to r , and hence to the potential of this arbitrage loophole. He also supports the Treasury's general attempt to prevent this form of tax arbitrage.

But then, for reasons that were not as convincing to me, he came out against two specific attempts to restrict it. One is the Treasury's attempt to end arbitrage on "private purpose" bonds by denying nontaxable status; the other is a similar attempt to deny nontaxable status to end arbitrage on advance refunding bonds. Netzer appears to be against curbing private purpose bonds because they are hard to identify and any restrictions are easily avoidable. Of course this is true, but I still think the Treasury should step up the monitoring. Why isn't any blockage of the arbitrage channel, including even some uncertainty about IRS enforcement, a step in the right direction?

Then Netzer criticizes curbs on advance refunding bonds because they are invested in Treasury securities at rates lower than would otherwise be the case. I read this as saying that the arbitrage profits on these bonds are returned to the Treasury. If so, it is irrelevant whether the Treasury curbs them or not. If not so, and it does take some extreme

assumptions to get all the arbitrage profits passed back to the Treasury, it matters and the Treasury is properly trying to impose curbs. At one extreme, therefore, the curbs are appropriate and at the other extreme irrelevant. That sounds to me like an argument for imposing the restrictions.

2. Communities can raise taxes at a cost of $(1 - t)$ per dollar, invest and earn r per dollar of taxes, and give it back. Having your friendly municipality handle your assets then avoids the tax on interest income. Gordon and Slemrod find, seemingly to their surprise, that there is not much of this because rich people don't seem to trust governments to manage their finances. Perhaps we should not take the possible arbitrage seriously, except that I will note that any attempt discussed under 1) above to limit investment at r will also close down this channel. That, in my view, is another reason for favoring the Treasury's curbs, however imperfect they may be. And while as I said above I am not enamored of the large cuts in federal marginal rates dictated by the goal of revenue neutrality, I have to admit that cutting t will curb this channel as well.

3. The remaining possibility is to trade on the difference between s , which Netzer argues will not change, and $r(1 - t)$. Wealthy individuals will want to borrow at $r(1 - t)$ and invest at s , on their own account. If s is fixed, this form of arbitrage will be cut by lower marginal tax rates, but the arbitrage has minimal effect on states and localities. Poor communities will want to borrow at s , lower property taxes, and have their citizens earn $r(1 - t)$ on the saved property taxes. Here the relevant t is for poor investors, and this subsidy for the poor is not changed much by the Treasury. Here again the structure of the rate cuts looks good because it limits the rich person's subsidy without touching the poor person's.

My general verdict on this part then is that what the Treasury is trying to do is good, though in part because of the cut in top marginal rates. I don't see why Netzer is so ambivalent about the Treasury proposals, though we both should be slightly more ambivalent if I had my way and marginal federal tax rates were not cut so much.

An Overall Assessment— Is It Worth It?

*Richard A. Musgrave**

Is it worth it? This question, which has been posed to me, can hardly be answered without knowing what the congressional outcome will be. Surely, there would be a substantial improvement in the tax structure if Treasury I (the Treasury recommendation to the President) were to be enacted, and there would still be a gain (if substantially less so) under Treasury II (the President's plan). The same can be said for the key features of base broadening under various congressional proposals such as Bradley-Gephardt and Kemp-Kasten.¹ At the same time, a substantial gain will be needed to show a positive balance on the ledger, since there are opportunity costs. For one thing, considerable capital in accumulated goodwill for tax reform will have been expended. For another, concern with the more immediate problem of meeting increased revenue needs will have been diverted.

Key Features

Before entering into specifics, let me note certain key features of the proposed reforms, features which are worked out most clearly in Treasury I but which also characterize Treasury II and the major congressional plans.

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¹For a convenient summary of the various proposals, see J. Pechman, ed., *A Citizen's Guide to the New Tax Reform*: Rawman and Allenhead, 1985. Note also the flood of tax-reform studies which have appeared recently including the following: H. Aaron and H. Galper, *Addressing Tax Reform*, Brookings, 1985; A. Ando, M.E. Blume, and I. Friend, *The Structure and Reform of the U.S. Tax System*, M.I.T. Press, 1985; J.E. Minarik, *Making Tax Choices*, Urban Institute, 1985; R. Hall and A. Rabushka, *Low Tax, Simple Tax, Flat Tax*, McGraw-Hill, 1983.

Focus on the Income Tax

First of all, note the fact that the current reform focuses exclusively on the income taxes. In a way, this focus is not surprising. The individual income tax, after all, exists and dominates the federal tax structure. Such has been the case ever since the early 1940s, when pressures of war finance transferred the individual income tax from a class tax into a mass tax. Over the last three decades (see table 1), this tax has contributed a

Table 1
Share of Income Taxes in the Federal Tax Structure

	1950	1960	1970	1980	1984
<u>As % of Total Receipts</u>					
1. Individual Income Tax	38.2	44.0	46.7	46.2	43.7
2. Corporation Income Tax	34.1	23.2	16.9	13.0	10.0
3. Payroll Tax	11.8	15.9	23.4	32.2	37.3
4. Other	15.9	16.9	13.0	8.6	9.0
5. Total	100.0	100.0	100.0	100.0	100.0
<u>As % of Total Excluding Payroll Tax</u>					
6. Individual Income Tax	43.4	52.3	60.9	68.0	69.7
7. Corporation Income Tax	38.7	27.3	22.0	19.1	14.9
<u>As % of Personal Income</u>					
8. Individual Income Tax	8.4	10.0	11.1	11.5	10.2
<u>As % of GNP</u>					
9. Total Receipts	17.4	19.0	19.3	20.5	19.2

Source: U.S. Department of Commerce, *The National Income and Product Accounts of the United States, 1929-1965*, August 1966, and *Economic Report of the President*, February 1985.

rather steady 45 percent of federal tax revenue, federal revenue has remained a rather steady 20 percent of GNP, and the income tax has continued to absorb some 10 percent of personal income. This stable pattern, however, was accompanied by a sharp change in the composition of other federal revenue. While the share of payroll tax receipts rose drastically, the corporation income tax and excise shares dropped accordingly. As a result, the weight of the individual income tax in "free receipts" (defined to exclude the payroll tax) rose from 52 percent to 70 percent, thereby increasing its strategic role in federal tax policy.

Over the years, and especially so over the last decade, the structure of the income tax has been weakened increasingly by the growth of loopholes, preferences, or, to use the now common term, tax expenditures. The Treasury estimates revenue loss due to legal tax avoidance to have grown from about 9 percent of revenue in 1973 to 11 percent in

1981.² Exclusions, itemized deductions, and credits, which offset about 18 percent of personal income in 1954, by 1982 had risen to 34 percent.³ Tax shelters in real estate and oil—based on an unholy interaction of investment credit, accelerated depreciation, capital gains preference, loss write-off, and partnership transactions—have mushroomed in recent years, leading to large scale tax avoidance especially in the higher income brackets. Thus, a recent Treasury report for 1983 notes that 11 percent of all returns with personal income over \$250,000 paid less than 5 percent, and 53 percent paid below 20 percent. Corresponding ratios for returns above \$1,000,000 were 11 percent and 60 percent respectively.⁴

As a result of these developments, the income tax has come to be viewed increasingly as unfair and detrimental to efficient resource use. Referred to by President Carter as a “disgrace to mankind,” not to mention President Reagan’s more colorful indictments, it has earned bipartisan condemnation. This critique, to be sure, has been voiced not only by friends of income taxation who wish to improve and strengthen its role, but also by opponents of taxation in general and progressive income taxation in particular. This combination gives the current discussion on tax reform a somewhat unusual flavor. As I see it, the critique has been exaggerated. For the bulk of taxpayers and revenue dollars, the income tax has been and still is a pretty good instrument, superior to its likely alternatives. However, there is much scope for improvement, and broad-based concern with income tax reform is all to the good.

At the same time, it is worth noting that the current discussion, with few exceptions, rejects alternative approaches which would tax consumption rather than income, be it via a direct tax on expenditures or an indirect tax on retail sales or value added. Academic interest in and support for an expenditure tax in particular has remained academic. Where *Blueprints*, the Treasury’s staff study of 1978, gave equal space to a progressive expenditure tax as a viable and perhaps preferred alternative, Treasury I after a brief analysis decides against it.⁵ While such a tax would have the great advantage of avoiding the complexities of capital income taxation, Treasury I concludes that filing requirements would be more complex for most taxpayers, that transition problems would be substantial, and that the equity of taxing consumption only is questionable. Moreover, not all income may be consumed during lifetime, thus raising the question whether gifts and bequests should not be included

²U.S. Internal Revenue Service, *Income Tax Compliance Research: Estimates for 1973–1981*, July 1983.

³U.S. Treasury, *Tax Reform for Fairness, Simplicity, and Economic Growth*, 1984, vol. 1, p. 4. This study is subsequently referred to as Treasury I.

⁴See “Taxes Paid by High-Income Taxpayers and the Growth of Partnerships,” Treasury Department, July 31, 1985, as reported in *Tax News*, August 12, 1985, p. 718.

⁵See the recent reissue, D. Bradford, *Blueprints for Basic Tax Reform*, Tax Analysts, Arlington, 1984. Also see Treasury I, vol. 1, p. 191.

in the taxable base, i.e., whether the tax should be on potential or on only actual consumption.

Treasury I gives more detailed consideration to the further option of a possible federal sales tax.⁶ It concludes that such a tax, if it were to be introduced, should be broad-based and take value-added tax form rather than be implemented as a tax on retail sales. But no case is made for a federal value-added tax. In the context of a constant-revenue setting, so Treasury I concludes, income tax reform is to be preferred to a partial replacement of its revenue by a value-added tax. As one major reason for this conclusion, Treasury I notes that introduction of a value-added tax might provide easy revenue and thus facilitate further growth of government. This concern, it appears, now provides the key block in the path of a federal value-added tax. Those who in the past might have been proponents thereof (hoping to reduce the progressivity of the federal tax system by replacing income with sales tax revenue) have now become opponents (fearing that such a tax would induce budget growth). The time may come when past opponents of a federal value-added tax (objecting to its lack of progressivity) will become proponents (placing revenue considerations ahead of structural aspects) thus completing the reversal of tax preferences across the political spectrum. Among currently discussed proposals, only one (offered by Hall and Rabushka and entered in Congress by Senator DeConcini) involves a flat-rate consumption tax.

I should add that exclusive concern with income tax reform bypasses the important area of estate and gift taxation. The role of these taxes (and of a potential wealth tax) clearly relates to that of income tax reform, be it via the problem of unrealized gains at death or the overall progressivity of the tax structure. Truly fundamental reform should review the entire tax structure and not only a part thereof, but the constraints of tax politics and timing make this too demanding a task. Prudence suggests that one be satisfied with a comprehensive review of the income tax.

Pattern of Income Tax Reform

Recent plans for income tax reform share a common thrust in pairing base broadening with rate reduction. This was the central message of the comprehensive income tax proposal in *Blueprints*, and remains so in Treasury I and II, as well as in the major congressional plans. This thrust may be seen as a victory, if belated, for academics and income tax students who have urged just such a move. The message was stated clearly in Simons' paper on post-war tax reform circulated in 1943, only two

⁶See Treasury I, vol. 3.

years after the birth of the modern income tax, and was expanded in his 1950 volume on *Federal Tax Reform*.⁷ Over the following decades, the case for a comprehensive income base was urged by a generation of tax reformers, including such names as Groves, Shoup, Vickery, Goode, Heller, Pechman, and Surrey. Bradford and McLure, the architects of *Blueprints and Treasury I*, respectively, finally succeeded in giving this doctrine official Treasury status, an accomplishment for which they deserve the thanks of the profession.

The essential point from Simons on (and dating back even further to Schanz and Haig) has been that the income tax should be imposed on a comprehensive base, given by total accretion to the taxpayer's wealth or, putting it differently, equal to consumption plus increase in net worth. The tax base should thus be independent of the source from which income is derived or the uses to which it is put. Conformance with this rule would (1) meet the requirement of horizontal equity, (2) provide a meaningful basis on which to apply standards of vertical equity, and (3) minimize the distorting impact of tax considerations on economic behavior. The younger generation of tax analysts might wish to add that, ironically, the general acceptance of the broad-base rule has been accomplished just at a time when its analytical basis has come to be punctured by the strictures of optimal taxation. But I would rather say, "weakened somewhat." Existing differentials in the treatment of various income sources and uses can hardly be said to meet optimal taxation rules,⁸ thus leaving as a pretty good policy rule the presumption that uniform treatment of a comprehensively defined base will be more efficient than arbitrary departures therefrom. Current reform proposals, to be sure, fall far short of this ambitious goal, but the essential spirit of base-broadening is present and there is hope that a good bit will be accomplished.

Given a broadened base, it follows that the needed total revenue can be had at lower rates. Treasury I and II implement this by raising tax-free income to the poverty line and cutting bracket rates by about one-third. Following *Blueprints*, the present set of 14 bracket rates, ranging from 14 to 50 percent, is to be transformed into a three-bracket schedule of 15, 25, and 35 percent. A similar pattern is followed by Bradley-Gephardt, who propose a three-bracket schedule of 12, 26, and 30 percent. Notwithstanding much mention of a flat tax, a single rate is proposed only in the Kemp-Kasten plan (at 25 percent) and the Hall-Rabushka plan (at 19 percent). While we shall find the collapse of 14 into three brackets to be of limited importance, transition to a single or flat-rate system would make a fundamental difference. Even a flat rate, in combi-

⁷See Henry C. Simons, "Post-War Federal Tax Reform," C.E.D. Memorandum, November 1943, and *Federal Tax Reform*, University of Chicago Press, 1950.

⁸For a similar view, see Joel Slemrod's paper to this conference.

nation with an adequate tax-free amount, can yield a progressive pattern of effective rates over the lower to middle income scale, but multiple rates are needed if progression in the effective rate is to be extended over the upper part of the income scale. We may expect, therefore, that the legislative outcome will involve a multiple schedule of at least three or, more likely, four rates.

Special interests aside, most observers agree that there is a clear gain in a reform which broadens the base and permits the same revenue to be obtained from lower rates. But the adjustment can be made in various ways. One way is to cut bracket rates so as to preserve the pre-reform distribution of liabilities across brackets (defined in terms of economic income). This approach was largely followed by *Blueprints*, except for a substantial cut at the lower end of the scale. It is also retained in Treasury I and II, as well as in the major congressional reforms. Thereby structural reform is to be made distributionally neutral (in the vertical sense), thus bypassing the controversial issue of how progressive the income tax should be. This way of playing the game has merit in that it facilitates political consensus, but it perpetuates the pattern of effective rates which prevailed prior to reform. This pattern came about by imposing a higher level of bracket rates on a highly imperfect base, and thus can hardly be taken to reflect what was an explicit policy intent. This problem arises especially over the upper end of the income scale, where tax preferences have been of particular importance. The issue of vertical burden distribution is thus resolved by fiat, rather than direct attention thereto. Once more, this facilitates consensus, but passes over a key issue in fundamental tax reform.

The Role of the Corporation Tax

The academic tradition of income tax reform, based on the rule that a person's taxable capacity should be measured by accretion, also extended to the treatment of corporate source income. This tradition, shared by the author, has argued that there should be no separate ("classical" or "absolute") tax on corporation profits. The claim to all income rests with individuals, and only they carry taxable capacity. Corporate income, therefore, should be taxed to the shareholder (whether distributed or not), and integrated into the recipient's personal income tax. This approach was taken by *Blueprints* and a first step towards it is repeated by Treasury I. There 50 percent of dividends paid are excluded from corporation tax and the rate is reduced from 47 to 33 percent, close to the top rate of the income tax. However, the case for integration has gained little popular support, even among corporations, and the principle of an absolute corporation tax is retained in most of the current plans. Treasury II does so by reducing the dividend exclusion to 10 per-

cent while matching Treasury I's rate reduction. Various congressional proposals, such as Bradley-Gephardt and Kemp-Kasten, also reduce the corporation tax rate to 30 percent but retain it as a distinct part of the system.

With or without integration, there remains the crucial problem of defining taxable profits correctly. Combined with the investment credit, the depreciation reform of 1981 (still so after adjustment in 1982) resulted in widely differing effective rates of tax, especially after inflation had abated. Treasury I takes a bold step forward in replacing this archaic pattern by dropping the investment credit and adopting a system of inflation-proof economic depreciation which will be neutral across industries. Treasury II also drops the investment credit and approximates a neutral pattern; but it reintroduces an element of acceleration by an across-the-board speed-up in the Treasury I depreciation schedules. More or less similar depreciation reforms are also featured in most of the other plans. Depreciation reform, it appears, may well emerge as the most important gain in the current reform effort.

Inflation Adjustment

A further key feature of the current reform plans is to neutralize the tax system against the impact of inflation. The most important aspect thereof is the just-noted indexing of the depreciation base, but other adjustments are included as well. Though coming somewhat belatedly, this is to be welcomed as an essential part of base revision. Even though the rate of inflation has greatly abated, the current level of unrealized values continues to reflect the rapid inflation of past years. The very accretion concept upon which the case for a broad tax base rests must obviously be understood in real terms, and this requires an inflation adjustment. The 1981 legislation for the indexing of rate brackets and exemptions is followed in Treasury I by inflation adjustments in the treatment of depreciation, inventories, and capital gains. As a further and ambitious stage, both interest received and interest paid were to be inflation adjusted. Treasury II also indexes depreciation, qualifies the capital gains adjustment but drops the indexing of interest. In subsequent action, the Administration further deleted the inventory adjustment, hoping thereby to meet congressional criticism that Treasury II would not be revenue-neutral. However, a move towards inflation-proofing remains an important feature of the current reform plans.

Constant Revenue Assumption

In concluding these general remarks, the condition of constant revenue remains to be noted. This condition appears to be accepted by all

participants in the discussion. If applied to the individual income tax taken by itself, this means that revenue gains from base broadening should be offset by losses from increases in the tax-free limit (exemptions and zero bracket amounts) and from rate reduction. This imposes a nice discipline by forcing focus on structural issues, i.e., on how a given revenue is to be obtained. Combined with the previously noted condition of distributional neutrality, this further narrows the focus to issues of horizontal equity and efficiency, thereby increasing the prospect for agreement. Note, however, that the constant revenue assumption is not applied in this strict fashion. Rather, it is to be applied to the package as a whole, permitting a shortfall under the income tax to be offset by a gain under the corporation tax. Evidently this was done to permit a sharp reduction in the top bracket rate of the income tax.

Critics have questioned whether the Treasury plan will in fact be revenue neutral, but the divergence is minor. The constant revenue assumption is thus a helpful feature of the present exercise, but, as I noted at the outset, it also has its cost. For one thing, structural details may change with changing revenue requirements; for another, focus on the constant revenue frame drives out concern for increased revenue needs, a concern which should be given priority at this time. Given the projected level of defense expenditures, a major deficit reduction cannot (and indeed should not) be met from the expenditure side only. The deficit problem thus cannot be resolved without a substantial contribution from tax increases. Moreover, deficit reduction is essential to permit a change in the monetary-fiscal policy mix, without which we cannot resolve the problem of high interest rates, trade deficits, rising foreign indebtedness, and increased interest burden on the budget. I realize that these issues of macro policy are not on the agenda of this conference, but whether or not the reform is "worth it" can hardly be answered without noting its opportunity cost.⁹ Deterring effects on coming to grips with the revenue problem, I fear, will be the major entry on the nay side of the question.

⁹The major arguments raised against a tax increase are (1) that it would be detrimental to the economy and (2) that it would generate expenditure growth. While (1) would be correct if the tax increase is viewed in isolation, allowance must also be made for the easing in monetary policy permitted thereby. Viewing the combined package, the change in mix could be held aggregate-demand neutral while being favorable (especially if combined with restriction of consumer credit) to capital formation and growth.

Opposition based on (2) reflects the Administration's desire to use the deficit, combined with expansion of the defense budget, as a wedge by which to force reduction in civilian programs. As distinct from a merit-based expenditure review, this hardly seems the way to accomplish fiscal improvement in a democratic process. Nor is it permissible to hold adjustment of macro policy, needed not only at home but also abroad, hostage to an overriding goal of expenditure shrinkage.

Income Tax Issues

In this section, I consider some of the major aspects of income tax reform. Given the large number of specific issues, a selective approach will be required. The next section will consider proposed changes in the corporate income tax and, more generally, the treatment of capital income.

Scope of Base Broadening

As noted before, base broadening is one of the two major features of current reform proposals. Such is the case even though what is being proposed falls short of a fully comprehensive base. How much would these proposals accomplish and how large a shortfall would then remain?

In attempting to answer this question, I shall use the estimates of revenue loss from tax expenditures (pre-1983 concept) as given in the U.S. Budget for 1985.¹⁰ The total revenue losses (1985 level) due to tax expenditures there given aggregate to \$260 billion. With actual revenue of \$330 billion, it follows that elimination of tax expenditures would raise total revenue to \$590 billion, or by 78 percent. Putting it differently, the potential shortfall due to tax expenditures reduces "full revenue" by 44 percent. How does the base broadening under Treasury I compare therewith? Its total revenue loss is estimated at \$37 billion, including a loss from rate reduction and exemptions increase of \$93 billion and a gain from base broadening of \$56 billion. With present-law revenue estimated for 1987 at \$407 billion, this amounts to a gain of 14 percent. Using 1990 levels, this ratio rises to 18 percent but remains far below the "full" ratio of 78 percent. I am aware, of course, that this calculus involves its difficulties. Aggregation of losses from various tax expenditures introduces error, since their item-by-item estimation overlooks interdependence. What constitutes tax expenditures is debatable, and certain items (such as unrealized gains and imputed income) are not covered. The scope of revenue loss from omissions from the base depends on the rate structure and so forth. Nevertheless, the above calculation offers at least a rough picture of the limited scope of base broadening, even under Treasury I, and it is a surprisingly disappointing one.

About half the gap is explained by failure to deal with certain major items. Out of the total 1985 loss of \$260 billion, \$56 billion is accounted for by exclusion of pension contributions under employer plans, \$20 billion by remaining exclusion of employer contributions to health insurance, \$19 billion by exclusion of social security benefits, and \$25 billion

¹⁰*Special Analyses, Budget of the United States Government for the Fiscal Year 1985, Special Analysis G, pp. G43-48.*

by deductibility of mortgage interest on owner-occupied homes. These items, which are entirely or at least largely untouched by Treasury I, add to \$120 billion, or 46 percent of the total revenue loss. Their omission reduces the 1985 loss ratio based on Budget data from 78 to 46 percent of potential (comprehensive base) revenue, still considerably above the 17 percent recoupment ratio of Treasury I.

Base Broadening: Implications for Tax Equity

It would be a mistake, of course, to focus on the aggregative scope of base broadening only. The issue is not merely one of broadening the base so as to permit rate reduction, but also one of improving the structure of the base in equity and efficiency terms. A generally accepted requirement for tax fairness is that of *horizontal equity*: taxation should treat people in equal positions alike, i.e., impose equal burdens upon them. Putting it differently, people in equal positions prior to tax should remain so after tax. It follows that those tax expenditures or preferences are most harmful which are enjoyed in unequal measure by the members of particular income groups, while those which are shared more equally are less offensive in this respect.

Unfortunately, there are few data by which to evaluate the proposed base reforms in these terms. To begin on the income uses side, owners of primary residences retain large advantages over renters, while owners of vacation homes will find their preference cut somewhat. Donors lose part of their advantage as against non-donors due to the restriction of charitable contributions proposed in Treasury I, but not so in Treasury II. Risk-aversers (who take out health insurance) lose some of their subsidy. Consumers of durables, purchasing on credit, are to be treated more nearly like their more prudent brethren or sisters who pay cash. In these and other items, there will be some progress in horizontal equity, but gains from the income uses side are bound to be small as long as mortgage interest remains untouched. The fact that no politically realistic proposal can attack this preference not only reflects the power of what usually is referred to as interest-group pressure, but also a generally accepted notion that home ownership is a good (merit-good?) thing which should be encouraged. However, even if this is accepted, a credit may well be superior to the deduction approach.

Gains from reduced preferences on the income sources side should, however, be more important. To be sure, the biggest items of employer contributions to pension funds, social security benefits, and tax-exempts will also remain untouched, but substantial progress can be hoped for in other respects. This includes preferential treatment of upper-income fringe benefits, such as limitations on business meals, travel costs, and seminar cruises. Most important, Treasury I would produce major gains

from provisions making for more equal treatment of salary and capital income over the upper part of the income range, including full taxation of realized gains and a narrowing of escape hatches now offered by a variety of tax shelter investments. This suggests that gains in horizontal equity under Treasury I will be more significant in the middle and upper than in the lower income ranges, but this will be less so for Treasury II.

Base broadening not only matters for horizontal equity, but also bears on vertical equity, i.e., the distribution of the tax burden across income groups. Particular omissions from the base are typically not of equal importance across the income scale. Current proposals stay clear of the social security exclusion at the lower end, of employer contributions over the lower to middle income scale, homeownership in the middle range, and tax-exempts at the upper end. Placing a ceiling on employer contributions to health insurance and full inclusion of employment compensation would tighten at the lower end, but there are only a few such items. The primary emphasis of base broadening appears to be at the upper-middle and high end of the scale. These effects, to be sure, combine with those of rate reduction in setting average effective rates by economic income brackets. Since a substantial cut in top bracket rates is to be applied, a substantial base broadening at the upper end will also be required if the vertical burden distribution is to be left largely unchanged. Such is the case especially since reduction of the top bracket rate to 35 percent or less is in itself a primary goal in the current reform proposals.

Base Broadening: Implications for Efficiency

Efficiency aspects of base broadening are related to those of horizontal equity, but they are not the same. Efficiency costs may arise even in a world in which all taxpayers are identical in their preferences and responses, so that there need be no concern with horizontal equity. Moreover, differential taxation of various products or income uses or sources may be efficient, even though this results in horizontal inequities because preferences differ within income groups. As noted before, considerations of optimal taxation question the broad-base doctrine and complicate horizontal equity implications.¹¹ However, the goals of hori-

¹¹Consider a situation where A's demand for x is elastic while that for y is inelastic, with the opposite holding for B's demand, both having the same pre-tax income. Efficiency then requires that A should be taxed more largely on y while B should be taxed more largely on x. Horizontal equity calls for both to be taxed so as to suffer equal welfare losses. (Some form of utility comparability is inevitably required when dealing with horizontal equity.) But equal welfare losses may well involve different amounts of tax. So far efficiency and equity considerations (properly interpreted in terms of welfare losses) remain compatible. However, this solution may not minimize aggregate welfare loss, so that efficiency thus defined may be incompatible with horizontal equity. Putting it differently, horizontal equity requires equating of total welfare losses across consumers, whereas efficiency requires equating welfare losses at the margin.

zontal equity and efficiency may also coincide, and I suggest will do so for the major omissions from the tax base. Inclusion of mortgage interest and termination of tax-exempts, for instance, would be advantageous on both efficiency and horizontal equity grounds, but neither is provided for. The same holds for the tightening of tax shelters and features now permitting capital income from various sources to be taxed differentially. These aspects of the reform above all should result in substantial efficiency gains and happily most of them will also be matched by improvements in horizontal equity.

Base Broadening: Further Issues

In the following, brief consideration is given to certain items of base broadening which are of particular interest, including the treatment of capital gains, the deductibility of state and local income taxes, and charitable giving.

Capital Gains. Preferential treatment of capital gains has been one of the major sources of tax shelter building and tax avoidance by high incomes. Both Treasury I and II provide for a change in the treatment of capital gains. Treasury I calls for full inclusion of realized gains, thus raising the top rate from 20 to 35 percent, while also indexing the base. Treasury II reduces the inclusion rate to 50 percent, which (with the bracket rate cut to 35 percent) reduces the top rate to 17.5 percent. Treasury II also permits an option of full inclusion with indexing beginning in 1991. Bradley-Gephardt and Kemp-Kasten are generally similar to Treasury I but Kemp-Kasten permits the option of 75 percent inclusion without indexing for the first 10 years.

Full taxation of capital gains has long been one of the key items of tax reformers. While there may be some (if dubious) disagreement over whether unrealized gains should be viewed as income, this surely does not hold for realized gains. Preferential treatment of gains, as noted below, has been a key feature in the construct of tax shelters, and the Treasury I proposal for full taxation thereof constitutes a major improvement. So does its proposal to index the base. Accretion should be defined in real terms, since the impact of inflation on nominal capital values needs to be corrected for. Otherwise, even the current practice of a 60 percent exclusion leads to over-taxation once the inflationary component of the nominal gain exceeds 60 percent. Given the backlog of substantial inflation, it is not surprising that the early revenue effect of the proposed change is estimated to be slight, but this may be expected to change over the longer run if the rate of inflation continues to be low.

Treasury II differs sharply from Treasury I. By continuing the option of 50 percent exclusion indefinitely, preferential treatment is retained, at least under the assumption of modest inflation. In seeming contradic-

tion, it is argued first that with adequate incentives provided under CCRS, no special capital gains preference will be needed, but this is followed by a defense of the preference so as to stimulate saving and investment.¹² While the effectiveness of the capital gains preference may be debated, it seems evident that its blanket application to all types of capital gain is inappropriate. To be sure, the magnitude of the preference (with a 50 percent inclusion and a 35 percent maximum rate) would be reduced to 17.5 percentage points, as against 30 under present law, but it would still be substantial.¹³ Given the strategic role of the capital gains preference in the tax shelter construct, much of the accomplishment of Treasury I in tax shelter closing may thus be lost by Treasury II.

Among other aspects of the capital gains problem, it may be noted that Treasury I limits tax savings from the donation of appreciated property by requiring use of the smaller of its indexed or market value. Once more, this provision, which is a logical extension of inflation proofing, is not included in Treasury II. Neither Treasury I nor Treasury II addresses the carry-over of basis on unrealized gains to the heir, who is now permitted to use market value at the time of the estate. Appropriate treatment would return to the 1974 provision using the original base, but subject again to indexing for inflation. Finally, this review should note that neither Treasury I nor II, nor for that matter any other plan now under discussion, addresses the problem of unrealized gains and their eventual inclusion in the income tax base, be it periodically or at death. This omission, along with the 1981 cutback in transfer taxes, highlights the changed climate in which tax reform now proceeds, but the underlying problems of wealth distribution and its social as well as economic implications still persist.

Deductibility of State and Local Taxes. Both Treasury I and II discontinue the deduction of all state and local taxes. Bradley-Gephardt drops the sales tax deduction only, while Kemp-Kasten discards the deduction of sales and income taxes. Repeal of tax deductions provides the largest single item of revenue gain under the Treasury plan. At \$34 billion (1988 level), it accounts for over 40 percent of the total gain from base broadening in Treasury I. No wonder, therefore, that the Administration views this provision as a must item.

Treasury I classifies the deduction of state-local taxes under the heading of "preferred uses of income." The implication is that taxes represent a voluntary use of income, which even to this observer appears as

¹²See *The President's Tax Proposals to the Congress*, referred to as Treasury II, pp. 167-176.

¹³The *Treasury Report on the Capital Gains Tax Reduction of 1978*, which has just appeared, gives a prudent appraisal of the case for preferential treatment. Holding revenue constant, the gain from capital gains reduction in terms of increased consumption is shown to become positive only after several decades, and to be substantially less than that obtained from an across-the-board reduction in the level of capital gains taxation.

a somewhat benevolent view of the fiscal process. Fiscal decisions, after all, are not unanimous but based on majority rule. Treasury I then rejects deductibility for a number of reasons. Deductibility benefits itemizers only, and high-income itemizers in particular; it supports high-tax states at the cost of low-tax states, and high-income states at the cost of low-income states. Benefit leakages to outside the jurisdiction are considered of minor importance, and do not justify a federal subsidy. Past fear that absence of deductibility would raise income tax rates to over 100 percent no longer applies, as rates have come down.

These points are not without merit, but much depends on how one views the role of central government in a federation, and that of Washington in the United States in particular. The approach of Treasury I is well stated in its following dictum: "To the extent that state and local taxes merely reflect the benefits of services provided to the local taxpayer, there is no more reason for a federal subsidy for spending by state and local governments than for private spending."¹⁴ Putting it differently, federal support is considered appropriate only in the case of spill-outs, the benefits from which are not included in the local calculus. As I see it, the role of central government (based on the will of its national constituency) is broader, including protection of certain rights of its "national" citizens, independent of their particular location within the nation. Central responsibility may thus be seen to involve claims to a minimum level of income (or the opportunity to earn it) as well as to a minimum level of essential state and local services. In particular, I continue to view the problem of distribution to be essentially a central responsibility: partly because the basic social contract has to be among citizens of a nation and not only village neighbors; and partly because decentralized redistribution is voided by mobility. There is thus a national interest in state and local budgets, and not only a state-local one. Since the capacity of state and local units to render services differs greatly, central concern is not only with inter-individual but also inter-jurisdictional aspects of distribution. All this of course, is quite compatible with the proposition that certain public services should be rendered at the state and local level; but central concern is not limited to dealing with spill-out situations.

All this establishes a rationale for a capacity-need-effort related system of revenue sharing—a system which, to be sure, would have little resemblance to the ill-designed revenue sharing system which is now being phased out. If such an ideal system were in existence, tax deductibility would not be needed, except for the income tax, where (parallel to

¹⁴See Treasury I, vol. 1, p. 78. A rather similar view appears in D. Netzer's paper to this conference, which also bases the rationale for partial retention of tax reduction on the presence of benefit spill-outs.

the treatment of foreign taxes) an allowance (preferably in the form of a partial credit) would remain in order. But this is not the actual setting in which this tax reform proceeds. No ideal system of revenue sharing is in the works, and the trend is towards reduced federal aid of all kinds. In this setting, I hesitate to discard deductibility altogether, especially in view of high-income, high-tax states which must service large low-income populations, and in view of the dependence of school expenditures on the property tax. Whether the deductions should be transformed into a credit approach is a different matter, and certainly one which might be considered to meet the Treasury concern that deductibility accrues to the special benefit of high-income taxpayers.

Giving. Treasury I recommends that the deduction for charitable contributions be repealed for non-itemizers, and that itemizers be permitted to deduct contributions in excess of 2 percent only. The quantitative effects of these proposals are significant. As they are explored in detail in another paper,¹⁵ I will here only comment very briefly on their rationale. Disallowance of deductibility to non-itemizers has merit on simplification grounds, but Treasury I, as a further reason, notes that small contributions are not likely to be affected much by removing deductibility. Perhaps not, but there are also equity implications: If preferential treatment of giving is justified, it should not be withheld from small contributors. The provision for a floor to itemized giving makes sense on equity as well as on revenue grounds, since a larger sacrifice (giving as a larger share of adjusted gross income) on the donor's part may be seen to merit a larger preference. However, there is little reason why the subsidy rate should rise with income, a bias which might have been corrected for by substituting a partial credit for the deduction approach.

Burden Distribution, Tax-Free Income, and Bracket Rates

I now turn to the effects of the reform proposals on the distribution of the tax burden among income brackets.

Burden Distribution. The distribution of liabilities and the level of average tax rates under present law and Treasury I are compared in table 2. As shown in lines 1 and 2, the percentage distribution of liabilities among family economic income brackets remains largely unchanged. The only major change is a sharp reduction in the share contributed at the low end of the scale. The average rate of tax for the group as a whole is reduced from 8.7 percent to 8.0 percent (involving an 8 percent reduction in yield) and this is reflected in a reduction of average rates throughout the income scale. As shown in line 6, the percentage reduction is

¹⁵See Charles T. Clotfelter's paper prepared for this conference.

Table 2
 Tax Burden Distribution*
 (Ratios, with the exception of lines 7 & 8, refer to Treasury I)

	Family Economic Income in Dollars								Total
	Less than 10,000	10,000 to 15,000	15,000 to 20,000	20,000 to 30,000	30,000 to 50,000	50,000 to 100,000	100,000 to 200,000	200,000 and over	
<u>Tax Liabilities</u>									
Percentage distribution									
1. Present Law	.5	1.8	3.3	10.3	24.3	32.8	12.3	14.9	100.0
2. Proposed, Treasury I	.3	1.6	3.1	10.2	24.1	33.1	12.6	15.0	100.0
3. % change in shares	-40.0	-11.1	-6.1	-0.1	-0.1	+0.1	+0.2	+0.1	—
<u>Tax Rates</u>									
Average Rates									
4. Present Law	1.4	3.2	4.6	6.3	7.8	9.4	13.2	20.1	8.7
5. Proposed, Treasury I	0.9	2.7	4.0	5.7	7.0	8.7	12.3	19.3	8.0
6. % change in tax	-35.7	-15.6	-13.0	-9.5	-10.3	-7.4	-6.8	-4.0	-8.0
7. Proposed, Treasury II	0.9	2.5	4.0	5.7	7.3	9.6	12.7	18.7	8.1
8. % change in tax	-35.5	-22.8	-13.5	-8.7	-6.6	-4.2	-4.1	-10.7	-7.0
Marginal Rates									
9. Present Law	4.2	9.4	12.4	16.0	20.9	27.6	37.5	46.1	23.6
10. Proposed, Treasury I	3.7	8.5	11.0	14.0	16.5	22.1	30.5	33.2	18.9

*Treasury I, vol. 1, p. 47, and Treasury II, p. 16.

steepest at the bottom of the scale. Comparable ratios for Treasury II (lines 7 and 8) show a rather similar picture, except for Treasury II's much sharper decline at the very top. The ratios for Treasury I and II, I take it, are based on the assumption that the composition of income remains unchanged. But such changes will occur, leaving me somewhat skeptical on how such comparative estimates can be made without knowing how taxpayers will respond to the various changes in the law.

Lines 9 and 10 show corresponding changes in marginal rates (or, more specifically, average marginal rates) in the various brackets. As may be expected, the decline in marginal rates is relatively slight at the bottom of the scale and increases with income, the estimated drop for the top bracket being from 46 to 33 percent. Corresponding data for Treasury II are not given. In all, the distribution of the burden by bracket shares remains more or less uniform and the percentage reduction in average rates is more or less similar throughout, with a major change only at the bottom of the scale, but marginal rates (especially at the top) decline sharply. One marvels at the Treasury's research staff for having produced so neat a result.

Tax-Free Income. This outcome, as noted before, reflects the combined effects of (1) rate reduction, (2) base broadening and (3) raising the tax-free amounts. The latter is accomplished by (a) raising the exemption from \$1,000 to \$2,000 and (b) increasing the zero bracket amount (or standard deduction) from \$2,300 to \$2,800 for a single and from \$3,660 to \$4,000 for a joint return. By giving most of the relief via (a), families with dependents are favored and the marriage penalty is reduced. Bradley-Gephardt raises the personal exemption to \$1,600 only, leaves the dependency exemption unchanged, and increases the tax-free amount to \$6,000. The proposed change is thus less responsive to family size. Kemp-Kasten follows the Treasury pattern but adds a vanishing exemption beginning with 20 percent of wage and salary income, designed to serve as an offset to the payroll tax.

At the lower end of the scale, the increase in the tax-free amount is *the* decisive factor. We should note, however, that the drastic increase proposed in Treasury I and II does not reflect a new view of how the poor should fare under the income tax. It merely returns the treatment partway to what it was in 1979. At that time, the poverty threshold (using a family of four for illustration) stood at \$5,330. With an exemption of \$1,000 per person and a zero bracket amount of \$3,400, the tax-free total was \$6,400, or 120 percent of poverty income. Since then these allowances have not been changed but the threshold for 1986 is estimated at \$11,400. Tax-free income has thus declined to 56 percent thereof. This, it appears, has been the most blatant mischief worked by an undindexed income tax during a period of rapid inflation. The proposed increase in exemptions to \$2,000 and in the zero bracket rate to \$4,600 will

raise the tax-free amount to \$12,000. This equals 105 percent of the poverty threshold, so that the current proposal goes most of the way towards restoring the 1978 ratio of 120 percent.

At the same time, the proposed increase in tax-free amount is exceedingly costly in revenue terms. It might well account for close to one-half of the estimated \$100 billion revenue loss (1988 level) from raising exemptions and reducing rates. This cost might have been limited greatly, while giving the same benefit to low incomes, by shifting to a vanishing exemption, a device long recommended by tax technicians. Given the goal of maintaining the present level of average rates through the scale, this would not have been a net saving, but it would have permitted middle and upper bracket benefits to be granted more largely by way of reduction in bracket rates. In view of the emphasis placed on the incentive gains from lowering marginal rates, this might well have been the preferred approach.

Bracket Rates. Moving up the income scale, the weight of tax-free income declines and bracket rates become increasingly decisive in setting the effective rate of tax. Here the reform provides for two major changes. One is the replacement of the 14-bracket schedule which now applies with a three-bracket set. The other is a substantial reduction in the level of rates.

The reduction to a three-bracket schedule first appeared in *Blueprints* and is now offered by Treasury I and II (with rates of 15, 25, and 35 percent), as well as Bradley-Gephardt (with rates of 14, 26, and 30 percent). Only Kemp-Kasten (25 percent) and Hall-Rabushka (15 percent) offer a flat rate. As noted before, there is a sharp difference between a multiple-rate structure (even with three rates only) and a single rate. Under the latter, effective rate progression cannot be extended over the upper part of the income scale. A shift from 14 to three brackets is much less significant. While it is being pictured widely as a great simplification, this is incorrect. Even with a three (if not a single!) rate schedule, the bulk of taxpayers must use tax tables, in which case the number of brackets becomes irrelevant. Assuming the same result in terms of effective rate, the three-bracket schedule involves fewer points in the income scale at which a step-up in rates occurs, and this may be considered an incentive advantage. But it also involves sharper step-ups where they do occur, and this is a disadvantage. Depending on taxpayer behavior, there may or may not be an incentive gain.

Shift to the three-bracket approach is significant, however, in that it tends to limit the degree of freedom in setting the pattern of effective rates. The top rate under a three-bracket system cannot be too high, as this would have to extend down too far towards the middle income range. What appears as a technical change thus has substantive (and political) importance for policy design in limiting the top rate.

As noted before, one rationale for lowering the top rate from 50 percent to 35 percent is that it "merely conforms" to the pattern of effective rates which already exists. But this is not a convincing rationale, as existing rates reflect the deficient income base. The decline in top bracket rate from 92 percent in the early 1950s (which do not seem so long past to this observer) to 70 percent in the mid-1960s and 50 percent in 1982 is shown in table 3, as is the pattern of changing bracket rates through the

Table 3
Development of Upper Bracket Rates*
(Income levels for 1971–1986 reflect 1952 real term equivalents)

	1952	1971	1982	Proposed for 1986
1a. Taxable Income (\$)	20,000	31,000	74,000	90,000
b. Marginal Bracket Rate (%)	42	39	42	25
2a. Taxable Income (\$)	50,000	78,000	185,000	224,000
b. Marginal Bracket Rate (%)	66	58	50	35
3a. Taxable Income (\$)	110,000	125,000	370,000	449,000
b. Marginal Bracket Rate (%)	77	64	50	35
4. Top Rate (%)	92	70	50	35

*For the underlying historical data, see J. Pechman, *Federal Tax Policy*, 4th ed., p. 304.

upper part of the income scale. The general downward trend is interrupted only by a 1971–82 increase in the bracket rate for the middle-upper income group (pictured in lines 1a and 1b), indicative of the impact of non-indexing over that range. Otherwise, the general downward trend persists. Whether this should be viewed as reflecting increased realism regarding the feasibility of enforcing higher rates, as attribution of increasing weight to incentive considerations or as a cultural revolution (retreat from a more egalitarian view of distributive justice) remains an intriguing question for social historians. But the development that has taken place over the last three decades is indeed striking.

My own response, which I should state, is as follows: given that benefits from tax preferences have been especially marked at the upper end of the scale, I question the wisdom of providing this particular group with an especially sharp reduction in effective rates, not to be shared over the broad middle range. As I see it, the proposed cut in the top bracket rate to 35 percent is not imperative on supply-side grounds (more about this below) and I do not find it justified in equity terms as I see them. In my view, a fourth bracket should thus be added. I feel this to be the case especially if a substantial capital gains preference is to be

retained (as proposed in Treasury II) and if allowance is made for the revenue shortfall which sooner or later will have to be met.

Simplification

There are many other aspects of the income tax reform that should be considered, including the treatment of the family unit, the use of floors and ceilings on deductions, including the interesting suggestion by Bradley-Gephardt to permit deduction against the first bracket rate only, as well as the still rather important problem of minimum tax. However, this paper should not be permitted to grow into a book, and I therefore proceed directly to the one remaining issue which must not be overlooked, simplification.

Simplification is featured as a prime target in all the reform proposals, and this is not surprising. Taxpayer compliance costs have been estimated at over \$20 billion (1982) and with the costs of the Bureau of Internal Revenue included, the combined cost of income tax administration may exceed \$30 billion, or 10 percent of the revenue gained.¹⁶ As Treasury I notes, the proposed reform would simplify matters by reducing the number of taxpayers (due to the increase in tax-free amounts), by eliminating or simplifying 65 provisions of the tax code, and by eliminating 16 forms and 10 lines from the 1040 Return. Also, the number of itemizers would be reduced from 31 to 25 percent, by eliminating various floors and deductions. All this would be of substantial help, but it will hardly provide massive simplification. The 40 percent of all returns now prepared with professional help (60 percent for itemizers and 30 percent for non-itemizers) are still likely to be thus prepared.¹⁷ As Treasury I itself prudently assesses the scope of simplification: "Movement towards a broad-based tax requires that a better measure of income be obtained—in some cases additional calculations would be needed, but on balance a broad-based income tax would reduce the complexity caused by current law."¹⁸ In short, some progress can be made but the scope is limited. This is the case especially with regard to capital income. Here, Treasury I's proposal for full taxation of capital gains would be a (if not *the*) major step towards simplification, as it would curtail tax shelters, but this provision is not followed in Treasury II. Many other measures taken in the reform proposals, such as introducing floors to deductions, should be helpful to broaden the base and to improve the equity of the system, but they will not drastically reduce the task of filing returns. Indeed, some of the proposals in Treasury I (such as indexation

¹⁶See J. Slemrod and N. Sorum, "The Compliance Cost of the U.S. Individual Income Tax System," *National Tax Journal*, December 1984.

¹⁷See Treasury I, p. 16.

¹⁸See Treasury I, p. 86.

of interest) would add thereto.

A vision of more drastic simplification is offered by the Treasury's plan for a return-free system.¹⁹ Tax liabilities would be withheld as determined on the basis of withholding returns and third-party information. The taxpayer would be shown the calculation and could question it, but no return would have to be filed. Such a system is to be tried first for single taxpayers with wage income only, but a hope is expressed that two-thirds of all returns could be handled in this fashion by 1990. This is indeed an exciting proposal, but it remains to be seen whether such a service could be rendered wage earners without also depriving them of tax options still available at higher levels and to recipients of capital income.

A concluding remark on simplification and the cost of running an income tax might be added. Simplification and cost-saving are obviously desirable where they can be accomplished without interfering with the basic design of an equitable tax. Income tax implementation is a product whose cost should be minimized, just as that of cars. But there are trade-offs. A better income tax costs more, just as does a better car. The finding that the income tax costs \$30 billion in itself is not a very meaningful piece of information. There is no obvious reason why a good income tax might not be worth \$30 billion, just as there is no obvious reason why automobile purchases should not account for \$75 billion. Both, I like to think, are part of the good life. The question, rather, should be how much could be saved without concession to the quality of the income tax or even with gains therein, or what equity losses would have to be accepted for what cost savings.

Capital Income

A major part of the reform effort is directed at the taxation of capital income, the most complex and imperfect part of the system. This includes both revision of the corporation income tax and a tightening of various individual income tax provisions which have permitted the spread of tax shelters.

Corporation Tax

The corporation tax reform proposed in Treasury I includes (1) reduction in the now maximum rate of 46 percent to a flat 33 percent, (2) repeal of the investment credit, (3) replacement of the current system of accelerated depreciation (ACRS) by economic depreciation, and (4) a 50 percent dividend paid credit. Treasury II incorporates (1) and (2), adapts

¹⁹See Treasury I, p. 111.

(3) so as to maintain overall acceleration, and reduces (4) to 10 percent. As the result of these and other measures, Treasury I raises corporation tax revenue by \$30 billion (1987 level) or 23 percent.

The revenue gain under Treasury II is but slightly less, with the cost of retaining acceleration offset by greatly reduced dividend exclusion and, in the short run, introduction of a recapture provision. A summary of the major reform items and their revenue costs are shown in table 4.

Table 4
Major Changes in Corporation Tax*
(billions of dollars, 1988)

	Treasury I	Treasury II
Flat rate of 33%	-38.5	-35.9
Repeal of Investment Credit	+26.6	+29.4
Depreciation Reform	+35.6	+0.2
Recapture Provision	—	+20.4
Indexed FIFO	-6.0	-4.5
Dividend Relief	-20.7	-6.2
Multiperiod Construction	+8.8	+3.6
Energy Subsidies	+6.7	+0.2
Other	<u>+16.8</u>	<u>+17.3</u>
Total	+29.3	+24.3

*Source: *Treasury I*, vol. 1, p. 245, and *Treasury II*, p. 453.

Depreciation Reform. As Treasury I notes, the combination of ITC and ACRS, operating under moderate rates of inflation, permits investment in depreciable assets to be recovered far more rapidly than under a neutral system. Moreover, the tax rate depends greatly on the length of asset life. With an inflation rate of 5 percent, the effective rate on equity financed equipment under five years is negative, while for structures in the eighteen year class it becomes 40 percent, still below the statutory rate of 46 percent.²⁰ As a result, the system imposes widely differing effective rates of tax on equity investment in different assets, ranging from 8 percent in the case of motor vehicles to 31 percent in industry and trade. Also, the location of benefits up front discriminates against new enterprise with as yet insufficient income. Repeal of the investment credit and substitution of real economic depreciation—referred to as Real Cost Recovery System (RCRS)—would eliminate these differentials and their distorting effects on resource allocation. These changes, taken by themselves, increase the effective rate of tax, but Treasury I offsets this increase by rate reduction and dividend relief.

²⁰See Treasury I, p. 107.

Treasury II follows suit with regard to rate reduction and repeal of the investment credit, but differs in its depreciation reform. Following Treasury I, it proposes to remove the unneutrality of ACRS and accepts the principle of inflation adjusted economic depreciation, but unlike Treasury I, it maintains the general level of investment incentive now provided by ACRS. The proposed Capital Cost Recovery System (CCRS) "would prescribe depreciation schedules and recovery periods which produce systematic investment incentives that are neutral across recovery classes."²¹ The proposed close-out periods are thus lower and depreciation rates faster than proposed in Treasury I. While Treasury I shows its proposed effective rates to be uniform across industries, Treasury II does not provide such a table, but its proposed pattern appears to follow that of economic depreciation. Thus similar cross-industry efficiency gains as in Treasury I should be obtained.

Granting the investment incentive via accelerated depreciation (if based on an economic depreciation pattern) is clearly preferable, on neutrality grounds, to a flat investment credit. But Treasury II might have done better to retain the investment credit, adjusted so as to avoid discrimination against long investment, while adopting the Treasury I depreciation plan. This would have avoided granting the incentive to old capital where it is ineffective, would have rendered the incentive more visible, and would have recognized the principle of economic depreciation more clearly. Also, it may be questioned how the investment incentive compares with the dividend paid credit as proposed by Treasury I. Support for the latter, to be sure, does not rest primarily on incentive considerations, but on the normative concept of an integrated corporation. Indeed, it might be argued that the dividend exclusion, by inducing distribution, reduces cash flow available to management for investment. Investment effects thus depend on the level at which investment decisions are made. However, the dividend exclusion also reduces discrimination against equity investment, now resulting from the fact that interest payments can be deducted, whereas return on equity investment is taxed twice.

Rate Reduction. The proposed reduction in the top rate from 46 to 33 percent parallels that under the individual income tax. It is thus in line with the integration objective, as is Treasury I's dividend exclusion. For Treasury II, rate reduction provides the major offset to the revenue gain for repeal of the investment credit. In all, both plans provide for some relief in the taxation of old as against new capital, hardly in line with incentive goals.

²¹See Treasury II, p. 138.

Shelter Closing

Many of the proposed changes in the corporation and individual income tax law are designed to close or at least reduce the use of tax shelters. The slow-down of depreciation plays a major role in this, but so do other provisions including the full taxation of capital gains and the taxation of large partnerships as corporations, designed to prevent pass-through of losses to partners. To this may be added the tightened treatment of oil and gas, limitation of tax postponement in multi-period production, application of at-risk rules to real estate, and so forth. On the basis of this brave package, Treasury I hopes to secure a substantial cutback in tax shelters.

Unfortunately, the list offered by Treasury II is much less complete. Accelerated depreciation is retained, though modified to check its worst abuses, but preferential treatment of capital gains continues as does carry-through of partnership losses; also, a much milder approach is taken to oil and gas, and to multi-production rules. Treasury II, however, takes a more severe position in two respects. For one thing, it proposes a recapture of tax savings which would result as reduced tax rates are applied to earlier postponement of taxable income under accelerated depreciation. For another, a minimum tax (which Treasury I, rather optimistically, holds no longer necessary) is to be retained and tightened at both the individual and the corporate level. But this is only a second best solution, and one is left with the question of how much shelter closing would in fact be accomplished under Treasury II, and whether an adequate offset to the proposed reduction in the top bracket rate would be provided.

"Supply-Side" Effects

How much may we expect the reform to contribute to the performance of the U.S. economy? Such contribution may come about through a more efficient use of resources, more rapid technological progress, or through an increase in labor supply, saving, investment and technological advance. As I am approaching the limits of my pages, a brief summary of what was said on this in the earlier papers will have to suffice.

Of the various paths, gains from more productive use of resources, brought about by depreciation reform and reduced distortions through shelter seeking should be the most important. Joel Slemrod reports that the efficiency cost for the tax system as a whole has been estimated at, say, 5 percent of GNP, which burden could be avoided by transition to a lump-sum tax.²² However, we are not about to undertake such a move.

²²See Joel Slemrod's paper prepared for this conference.

The gain from complete elimination of differentials in the treatment of capital income has been estimated at 1 percent of GNP, a level which is much above what the proposed reform would accomplish. While the reform does not face up to the larger problem of mortgage interest deduction, elimination of property tax deductibility is estimated to yield an efficiency gain of 0.9 percent of GNP. Potential efficiency gains from the treatment of capital income may thus add to, say, 2 percent of GNP.

Turning to effects on labor supply, Slemrod reports that moving to a completely flat-rate income tax has been estimated to increase labor supply by over 10 percent.²³ Using a compensated labor supply elasticity of 0.2 percent for males and 1.2 percent for females, and an average decrease in marginal rates of 19 percent, an estimated increase in labor supply of 3 percent is obtained.

Using a controversial interest elasticity of 0.4 and holding the level of interest rates constant, the effect of rate reduction on household savings is estimated at less than 2 percent. Little additional gain is expected from liberalized IRA provisions.²⁴ Effects on corporate savings may be expected to be negative under Treasury I, at least in the short run, given the reduced rate of depreciation and the proposed exclusion of dividend payments. While rate reduction will provide an offset, this will hardly suffice to leave a net gain. With household saving only a small part of the total, the savings rate for the two sectors combined is not likely to show a significant change, in any case not a change anywhere near what might be accomplished by deficit reduction.

This leaves effects on corporate investment demand. While Treasury II claims that the effective tax rate on equity-financed corporate investment would fall from 35 to 26 percent, Slemrod notes that this is not readily reconciled with the projection of a 20 percent revenue gain. He concludes that tax incentives to corporate investment will not be raised substantially.²⁵ Hendershott estimates interest rates to decline but slightly, except for a more substantial fall under Treasury I due to its interest indexing provision.²⁶ Kopcke, in his cash-flow model, estimates that there will be little effect on cash flow in the short run, but that the reforms may secure a 9 percent gain by the end of the decade.²⁷ Under the neoclassical model, the effects on the growth rate in the stock of durable equipment in manufacturing are estimated to be slight or even negative in the short run. By the end of the decade, Treasury I may induce an increase from 3.0 to 3.4 percent, with little change under

²³Slemrod, p. 23.

²⁴Slemrod, p. 21.

²⁵Slemrod, p. 22.

²⁶See Patric M. Hendershott's paper prepared for this conference, p. 33.

²⁷See Richard Kopcke's paper prepared for this conference.

Treasury II. Both the models reflect the state of the art, but leave me somewhat troubled.²⁸

Reviewing these results, it appears that "supply side" effects will be modest and that there will be no major impact on the growth rate of the U.S. economy, not only in the proverbial steady-state setting but also over the more relevant period of a decade or so. These estimates, however, may be too pessimistic as they do not account for behavioral shifts which may result in the wake of a truly successful reform. But this is a hope only, a special dividend if it should come about. In the meantime, the major reward should be expected to be in low-income relief and efficiency gains, together with an improvement in horizontal equity and a more favorable image of the income tax. This, to be sure, would be a gain but it leaves unanswered the overriding deficit problem and the needed tax increase without which that issue cannot be resolved. It is unfortunate indeed that reform has come to be viewed in a climate which rules out such an increase and even looks towards future reduction, rather than integrate reform with the more pressing task of providing for increased revenue.

²⁸The cash-flow model, with cash flow as determinant of investment behavior, throws a most uncomplimentary light on the efficiency of the investment process, while the "neo-classical" model bypasses that old friend the impact of loss offset by risk taking. This not only bears on taxation effects on portfolio mix but eventually also on the level of investment. For a recent review of this problem, see Agnar Sandmo, "The Effects of Taxation on Saving and Risk Taking," in A. Auerbach and M. Feldstein, eds., 1985, *Handbook of Public Economics*, Vol. 1, North Holland.

Discussion

*Joseph A. Pechman**

It will come as no surprise to this audience that I agree with practically everything that Richard Musgrave said, and so what I shall have to say is really in the nature of an addendum to his excellent article rather than a criticism. Musgrave concludes that there are some very good things in the original Treasury proposal (Treasury I) and fewer good things in the President's proposals (Treasury II), but he's not so sure about what will emerge after Congress gets through compromising the major issues. However, he doesn't tell us whether it all will be worth it in the end.

Let me try to strike a balance sheet of pluses and minuses to help answer the question. I have the advantage of knowing the options presented by Chairman Rostenkowski to the Ways and Means Committee, so the outlines of what is likely to come out are clearer now than when Musgrave prepared his paper. My conclusion is that the principles of tax reform have already been compromised to a considerable degree and it is hard to see how the final bill, if Congress passes one, will be anything more than a mishmash. But I think that the public discussion of tax reform has been all to the good, and I hope that it will ultimately produce results.

One set of improvements that the bill now being considered is likely to make are the increases in personal exemptions and the standard deduction, and the reduction in the tax rates of individuals and corporations. It is fairly clear that Congress will restore the principle that individuals and families with incomes below the official poverty line should not be subject to income tax. This principle, which was adhered

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to throughout the 1960s and most of the 1970s, was abandoned in 1978 and as a result the burden of income taxation on the poor has been increasing. It is time to rectify this inequity.

The reduction of the top marginal rate from 50 percent to 35 percent would be all to the good, if as now planned the revenue would be recovered by closing major loopholes. However, like Musgrave, I don't think there is much virtue in reducing the number of tax brackets to three. In fact, I think it is worth asking whether it is appropriate in a graduated income tax to tax incomes over the wide ranges now being considered at the same marginal rate. For example, Treasury II would apply the 25-percent individual income tax rate to incomes between \$29,000 and \$70,000 for joint returns and \$18,000 and \$42,000 for single persons. I doubt that most people would agree that ability to pay tax on the marginal dollar is the same for joint returns with incomes of \$29,000 and \$69,999. Why tax simplification was ever associated with reduction in the number of tax brackets is a mystery to me, but I'm prepared to accept three if we get real tax reform and tax simplification in return.

Regrettably, neither the Treasury nor the Congress has taken the opportunity to really simplify the rate structure by replacing the four rate schedules we now have with one. This would rationalize the tax treatment of the family and produce real simplification. All that would be needed would be to retain the deduction for two-earner couples to eliminate the marital penalty and to differentiate the taxpaying ability of one- versus two-earner couples. Unfortunately, given the requirement of revenue neutrality, there is no way to do this without raising the tax burdens of one-earner couples, so we will have to continue to live with four rate schedules even though they make no sense.

Another real gain is that the tax base will be broadened in major respects under every one of the tax reform alternatives now being considered. It is about time that the privilege of issuing tax-exempt securities should be restricted to governmental purposes, that financial institutions should be relieved of their generous loss reserves, that defense contractors should properly account for their income and expenses, that the energy tax credits should be repealed, and that the personal deductions should be pruned. These and other base-broadening reforms would help to improve the image of the income tax, which is not well regarded because the public knows that too many businesses and individuals don't pay their fair share.

I also endorse the redistribution of approximately \$25 billion of taxes from individuals to corporations. Those who believe that capital should not be taxed at all will oppose such a move. However, given that we are still taxing income rather than consumption, it seems to me that the yield of the corporate tax has been excessively eroded in the last couple of decades. The corporation tax will account for only about 9

percent of total federal receipts in fiscal year 1986, down from 28 percent 30 years earlier. Treasury I and II and the Rostenkowski option would raise this percentage to about 12½ percent in fiscal 1990. Such a redistribution of tax burdens can hardly be regarded as onerous for owners of capital, particularly since most of the revenue will be coming from corporations that do not pay tax under current law (e.g., financial institutions, real estate, and defense contractors), rather than from the industrial sector, which accounts for a major portion of the nation's productive capital.

Having said all this, it is only fair to point out that political considerations have already diluted some of the major improvements originally proposed by the Treasury, and even Treasury I strayed in some key respects. The most important departures from comprehensive income taxation that will probably endure are the following:

1. Treasury I would have at last taxed real capital gains at ordinary income tax rates, but the financial community saw to it that this vital element of comprehensive income taxation would not be preserved. Treasury II would tax capital gains at half the ordinary rates, thus reducing the maximum rate on long-term gains from 20 percent to 17.5 percent. And, for those who would find that too onerous, Treasury II provided taxation of real capital gains as an option beginning in 1990. Chairman Rostenkowski's alternative would maintain a 42 percent differential between the rates of tax on ordinary income and capital gains. The advantages of eliminating the distinction between capital gains and ordinary income on equity and simplification grounds have been fully documented in the literature. It appears, however, that this step will be postponed once again even if a bill is passed by the 99th Congress.

2. The far-reaching reform of the tax treatment of depreciable assets proposed in Treasury I was watered down by the President and to a greater degree by the Ways and Means Committee. Apparently, the idea of a level playing field for investors in different types of assets and industries is an objective devoutly desired by economists, but not by the business community. The Thatcher government recently adopted this principle and used the revenues to reduce the corporate tax rate from 52 percent to 35 percent. Perhaps the experience in that country will help persuade our Congress that neutrality in taxation *is* worth something.

3. I have always believed that we have overdone the personal deductions in our income tax, and welcomed the initiative in Treasury I to prune them. I suppose it is too much to ask that the deduction for mortgage interest should be included in any limitation of the interest deduction, but the President backtracked on the proposal to put a floor on charitable contributions and it is clear that Congress will not accept elimination of the deduction for state and local taxes. Some restriction of personal deductions is likely to survive, but judging from the compro-

mises now being considered, the result will hardly be a contribution to tax equity or simplification.

4. Treasury I retained deductions for individual retirement accounts even for taxpayers who already receive generous exclusions for contributions to private pension plans; it would also have raised the allowable deductions and increased the spousal IRAs. I see no reason why such deductions should be allowed, let alone be made more generous. If anything has been established pretty conclusively since 1981, it is that people with assets will switch from taxable to nontaxable accounts to take advantage of the offer of a tax cut. Personal saving has not increased since the more generous IRAs were enacted in 1981, while national saving has declined by the increased deficit they have generated (amounting to over \$13 billion in fiscal 1986). Instead of increasing the IRAs as Treasury I proposed or retaining present law, which is what the President and Chairman Rostenkowski propose, the deductions should be restricted to those who are not already covered by private pension plans.

5. Treasury I and II would have raised the income tax threshold by almost doubling the personal exemption and increasing the standard deduction somewhat. It's clear that much more revenue will be needed to pay for a significant cut in the marginal rates, so Congress is considering cutting the personal exemption and raising the standard deduction. I believe that some modest differential in the tax burdens of families of different size is warranted, even in the top brackets. The switch in emphasis between a higher personal exemption and a higher standard deduction smacks of a "soak the rich" policy. I believe that distributional issues of this sort should be handled through the rate structure and not by sleight-of-hand. Furthermore, the conversion of the standard deduction from a flat to a per-capita amount would complicate rather than simplify the tax return.

I think I have said enough to demonstrate that the tax reform plans now being seriously considered—i.e., Treasury II or the Rostenkowski option—leave much to be desired. If asked to vote "yea" or "nay," I suppose I would vote yes for either of them. But it is already clear that the compromising has only just begun. Each additional compromise weakens the reform potential of the bill and also makes the law more rather than less complicated. I am, therefore, not optimistic that what will remain in the end will be worth the candle.

I want to make it clear, however, that all has not been for naught. It is amazing that tax reform has reached center stage, after so many years of effort on the part of a relatively few academic lawyers and economists. The proponents of tax reform now include influential congressmen and senators, as well as the President of the United States and the Secretary of the Treasury. Some of the issues have been clarified and major difficulties, both theoretical and practical, have been identified. Even if a tax

reform bill does not see the light of day in 1986, some progress will have been made in enlightening the public and the Congress about the issues. Some future President and Congress will thus be better prepared to fight the good fight if they happen to get religion.

Discussion

Lawrence H. Summers*

Richard Musgrave's paper provides an excellent summary of the issues at stake in the current tax reform debate without ever providing a definite answer to what is unfortunately a zero dollar question—Is it worth it? I sense Musgrave's ambivalence. He is attracted by the "broader taxes are better taxes" philosophy that he and other academic tax experts have advocated for so very many years. I confess that I cannot agree with Musgrave's conclusion that "the early 1950s do not seem so long past." And he is enthusiastic about the reforms directed at attacking tax shelters. On the other hand, he is not very enthusiastic about the elimination of state and local tax deductibility, which is a linchpin of the Treasury proposals; he recognizes that the proposals attack only a small part of the tax expenditure budget; and he sees the opportunity costs of a major reform effort at this time. This last issue is a tricky one. If the tax reform debate diverts Congress from raising taxes to reduce budget deficits, it will be very harmful. If it distracts Congress and prevents it from starting a trade war, it will have yielded an unexpected dividend.

My assessment is that tax reform along the lines of Treasury I or II is not worth it at present. This is not to deny that these proposals contain many desirable elements, but to suggest that now is not the right time for comprehensive tax reform. To steal a phrase, it may now be time for a period of benign neglect of our tax system following a surfeit of malign attention. We have had three major tax reform bills legislated within the past four years, and five major bills within the last eight years. Treasury I and Treasury II have been put forward, dozens of Congressional proposals have been introduced, and volumes of testimony have been taken

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regarding comprehensive reform, all before the technical corrections to the last tax bill have been adopted. And some of the provisions of the 1982 TEFRA legislation have yet to go into effect. Perhaps it is time to try an experiment in tax policy that we have not tried in many years—living under one tax code for 36 months.

Given this history, the looming budget deficit, and the fact that tax reforms now may preclude other, perhaps better, tax reforms in the future, there would have to be major advantages before comprehensive tax reform would be a good idea. And yet, reading Musgrave's paper, I find it hard to see the compelling benefits of the major aspects of the Treasury's proposals. For example, I share his sense that assistance to the states through tax deductibility is warranted, at least when federal spending aid is being slashed. At a time when the infrastructure is decaying or decayed, when there is a widely acknowledged need to increase spending on education, and when real AFDC benefits have been allowed to decline by a third over the last decade, I find it hard to believe that excessive spending by state and local governments is a major national problem. I agree that bringing the top rate on individuals still further down is not a compelling priority, and I cannot get very worked up about a reduction in the number of tax brackets. Musgrave and I both support efforts to attack tax shelters and to curb abuses involving business entertainment and so forth, but we recognize that these issues do not involve large amounts of revenue.

My major disagreement with Musgrave and the tenor of much of the discussion comes where he writes "Depreciation reform . . . may well emerge as the most important gain in the current reform effort." My view is that proposed reforms in this area represent major errors. In search of some economist's holy grail of neutrality, Treasury's proposals would compromise both economic growth and equity. They are at their root ill-conceived.

Even the most ardent of supply-siders recognizes that tax policies cannot affect the amount of capital already in place. They can, however, have a potent effect on the rate of new investment. It was this recognition that, I think, led a number of those in this room to advocate the investment tax credit in 1962 as an alternative to corporate rate reductions. The investment tax credit and accelerated depreciation are devices for reducing the tax burden on new capital without conferring a windfall gain on old capital. The Treasury proposal goes in exactly the wrong direction. It reduces the tax burden on old capital by lowering the corporate rate and offering dividend relief, while at the same time raising the tax burden on new capital by abolishing the investment tax credit and stretching out depreciation schedules.

Much discussion has focused on the alleged nonneutralities created by ACRS and the ITC, which Treasury argues that the President's pro-

posal will eliminate. In fact current reform proposals are likely to create as many distortions as they eliminate. The concept of economic depreciation on which the Treasury proposal is based is extremely slippery. For example, the major nonneutrality alleged by Treasury, in its discussion of investment incentives, is that between equipment and structures. Treasury claims that the effective tax rate on structures is currently substantially greater than that on equipment. Yet much of the tax-shelter industry relies on structures rather than equipment, making this claim unlikely.

Neutrality calculations on which the Treasury plan is based involve actual data on only five or six types of assets. The assumed depreciation rates for other assets are based on speculative extrapolations. Assertions that the present system is highly nonneutral and the proposed system is neutral are premised on the assumptions that all investments are able to carry the same amount of debt, that properties are never resold and depreciated more than once, and that asset price changes are completely predictable. Without these (patently false) assumptions there is no basis for any claims that the Treasury proposal is somehow neutral. The bankruptcy of the calculations on which the Treasury proposal is based is evidenced by Barry Bosworth's recent finding that changes in the composition of investment have recently had no correlation with measured effective tax rates.

It is commonly suggested that current law somehow favors capital-intensive industries. This is a fundamental misconception. Investments in intangibles—research and development, advertising, or goodwill—all receive the ultimate in accelerated depreciation, first-year write-offs. For example, the large expenditure incurred by Coca-Cola in developing and marketing new Coke can all be expensed. In contrast, outlays on physical capital are necessarily amortized over time. If anything they are penalized, not helped, under ACRS. The nonneutrality between tangible and intangible investment would be greatly exacerbated by current proposals which do not address intangible capital at all but do substantially increase the effective taxation of physical capital.

Finally, the President's proposal does little to address the non-taxation of owner-occupied housing, which represents close to half of physical capital in the United States. By increasing the effective taxation of business investment, the Treasury exacerbates the nonneutrality already present between business and housing investment. On balance, the Treasury's proposed depreciation reforms are not likely to increase the neutrality of our tax system.

Reforms in the name of neutrality are advocated despite the fact that ACRS was put into place less than four years ago, with the stated objective of increasing capital formation, and has been extremely successful in achieving this goal. We are now living through a period of record high

real interest rates, large federal budget deficits, and increasing foreign competition. Despite this adverse environment, the share of gross business fixed investment in GNP actually reached a postwar high within the last year. Investment in producers' durable equipment increased by 42 percent during the first two years of the current recovery compared with an average of 20 percent during the first two years of previous recoveries. While it is impossible to conclusively identify the reasons for the substantial strength of investment, many experts concur with the econometric evaluation of DRI some months ago that "business and fixed investment would now be dismal were it not for the 1981 ERTA legislation."

Perhaps the clearest way to demonstrate the importance of increased investment to productivity growth is through international comparisons. Between 1970 and 1980 the rate of net investment in the United States averaged only 6.6 percent of GNP, while productivity rose at a rate of 2.5 percent. France invested 12.2 percent of GNP and Germany invested 11.8 percent, about twice as much as the United States. Correspondingly, productivity grew about twice as rapidly—at a rate of 4.8 percent in France and 4.9 percent in Germany. Japan invested almost three times as much as we did—19.5 percent of GNP. It enjoyed productivity growth at a 7.4 percent rate, almost three times as great as ours.

Many factors determine the overall level of capital investment. No matter what tax incentives are in place, investments will fall dramatically in recessions when there is excess capacity and will rise sharply in periods of economic expansion. The prescription that we eliminate recessions to stimulate investment is not one we know how to carry out. We must therefore rely on other means. The weight of the evidence suggests strongly that increases in tax burdens along the lines proposed by the President will substantially increase the cost of capital and therefore will reduce investment.

Treasury's own calculations demonstrate that the President's plan would increase the effective tax rate on equipment, which accounts for a lion's share of business investment, by more than 20 percentage points. Alternative calculations using realistic discount rates for depreciation allowances suggest a much greater increase. The abolition of the investment tax credit alone would increase the effective purchase price of new equipment by more than 15 percent. These reforms would more than undo the substantial contribution the 1981 reforms made to the current strength of business investment. Economic science has not progressed to the point where precise estimates are possible, but it is clear that enactment of major reforms like those called for in the Treasury proposal would significantly retard capital formation. Estimates prepared by leading econometric forecasters suggest that net business investment might fall by as much as 15 percent, if the President's plan were enacted. These

reductions in investment will reduce our productivity growth in the years to come. It seems inconceivable that the questionable gains in neutrality that the Treasury proposal might achieve could begin to have as large an effect.

A final distressing element in the Treasury's corporate tax reform proposal is indexation of the basis in capital assets for the purpose of determining depreciation allowances. Inevitably the task of finding the replacement cost of each asset in each year will complicate the tax system. But there is a more important objection to indexation. After the tremendous sacrifice of the last recession, inflation is now running at very low levels. The President and the Federal Reserve appear committed to keeping it at very low levels. If we expect this commitment to be honored, there is little reason to favor indexation of the tax system. Indexation is a clear sign of a lack of confidence in our ability to prevent inflationary fires from re-igniting. Such evidence that we lack confidence in our ability to fight inflation must inevitably affect inflationary expectations, and ultimately the inflation process itself.

Where should we go from here? The two major base broadeners in the current proposal—eliminating state and local deductibility and abolition of the investment tax credit—both seem like mistakes. With huge deficits the case for reductions is weak. Yet the sense that the tax system is a disgrace remains strong. I would propose that consideration be given to a TEFRA-style bill that attacks "loopholes," defined as all the minor items in the current Treasury proposal, and at the same time keeps rates constant. Such a bill would improve equity in the tax system, raise revenue and reduce the deficit. It would encounter less opposition than comprehensive reform, and unlike comprehensive reform, it would leave scope for future changes.

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