

# PRESIDENT REAGAN'S MODIFIED FLAT TAX: ANALYSIS AND COMPARISON

*Manuel H. Johnson*

## Introduction

The present federal tax system is overly complex; is viewed as being unfair; and most important, it is the source of a multitude of costly economic inefficiencies. This situation prompted President Reagan, in his 1984 State of the Union Address, to instruct the Treasury Department to conduct a thorough review of the federal tax system.

The department under the direction of Secretary Donald T. Regan completed this initial task by issuing in November 1984 a three volume report entitled *Tax Reform for Fairness, Simplicity, and Economic Growth* (Treasury I). This report proposed a revised broad-based income tax.

The president, in his State of the Union Address on 6 February 1985, enumerated five major goals of tax reform and called for the preparation of an administration proposal to the Congress based on many of the principles contained in the initial treasury report. The five major goals are: (1) Tax reform should not result in a general tax increase; (2) the home mortgage interest deduction should not be jeopardized; (3) personal tax rates should be reduced by removing many preferences, with a top rate no higher than 35 percent; (4) corporate tax rates should be reduced and capital formation should be encouraged; and (5) individuals living at or near the poverty line should be exempt from income tax.

A revised tax plan was prepared by a treasury team led by James A. Baker III, the new treasury secretary, and on 29 May 1985 President Reagan issued his proposal to Congress entitled *The President's Tax Proposals to the Congress for Fairness, Growth, and Simplicity* (Treasury II).

As stated in the title, economic growth is one of the key goals of the president's tax reform proposal. This article discusses those features of the president's proposal that are expected to enhance economic growth. The proposal should:

- Increase employment by lowering the marginal personal income tax rates applied to labor income;
- Lower the overall cost of capital and expand investment by lowering the marginal personal and corporate income tax rates, improving the capital cost recovery system, and granting partial dividend deductibility;
- Eliminate the sheer economic waste caused by unnecessary inflation-related risk and uncertainty in the investment process by adjusting the capital cost recovery system for inflation; and,
- Produce a more efficient allocation of capital through more even tax treatment of various capital assets.

Section I sets out the theoretical advantages of lower marginal tax rates on labor, a reduced overall cost of capital, lower risk and more efficient allocation of resources. The section also provides the analytical framework which is needed to judge the efficacy of tax reform proposals in each of these four areas. Section II describes the specific provisions of President Reagan's proposal to deal with each of these areas. Section III contains some empirical estimates of the impact of the president's proposals on the economy. The economic literature is sampled for estimates of the impact tax changes in general might have on decisions affecting labor supply, saving, and investment. The use of econometric models in the evaluation of the president's proposals is discussed, and some results are presented. Finally, Section IV contains a summary and conclusions.

## I. Taxes and Economic Efficiency

Any tax system diverts economic resources from their natural channels to government use. This enables the government to purchase a share of the national output which would have been put to other uses in the absence of the government spending. Ideally, the nation would employ the most efficient and evenhanded tax system in order to do this with the minimum damage to total economic output and employment.

Unfortunately, the current tax system moves the economy away from its natural patterns of production and consumption by more than is desirable or necessary to provide revenues and output for the government's needs. Consequently, output and employment are less

than they otherwise would be. Also, consumers are needlessly steered away from products they might prefer, but which have been made more difficult to acquire by the tax system, and toward those products which might offer less satisfaction, but which have been made more readily available by tax preferences.

Prices normally tell the producer what the real cost of labor and capital inputs are and tell the consumer how much it costs society in terms of real resources to provide various goods and services. This information is essential if producers are to use resources efficiently and if consumers are to allocate their income most effectively and be charged appropriately for their use of scarce economic resources.

Taxes affect the prices firms must pay for labor and capital, and affect the rewards that the suppliers of labor and capital receive for their efforts. Taxes also affect the prices consumers must pay for the various products they buy. When taxes are levied unevenly across various types of labor or capital, or across various products, the price structure is altered. Market prices no longer accurately reflect the real cost of labor and capital, and firms are led to change the mix of labor and capital in inappropriate ways which result in lower total output nationwide. The relative costs of producing various goods and services are altered. The relative prices faced by consumers shift, and consumers are led to shift needlessly from one mix of purchases to another, with less satisfaction achieved for any given level of resources used up.

One of the important goals of the president's tax reform proposals is to identify and eliminate many tax-induced inequalities in order to restore the appropriate price relationships in the marketplace. It is a search for "economic neutrality" and optimal growth. Of course some tax distortions will remain after any reform effort, if for no other reason than some activities, such as nonmarket household production and the enjoyment of leisure, escape taxation altogether. Also, concerns over equity, fairness, and various social goals will continue to play a large part in the design of any tax system. This is perfectly proper, as long as the costs and benefits of various options are clearly presented and understood.

#### *Distortion of Economic Choices By Taxes*

A number of important economic choices are potentially impacted by taxes. In terms of consumption decisions, there is the choice between the consumption of produced goods and the consumption of leisure, and the choice between current and future consumption. On the production side, choices must be made regarding the mix of labor and capital inputs and, for a given amount of capital, the appro-

appropriate asset structure. In addition, firms must decide on an appropriate mix of financing (debt versus equity) and on a legal form of organization (corporate versus noncorporate). Finally, for enterprises organized as corporations, there is a decision at the margin regarding the payment of dividends and the reinvestment of earnings.

*Two General Biases: Leisure vs. Labor, Consumption vs. Saving*

The household sector must decide how to allocate the time available to it. Time may be spent directly on leisure. Time may also be used to furnish labor to the marketplace to earn wage and salary income for the purchase of market goods and services. A tax on earned income raises the time-cost of acquiring market goods and services relative to the time-cost of leisure, and encourages the consumption of leisure.

The term "leisure" can be interpreted rather broadly as any available alternative to the most productive market use of labor services. Thus a bias toward leisure can lead to a less motivated and less productive workforce, an increase in do-it-yourself labor, an increase in illegal cash transactions, and greater employment search. The result may include higher labor turnover and higher measured unemployment, lower labor productivity, and less employment. This bias can be reduced, but not eliminated, by lowering the tax wedge through lower marginal tax rates.

Once the household sector decides on the amount of market earnings it desires, it has a second choice to make. It must decide whether to use the income for immediate consumption, or to defer the purchase of consumption goods to the future. That is, the household must decide whether or not to save through financial assets to earn interest, or to invest directly in structures or equipment to earn profit, in order to augment future consumption. Interest and profit are the rewards for consuming in the future rather than in the present. The income tax on interest, dividends and profit, and other tax provisions affecting capital, raise the cost in terms of forgone current consumption of acquiring additional future consumption. In other words, saving/investment is discouraged. The capital stock is smaller and less modern, and future income levels are lower than under a more neutral tax system. Individuals trade away a higher level of future income for a higher level of current consumption.

Ideally, the tax system should be neutral with respect to consumption and investment. In other words, the imposition of taxes should not cause more or less consumption or investment to be picked than in the case of no taxes. This bias can be reduced, but not eliminated,

through lower marginal personal and corporate tax rates and more complete capital cost recovery.

Complete elimination of this bias is possible, but it would require that income be taxed only when consumed. Income saved and the earnings on savings would have to be tax deferred, and capital investment would have to be expensed instead of depreciated over time. This would require a substantial shift in U.S. tax policy, from an income-based tax to a consumed income-based tax. This is impractical under the combined constraints of revenue neutrality and a desire to maintain approximately the current distribution of the tax burden on equity grounds. Nonetheless, it is possible to reduce the distortion by applying a portion of the revenue raised from elimination of special deductions and credits to lower marginal personal and corporate tax rates, and improve the depreciation schedules relative to current law.

Thus, there are two general biases in the income tax due to relative price distortions. The first is the bias against earning income for consumption of all types of market goods and services in favor of leisure. The second is an added bias against saving/investment for future consumption in favor of current consumption.

#### *Specific Distortions*

In addition to the general distortions described above, the uneven tax treatment under current law of various types of capital assets creates thousands of specific distortions which can lead to inefficient use of capital and reduced output. The tax system affects the choices business makes among different investments and alters the mix of the capital stock. Ideally, a tax system should be neutral with regard to the selection of various types of capital. Bias can be introduced when tax depreciation does not coincide with the actual way in which the capital asset loses value. This notion has led to the view that if you set tax and economic depreciation equal and exclude capital gains from tax, a single rate of tax on the remaining income would treat capital neutrally.

Improvements in tax rate neutrality cause businesses to change their mix of factors of production toward those previously less favored factors. These less favored factors had to have yielded a higher return than others to offset the tax bias. Therefore, as the mix changes, the more productive assets are increased and the less productive are decreased. Therefore, the same level of aggregate stock yields a larger output.

## II. President Reagan's Proposals for Efficiency and Growth

Economic efficiency and growth are furthered by four basic features of the president's proposal: lower marginal income tax rates; a lower and more neutral effective tax rate on capital as a whole; a more predictable treatment of capital in the presence of inflation; and more uniform treatment of all sources and uses of income across assets and activities.

### *Lower Tax Rates*

The president's proposal would reduce marginal federal individual income tax rates by an average of 19 percent. The statutory marginal tax rate, weighted by the families' economic income, would fall from 23.6 percent under current law to 19.1 percent under the president's proposal. The top individual tax rate would be reduced from 50 percent to 35 percent.

The proposal would also reduce the top marginal tax rate on corporate income from 46 percent to 33 percent, lower the maximum capital gains tax rate from 20 percent to 17.5 percent, and retain graduated corporate tax rates for small businesses.

### *More Uniform Tax Treatment of Income*

The current U.S. income tax provides uneven treatment to a long list of economic activities through exclusions from income subject to tax, adjustments to income, business deductions unrelated to actual expenses, deferral of tax liability, deductions for personal consumption expenditures, tax credits, and preferential tax rates.

The president's proposal would reduce some of the non-neutrality of the taxation of various forms of labor income. Reductions in marginal tax rates reduce the differentials between favored and nonfavored types of labor income. Moreover, some types of fringe benefits which currently are excluded from tax would be taxed similar to wage and salary compensation. The proposal would also increase work incentives by increasing the net gain from working relative to the return from certain wage replacement programs, the benefits from which are currently excluded from tax.

The president's proposals would address particularly the non-neutrality of capital and business income taxation. Under current law the effective tax rates applied to income from depreciable assets vary widely across assets and across industries. First, the current depreciation schedules and investment tax credit (ITC) provisions treat some types of assets more favorably than others. Second, because

depreciation allowances are based on historical costs, the real value of depreciation allowances and effective tax rates vary with inflation, and vary differently with inflation depending on the different lengths of life of various assets. As a result, the current tax system favors industries that invest more in equipment over those that wish to invest more heavily in inventories, land, structures, or entrepreneurship and innovations; and it discriminates against economic activity conducted by corporations. Moreover, the extent of these distortions depends on the inflation rate, with long-lived assets suffering the most from inflation.

The proposed Capital Cost Recovery System (CCRS), which is indexed for inflation, in conjunction with repeal of the investment tax credit and other business tax preferences, would produce more nearly uniform effective tax rates and therefore would be less distortive of economic choices among new investments in equipment, structures, land, and inventories. The variance of effective tax rates across different industries and assets would be minor compared to the unsystematic distortions occurring under current law. The lower cost of new capital investments in structures, land, and inventories would more than offset the higher cost of capital investments in equipment. Thus, the president's proposal would produce both a lower cost of capital for new investment and more uniform effective tax rates than current law. Because CCRS is indexed for inflation, the cost of capital and effective tax rates would not vary with inflation, as under current law.

The president's proposal would also make tax shelters less attractive and eliminate many de facto spending programs which are hidden in the tax code. The proposal would reduce the attraction of investments which are undertaken solely because of tax differences, thereby freeing funds for more productive investments. Tax shelters would be made less profitable first, because marginal tax rates would be reduced. Reduction in rates automatically would reduce the differentials between sheltered and nonsheltered activities. In addition, shelters would be attacked directly through extension of the at-risk rules to real estate, limitation of interest deductions other than for the principal residence, and matching of expenses and receipts in multiperiod production. Repeal of the panoply of credits and other tax preferences in exchange for lower, more neutral tax rates would reduce the extent of federal government intrusion into private economic decisions.

Finally, the president's proposal would establish the principle of relief from double taxation of dividends with a 10 percent deduction for corporate dividends paid, and would begin to alleviate the adverse

economic effects of double taxation of income. Currently, corporate income that is distributed as dividends is subject to tax twice, first at the corporate level and again when received by individuals. The double taxation of dividends encourages corporations to rely on debt relative to equity finance, provides an incentive to retain earnings rather than pay out dividends, discourages capital formation, and is an impediment for use of the corporate form by businesses.

### III. Estimated Impact of President Reagan's Tax Reform Proposals

The Treasury's estimates of the economic impact of the president's tax reform proposals involved three separate evaluations. First, an assessment of the proposed provisions on effective tax rates and the cost of capital was undertaken to determine the extent of rate reduction and tax neutrality. Second, a review of the statistical evidence on responsiveness of the economy to lower marginal tax rates and more neutral tax treatment of income from capital was conducted. And finally, macroeconomic model simulations were examined, including the Treasury's own efforts.

#### *Effective Tax Rates and the Cost of Labor and Capital*

Tables 1, 2, and 3 below summarize the Treasury's estimates of changes in tax rates and the cost of capital due to the president's proposals. Table 1 shows the average marginal tax rates on wage and

TABLE 1  
MARGINAL TAX RATE COMPARISONS:  
WAGE AND SALARY INCOME

Income Category	Marginal Tax Rate <sup>a</sup>		
	Current Law	President's Proposals	Percentage Change
All Wage and Salary Income	24.6	20.9	-14.8
Wage and Salary Income of Second Earners	24.4	22.1	-9.5

<sup>a</sup>These marginal tax rates relate to the additional federal income taxes that would result from a 1 percent across-the-board increase in wage and salary income. Included in the estimates under present law is an offset for the taxes paid and two-earner deductions which would increase as incomes increase. A weighted average of statutory marginal rates yields a -19 percent change in rates from current law under the president's proposals.

salary income that would prevail under the president's tax plan compared with tax treatment under current law. The marginal rates shown in Table 1 relate to the added federal income taxes that would result from a 1 percent increase in wage and salary income. For all wage and salary income the marginal tax rate would decline about 15 percent. The marginal rate on second-earner wage and salary income would decline almost 10 percent. Therefore, even with repeal of the two-earner deduction proposed in the president's plan, the marginal tax rate on second earners still declines considerably. A simple weighted average of the statutory marginal tax rates would show a 19 percent decline from current law tax treatment due to the president's plan.

Table 2 shows comparisons of combined personal and corporate effective tax rates on income from capital investment. As shown, effective tax rates on capital under current law tax treatment are high, except for equipment, and are quite uneven across types of capital. However, under the president's proposals, effective tax rates are lower for all types of capital, other than equipment, and the rates are considerably more neutral across capital assets. The weighted average effective tax rate on all capital would decline by about 20 percent under the president's tax plan. Although the proposed repeal of the investment tax credit would increase the effective tax rate on equipment, it would also bring the rate closer into line with the tax rates associated with other types of capital investments. The president's inflation indexation plan for depreciation and inventories, his corporate and personal income tax rate reductions, and his 10 percent dividend deduction all combine to significantly reduce the effective tax rates on structures and inventories.

TABLE 2  
EFFECTIVE CORPORATE AND PERSONAL TAX RATE  
COMPARISONS: CAPITAL INVESTMENT INCOME

Asset Category	Effective Tax Rate <sup>a</sup>		
	Current Law	President's Proposal	Percentage Change
All Capital	51	41	-19
Equipment and Structures	47	39	-17
Equipment	21	35	66
Structures	54	40	-26
Inventories	59	46	-22

<sup>a</sup>For an explanation of the methodology and assumptions used for these calculations see the footnotes to Table 7.01-12 in Treasury II (1985, p. 158).

Clearly, it would be desirable for the purposes of investment and potential economic growth to neutralize effective tax rates at even lower levels. Unfortunately, the budgetary consequences of such action preclude further movement in this direction. If federal spending growth can be reduced in the future, it might be possible to make further inroads toward lower and more neutral capital taxation.

Many representatives from the business community have demonstrated concern over the proposed repeal of the investment tax credit for equipment; however, it has been well documented that this provision has contributed substantially to the unevenness of effective tax rates on capital.<sup>1</sup> A recent study by Tannenwald (1982) found that 28 percent of the decline in the share of investment accounted for by structures could be attributed to the tax bias in favor of equipment. One of the results of this tax bias has been a trend toward rising depreciation as a percent of total investment as the average tax life of capital shortens and more capital consumption allowance is taken. In other words, less net investment is generated for each dollar of gross investment. Therefore, a reduction in the effective tax rate on structures and inventories along with repeal of the investment tax credit will help neutralize the tax bias between capital assets. This change should, over time, lengthen the average life of capital as investment is more efficiently distributed toward structures.

Table 3 shows comparisons of capital service prices between current law tax treatment and the president's proposals. The service price is a cost-of-capital measure that reflects the required percentage rate of return from an investment necessary to cover all its associated costs and generate a normal profit. Treasury estimates indicate that the weighted average cost of all business capital would decline by about 3 percent under the president's tax plan relative to current law. Although the cost of equipment would rise somewhat due to repeal of the investment tax credit, the cost of structures and inventories would decline by enough to produce a moderate decline in the overall cost of new investment.<sup>2</sup>

#### *The Effect of Taxes on Saving, Investment, and Labor Supply*

The positive economic impact of the president's tax reform plan is based on the two principles of lower marginal tax rates and more neutral taxation of income. Lower marginal tax rates on both labor

<sup>1</sup>For example see Kopecke (1981a, 1981b), Corcoran (1981), Mauskopf and Conrad (1981), and Tannenwald (1982).

<sup>2</sup>A detailed explanation of the methodology and assumptions used for the calculations in Table 3 is available from the author.

TABLE 3  
CAPITAL SERVICE PRICE COMPARISONS

Asset Category	Capital Service Price (%) <sup>a</sup>		
	Current Law	President's Proposals	Percentage Change
All Capital	13.1	12.7	-3.1
Equipment and Structures	14.1	13.9	-1.4
Equipment	17.8	18.9	6.1
Structures	12.1	11.3	-6.6
Inventories	8.7	7.0	-19.5

<sup>a</sup>The service price or user cost calculated for each asset category represents the current marginal product required per dollar of corporate investment in that category. Since an asset's relative productive efficiency over future periods is assumed to be independent of other variables, the current period's marginal product summarizes the before-tax returns that can be expected over the life of the asset. Thus, the service price provides a measure of the before-tax returns required to be produced by an asset in order that anticipated taxes, replacement costs, and a (risk inclusive) "normal" rate of return are covered. The normal real rate of return is assumed equal to 4 percent.

and capital should increase incentives for work effort, saving, and investment and, therefore, improve the overall performance of the U.S. economy. Taxing income more evenly should reduce the misallocation of resources due to the tax code and produce efficiency gains that will improve the economic growth potential of the United States.

*1. Income and Substitution Effects from Tax Changes.* Increases or decreases in income tax rates change net-of-tax wage rates which in turn provides both an income effect and a substitution effect on an individual's choice between work and leisure, and between consumption and saving. For example, a decrease in the net-of-tax wage rate (that is, a tax increase) normally induces a substitution of leisure for work on the one hand and an income effect favorable to work effort on the other. Conversely, an income tax rate cut increases the net-of-tax wage rate and provides a substitution effect that is favorable to work effort and an income effect that favors leisure over work. The totality of these effects on the choices by all individuals helps determine the total labor supply and the total amount of savings available for new capital formation.

Ture (1982) and Gwartney and Stroup (1983) have shown that an income tax cut in the aggregate results in no net income effect (that is, a substitution of leisure for work), so that the substitution effect induces more work effort. An income effect may be induced for an

individual but this is not possible in the aggregate because the level of real government extraction remains the same.

2. *Savings.* Empirical evidence supports the view that changes in tax rates influence saving decisions. In a 1978 article Boskin reported that his estimates led him to conclude that private saving is strongly affected by changes in the real after-tax rate of return: the estimated elasticity of private saving is around 0.3 to 0.4. Colin Wright (1969) estimated that the interest elasticity of saving ranged from 0.18 to 0.27.

Analysis by Lawrence Summers (1981) showed that a realistic life-cycle saving model demonstrates that for a wide variety of plausible parameter values savings are very interest elastic. The long-run responsiveness of saving to changes in the net interest rate can be as large as a 19 percent increase in saving for a 10 percent increase in the after-tax interest return or an interest elasticity of the savings rate of about 1.9.

3. *Investment and Efficiency Gains.* Tax policy has an influence on investment decisions because of its effect on the service price or user cost of capital. Taxes on capital also have an effect on economic efficiency because of their impact on the allocation of resources.

If the elasticity of substitution between capital and labor is large, tax policy could be used to alter (increase) the capital-output ratio through changes (decreases) in the after-tax service price of capital. In a recent study, Hendershott and Hu (1981) found that changes in the user cost of capital, as well as expected sales, have an effect on the relative mix of capital and labor. They found that if nothing else changed, cutting tax service lives of equipment in half and allowing the same amount of depreciation deductions would have increased the desired equipment stock in 1978 by almost 14 percent. One-half of this increase would have taken place within eight years.

Their conclusion about the timing pattern reflects the finding that once capital is put in place, factor proportions are not quickly altered in response to changes in the user cost of capital, but rather the mix of capital and labor is changed gradually as the old capital is depreciated. Therefore, accelerated depreciation should help speed up the adjustment process if it works to lower the capital service price.

Other studies using a high elasticity of substitution between capital and labor have concluded that substantial increases in investment could be achieved through reductions in taxes and the service price of capital. A study by Sinai and Eckstein (1981), for example, concluded that a 10 percent change in the service price of capital would increase gross investment as a share of GNP by 0.5 percentage points

during the 5-year period following the change in tax policy. Hall and Jorgenson (1967) calculated the effects of changes in tax depreciation policy in 1954 and 1962 and the passage of the investment tax credit in 1962 and concluded that the effects on service prices and investment were "very substantial." For example, as a result of the 1954 changes in tax depreciation, the authors concluded that over the period 1954 to 1963 nearly 17 percent of the net investment in manufacturing equipment, 19 percent of the net investment in nonfarm, nonmanufacturing equipment, and 21 percent of net investment in structures could be attributed to the change in service prices due to the depreciation rules. Equally favorable results were observed for the other depreciation rule changes studied.

Sinai, Lin, and Robins (1983) concluded that changes in the tax treatment of capital have a significant effect on business investment. Their analysis showed that without the tax incentives of the Economic Recovery Tax Act of 1981 business fixed investment, in real terms, would have increased only 3.3 percent in 1981 and declined 5.6 percent in 1982 rather than the 3.5 percent and -3.6 percent that actually occurred. Furthermore, the ACRS and ITC helped prevent business capital outlays from declining as much as might have been expected because of the 1981-82 recession: in 1981 and 1982 investment was \$0.6 billion and \$3.9 billion more, respectively, than otherwise would have been the case. Their projections indicated that for 1983 to 1985 the net effect of the 1981 and 1982 tax changes in business investment would have been an additional \$9 billion to \$17 billion a year.

Meyer (1984) and Ott (1984) also found that the net effect of the 1981 and 1982 tax act changes was to make investment more attractive by reducing the net cost of capital compared to what it would be under 1980 tax law. Meyer noted, for example, that these tax changes contributed significantly to the fact that business investment in equipment in general grew at nearly a 22 percent annual rate during the first 18 months of the current economic expansion or twice as fast as the average growth rate of equipment investment during the same period in six previous expansions and faster than any other expansion during the post-World War II period. Ott noted that the sharpest rise in capital stock growth in any single year occurred in 1983.

Changes in tax rates that induce increased savings could also have an effect on investment decisions. Increased saving would help lower interest rates which would reduce the service price of capital. A lower service price of capital would encourage an increase in investment.

The primary objective of economic policy should be to maximize the total wealth of the nation. This maximization can be achieved

only if resources are allocated in the most efficient way possible. Taxes on capital and labor can distort the allocation of resources unless they are levied so as to be neutral in their impact on work and leisure and on saving/investment and consumption. In the case of investment, discrepancies (that is, non-neutrality) in the tax treatment of different types of assets reduce the efficiency of capital allocation. This in turn reduces the nation's wealth below what it otherwise would be if taxes on capital were neutral.

Several econometric studies have measured the loss in efficiency from tax systems that are not neutral in their impact, that is, when some assets are treated less equitably than others. For example, Piggott and Whalley (1977), in their analysis of taxes and subsidies in Britain, suggested that around one-quarter of net revenues raised by government each year are forgone through the deadweight loss associated with the tax subsidy system. Replacing such a tax system with a "yield-preserving" neutral sales tax or some other more neutral system would produce sharp distributional gains.

Ballard, Shoven, and Whalley (1982) also concluded that a tax system that is not neutral results in considerable loss of welfare. The authors estimate that welfare losses per extra dollar of revenue raised from existing tax distortions in the United States may approach a dollar. That is, including the loss of welfare, the cost to the private sector of one dollar of taxes is almost two dollars.

In an earlier study Shoven (1976) also concluded that there is a significant loss of efficiency as a result of a non-neutral tax treatment of capital. His estimate of the loss amounted to between 6 percent and 15 percent of the revenue generated by a surtax on capital income originating from the "corporate" sector.

A major objective of the Reagan administration tax program was to reduce the efficiency losses resulting from high and non-neutral tax rates on capital and labor and thereby increase economic growth, output, income, and employment. In a recent study Jorgenson and Yun (1984, pp. 45-46) concluded that "income from business assets receives much more favorable treatment under the Reagan program than under previous tax policy." Simulating the U.S. economy under the Reagan program and under prior policy, the authors concluded that the gain in potential welfare under the program amounts to as much as 3.5 to 4 percent of the 1980 private national wealth, depending on which budget alternatives are assumed. By way of comparison, under a lump sum tax adjustment, neutralizing the tax treatment of capital completely through expensing of investment expenditures and the elimination of sales taxes on investment goods result in a potential welfare gain to the economy of more than 43 percent of

U.S. private wealth in 1980. Clearly, these results show that a tax system that provides effective tax rates which are the same for all assets would produce a more efficient allocation of capital resources and a substantial increase in national wealth.

4. *Labor Supply.* As stated in the introduction to this section, an income tax rate reduction has a positive effect on labor supply growth. Empirical studies clearly indicate a positive impact. Taking into account the net substitution and income effects of taxes on labor supply Moffit and Kehrer (1981) concluded that the range of substitution elasticities for females has been as high as 1.2 and the income effect has varied between  $-0.06$  and  $-0.81$ . Fullerton (1982) reported that the overall weighted-average elasticity for men and women together was 0.15.

In recent studies Hausman (1980, 1981) found that the combination of federal and state income taxes and the payroll tax leads husbands to reduce their work effort by about 8 percent. He also found that these taxes impose significant deadweight losses (equivalent to 22.1 percent of tax revenue collected) that could be reduced significantly by replacing the present mix of progressive personal income taxes and payroll taxes with a more proportional income tax or an income-type, value-added tax.

#### *Macromodel Estimates of the Impacts of Tax Reform*

The major macroeconomic model forecasting firms have made estimates of the impacts on the economy of the president's tax reform proposal. Considerable significance has been attached to these assessments, and they received substantial attention in the press. Table 4 summarizes the results of three of the leading macroeconomic firms. (Results are in terms of differences in levels from the baseline, no-reform paths from which the simulations were constructed.)

Most striking among the results are the relatively minor impacts calculated by these analysts and their models. For 1994 Wharton finds zero impact on real GNP, while Data Resources estimates that real activity would be 0.1 percent lower than would occur in the absence of tax reform.

Among other findings there was general agreement among the model operators that the tax reform proposal would result in a modest shift in the composition of real GNP away from business capital spending and toward consumer purchases. Beyond these, there were some notable differences among the model results—slightly lower unemployment rates for Wharton but higher rates for Data Resources,

**TABLE 4**  
**ESTIMATED IMPACTS OF PRESIDENT REAGAN'S TAX REFORM PROPOSAL**  
**COMPARED TO BASELINE SOLUTIONS**

Forecast Variable	Macroeconometric Models				
	CHASE (1986-90)	DATA RESOURCES (1986-89) (1990-95)		WHARTON (1986-89) (1990-94)	
Real GNP (% diff.)	0.0	0.5	0.2	0.3	0.2
GNP Deflator (% diff.)	0.0	0.0	0.6	0.0	0.8
Real Business Fixed Investment (% diff.—total)	NA	-0.4	-0.9	-1.4	-2.3
Structures	-6.9	1.8	1.4	-1.6	-2.6
Equipment	-2.1	-1.3	-1.8	-1.0	-1.6
Real Personal Consumption (% diff.)	NA	1.0	0.9	1.1	1.2
Housing Starts (millions of units)	0.02	-0.08	-0.05	-0.16	-0.15
Personal Saving Rate (% point diff.)	0.2	0.4	0.4	0.4	0.2
Real Net Export Balance (\$ billions) <sup>a</sup>	0.6 <sup>b</sup>	-2.0	-5.6	-0.4	-0.7
Interest Rates (3-mo. T-bill) (% point diff.)	-0.5 <sup>c</sup>	0.1	0.4	0.0	0.2
Federal Budget Surplus (Deficit) (\$ billions)	9.0	1.0	-19.0	-11.0	-5.0
Employment (% diff.)	NA	0.3	0.2	0.2	0.5
Unemployment Rate (% point diff.)	0.0	0.0	0.1	-0.2	-0.4

<sup>a</sup>In 1972 dollars.

<sup>b</sup>Nominal.

<sup>c</sup>By assumption.

lower interest rates for Chase (by assumption entered exogenously into the model) but higher rates for the other two. Estimates of the impact on the federal deficit varied widely.

#### *Problems with Model Assessments*

The impacts on the economy of the provisions of the tax reform proposal are primarily micro in nature—they relate to reactions of individual economic units such as the household or firm, and their estimation requires the types of analyses and calculations taught in a course in micro- not macroeconomics. The macroeconomic models, though becoming increasingly large and complex over the years, do not generally incorporate mechanisms that permit direct estimation of the economic effects of tax reform proposals. Rather, calculations of these effects must be made on the side and then entered exogenously into the models. Thus, when used to assess impacts of tax reform proposals, the models largely are mechanisms for calculating feedback and secondary impacts of these exogenously entered changes. In some cases, there may be little empirical evidence available, as a particular reform proposal may have no precedent in U.S. experience.

For years in the wake of the “Keynesian revolution” such issues were largely neglected as researchers directed their attention at more macro-type questions. Only more recently have these issues begun to receive the attention they deserve.

#### *Model Simulations by the Treasury*

Though skeptical as to the usefulness of the large macromodels in addressing the issues raised by tax reform, as a matter of completeness and to gain any insights that might be uncovered, the Treasury did conduct a number of model simulations of variants of the tax reform proposal and of specific elements that went into the final proposal. The results of two such experiments are outlined below. They shed light on the value and reliability of such models. They were conducted on a large model made available to customers by one of the leading private forecasting firms.

The first experiment was built on a simulation previously made by the private firm of the Treasury I (1984) tax package. It was conducted on a version of the model that has since been phased out and replaced by the firm. In the experiment, that earlier simulation was modified to incorporate most of the changes that went into the administration's final tax reform proposal (Treasury II 1985). However, this simulation was preliminary in that it did not contain all of the elements of the

final package—it did not incorporate the recapture provision and depreciation schedules that were subsequently modified very slightly.

The simulation was modified in the following four ways: (1) side calculations were made of changes in the user cost of capital terms resulting from the shift from the original Real Cost Recovery System (RCRS) to CCRS; (2) side calculations were made of the changes in corporate depreciation flows which would result from the shift to CCRS from RCRS; (3) corporate and personal tax series were adjusted for differences between the November 1984 and the final tax packages, and other modifications were also entered (for example, to incorporate the shift from a 50 percent to a 10 percent dividend credit); and (4) the model was solved using a search routine to hold the path of money supply roughly constant across simulations (the same sort of procedure that the forecasting firm had followed in developing the original simulation).

Results of this experiment are summarized in Table 5. These estimates are in terms of differences from the no-tax reform base simulation. As the table shows, real GNP was estimated to be 1.6 percent greater by 1995 than the baseline without tax reform. Also, business investment was projected to increase 4.5 percent from the no-reform baseline by 1995. This simulation implied a moderate shift away from consumption toward more capital formation.

TABLE 5  
RESULTS OF TREASURY DEPARTMENT SIMULATION  
WITH A LARGE MACRO MODEL

Forecast Variable	Average for Period		
	1986-90	1991-95	1995
	<u>Percentage Difference from Base</u>		
Real GNP	0.3	1.2	1.6
GNP Deflator	-0.3	-1.1	-1.1
Real Business Capital Spending	-1.2	2.5	4.5
Housing Starts	-5.2	1.5	-0.7
	<u>Difference from Base</u>		
3-mo. T-bill Rate (% pts.)	-0.4	-1.1	-0.4
Federal Surplus (Deficit) (\$ billions)	-17.9	-6.4	-10.6

The second experiment was based on a new version of the same forecasting model—a version believed to more adequately contain many of the mechanisms for translating changes in the tax structure into impacts on the economy. In reviewing this new version of the

model and using it to simulate various aspects of the tax plan, several problems were uncovered:

- In simulating what might happen if the recapture provision was dropped, it was discovered that interest rates were raised and the economy adversely impacted quite severely by a shift in saving from the federal to the business sector (an increased deficit and larger corporate cash flow) even though the total volume of domestic saving was basically unchanged. (The previous version of the model tended to give the opposite results.)
- Equations for multifamily housing treated these units as if these were all owner-occupied—deductibility of state and local property and income taxes would be completely lost by enactment of the tax proposal. In actuality, a substantial portion of these such units are owned and operated by businesses, which would retain deductibility.
- Inventory investment equations did not contain a mechanism to capture impacts of the reduced carrying costs that would result from the tax plan, nor had side adjustments been made for impacts of lower carrying costs.
- Based on side calculations, corporate after-tax profitability and stock prices were reduced over the next five years due to tax reform provisions. It might be argued that this perspective is incorrect since there is a partial windfall on after-tax earnings to owners of current capital, even with the recapture provisions, and also because rates of return should rise slightly, according to Treasury calculations in Table 3.

To correct these seeming deficiencies, an experiment was run with the model. The negative add-factors to stock prices were reduced, based on the assumption of a longer time horizon in profitability calculations. Based on side calculations and using model parameters in those calculations where possible, multifamily housing starts and inventory investment were add-factored upward. Finally, and not a fully satisfying resolution to problems created by the erratic response from the interest rate equations, the model was solved with a search routine to hold short-term interest rates roughly constant.

The results of this experiment are shown in Table 6. As in the previous Treasury simulation, real GNP and business investment both improved moderately relative to the no-reform baseline.

Other analysts might find fault with other assumptions incorporated into the original model simulation or with the specifications of the model. Some might reject the entire approach out of hand. Others might find reason to reject the modifications the Treasury entered

*TABLE 6*  
RESULTS OF TREASURY DEPARTMENT EXPERIMENT  
WITH A LARGE MACRO MODEL

Forecast Variable	Average for Period		
	1986-90	1991-95	1995
	<u>Percent Difference from Base</u>		
Real GNP	0.9	0.7	1.0
GNP Deflator	0.3	1.6	1.9
Real Business Capital Spending	0.2	0.1	1.1
Housing Starts	-1.3	-0.7	0.0
	<u>Difference from Base</u>		
3-mo. T-bill Rate (% pts.)	0.0	0.0	0.0
Federal Surplus (Deficit) (\$ billions)	10.8	4.2	5.3

into the model. These results are presented as illustrative of the types of problems that must be addressed in using these large models to simulate changes in the tax structure. It is reemphasized that these modifications do not address the larger issue of whether econometric models can incorporate efficiency gains into simulations and capture the full flavor of benefits that would flow from reduced marginal tax rates.

#### IV. Summary and Conclusions

The pro-growth effects of the president's tax reform plan are based on the principles of lower marginal tax rates and more neutral tax treatment of income. Lower marginal tax rates on labor and capital should improve labor supply, saving, and investment. Treating income more neutrally with respect to federal taxation should enhance efficient resource allocation and increase the economic growth potential of the United States.

In the view of the Reagan administration, in general, and the Treasury, in particular, the implementation of the president's tax plan would unambiguously benefit the overall economy. While it is impossible to predict with any accuracy how quickly the economy would adjust to the proposed tax system, it is clear that when fully adopted, U.S. economic potential would be greater.

Tables 1, 2, and 3 above clearly show that tax rates on income from labor and capital would be reduced under the president's proposals and that income from various types of capital would be taxed more neutrally. In order to verify that lower and more neutral tax rates

have positive effects on economic growth one need only to sample the professional research on the subject. Although there is a great deal of variance among researchers concerning the degree of responsiveness of the economy to lower and more neutral tax rates, the evidence is overwhelming that the net effect is positive. Rather than provide specific point estimates of the performance of the economy under the president's proposed tax program, this article contains estimates from the professional economic literature that can support a range of positive economic growth possibilities.

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