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Fundamental Tax Reforms, Asset Values, and Older Americans

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The Public Policy Institute, formed in 1985, is part of the Research Group of AARP. One of the missions of the Institute is to foster research and analysis on public policy issues of interest to older Americans. This paper represents part of that effort.

The views expressed herein are for information, debate and discussion, and do not necessarily represent formal policies of AARP.

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FOREWORD

Proposals to fundamentally reform the federal tax code have proliferated in the 1990s. Some proposals have advocated just reforming the income tax to change the way it treats capital income, because different forms of capital income are currently treated very differently. For example, corporate bonds are subject to regular income tax but municipal bonds are tax-exempt. Owner-occupied housing is subsidized through the tax code, but rental housing is not. More uniform treatment of capital would affect the value of certain assets by changing their tax preferred status, thus affecting the value of assets held by different groups.

Other tax reform proposals have advocated the complete replacement of the individual and corporate income taxes with some form of consumption tax, such as a value-added tax, a so-called "flat tax," or a retail sales tax like those in effect in most states. While these consumption tax proposals differ structurally from each other in important ways, they all have at least one thing in common: all would potentially impose an added one-time burden on existing accumulated assets, either by lowering their value or increasing prices. Since older Americans have acquired more assets than other age groups, either type of tax reform—more uniform taxation of capital under the income tax or replacement of the income tax with a consumption tax—would have important implications for older Americans. Because of the potentially large changes in asset values that tax reform might generate, the issue of "transition rules," or legislative provisions written into tax law to minimize the hardships experienced by certain groups of taxpayers, is a substantively important issue.

While both income and consumption tax reforms might increase the tax burden on existing assets in the short run, they might at the same time increase the rate of return on capital in the long run, reducing the added burden of the initial switch. Thus, the short-term impact of tax reform might be detrimental to the well-being of older Americans, while the long-term impacts might be beneficial. Sorting out the relative importance of these two factors is part of the purpose of this study, "Fundamental Tax Reforms, Asset Values, and Older Americans," by Thomas Neubig, Anne Kerttula, and Michael Pyatski of Ernst & Young LLP.

The study attempts to estimate how reform of the income tax or its replacement with a consumption tax would affect the tax burden on older Americans. The analysis employs a general equilibrium model representing the entire economy and all its relationships, capturing the essential features of U.S. financial markets and the effects of federal tax policy on households' financial holdings, supplies of financial assets, and asset prices. In the study, the household sector is disaggregated into 12 groups by age (under 50, 50-64, and 65 and over), income (over or under $50,000), and tax itemization status (itemizers and nonitemizers). The model breaks down the effects of a tax law change into an immediate effect and an equilibrium effect, which would very roughly compare to short and long run effects.

The model was first used to simulate a revenue neutral switch to an income tax with more uniform treatment of capital income. In this simulation, the revenue loss from corporate tax integration (eliminating the double taxation of dividends under the corporate income tax) was

offset by revenue from the repeal of the mortgage interest deduction and tax-exempt bonds plus an across-the-board percentage change in marginal income tax rates. The model was then used to simulate a switch to a revenue-neutral uniform consumption tax, which entails the repeal of both the individual and corporate income taxes.

One interesting implication of the study is that income tax reform is clearly more advantageous to seniors in the short run than consumption tax reform. They actually are slightly better off overall under income tax reform than under current law (an increase of 0.2 percent in real wealth), although those with lower incomes (under $50,000) experience losses while those with higher incomes (over $50,000) experience net gains in wealth. On the other hand, seniors are significantly worse off in the short run under consumption tax reform without transition relief, experiencing a loss of nearly nine percent of income, with both low- and high-income seniors suffering losses.

A second important implication is that consumption tax reform has short-term negative effects on the tax burdens of older Americans, but potentially beneficial impacts on their well-being in the long run because their rates of return will be higher on average after tax reform. The question is whether their higher future returns will be sufficient to offset the one-time loss they experience in the transition to the consumption tax. That would depend on many factors that were beyond the scope of this paper.

The results of any general equilibrium model are generally quite sensitive to the underlying assumptions. Changing the assumptions would alter the model results. Thus, the reader should regard the model's results as illustrative rather than definitive, providing insights on how major tax reforms might affect asset values and comprehensively attempting to account for the many interactions in a complex economy.

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EXECUTIVE SUMMARY

Background

Recent proposals for fundamental tax reform have focused on replacing the current income tax with a broad-based income tax or a consumption tax such as a flat tax or a retail sales tax. Either broad-based income or consumption tax reform would move toward greater uniformity in the tax treatment of capital income. A uniform income tax would tax all capital more similarly, while a uniform consumption tax would exempt capital income from tax until the income is consumed. Such fundamental tax reforms would affect the value of existing asset holdings as well as future rates of return. Since senior citizens generally have larger asset holdings than younger age groups, they would be affected to a greater extent by any changes in asset values arising from consumption tax reform.

Purpose

The purpose of this paper is to assess the effects of fundamental tax reform on asset allocation, asset price changes, and rates of return to different types of assets. Both income tax reform, with greater uniformity in the treatment of capital income, and consumption tax reform are examined.

Methodology

A general equilibrium model of household wealth portfolios is used to illustrate the effects of fundamental tax reform on asset price changes. The model captures the essential features of the U.S. financial markets and the effects of federal tax policy on households' financial holdings, supplies of financial assets, and asset prices. Starting with a "base case" scenario for stocks of capital, household asset portfolios, rates of return, prices, and taxes paid by households, tax law changes are introduced and the model solves for a new configuration of the above variables. The model can then assess the effect of the tax change on the distribution of income, asset (e.g., stock) prices, and household portfolio allocation (e.g., between financial and nonfinancial assets, or between stocks and bonds).

The model can examine the effects of specific tax reforms, such as the integration of the corporate with the individual income tax, the repeal of the mortgage interest deduction, and the repeal of the tax exemption for state and local municipal bonds, as well as their combined effect, on rates of return to different types of assets and on real asset values.

The model results are illustrative rather than definitive in that they are quite sensitive to a number of the assumptions made. Some important assumptions include the treatment of labor supply and saving of all households as fixed. Even in the short run, with fundamental tax changes, there could be significant behavioral effects. Changing the assumptions would alter the model results. Thus, the reader should regard the model's results as illustrative rather than definitive,

providing insights on how major tax reforms might affect asset values and comprehensively attempting to account for the many interactions in a complex economy.

Principal Findings

Shifting from current tax law to an income tax with uniform taxation of capital (e.g., through corporate tax integration, repeal of the mortgage interest deduction, and repeal of the exemption for state and local government bonds) would result in a reallocation of capital toward the corporate and non-corporate business sectors, and away from state and local government debt, housing and consumer durables. Interest rates would increase by approximately 20 basis points (0.2 percentage points) for taxable debt and by 260 basis points (2.6 percentage points) for previously tax-exempt debt. Municipal bond values would decline by over 30 percent and housing values would decline by 10 percent. Corporate and non-corporate equity would increase by over 20 and 15 percent, respectively. A switch to a uniform income tax would actually *increase* the elderly's total wealth by 0.2 percent in the short run, although higher-income elderly (over $50,000 income) would experience a two percent increase and lower-income elderly (below $50,000 income) a two percent decrease in wealth. Over the longer run, the average rate of return from financial assets for elderly households would increase by about 0.3 percentage points.

As with the shift to uniform taxation of capital under the income tax, shifting to a revenue-neutral uniform consumption tax would eliminate the current tax disadvantage for corporate equity as well as the advantage of mortgage financing of owner-occupied housing and state and local government debt financing. It would also further increase the demand for business capital resulting from the expensing of capital investment. These changes would result in an even larger shift of capital to corporate and non-corporate sectors, with more substitution away from taxable debt than would occur with a switch to a uniform income tax. Taxable debt yields would increase by 0.75 percentage points and previously tax-exempt debt yields would increase by three percentage points.

A consumption tax would likely be accompanied by an increase in the money supply ("monetary accommodation"), allowing producers to pass the tax on to consumers. The immediate changes in real asset values would range from -46 percent in state and local government debt, -23 percent for taxable debt, -7 percent for housing, +2 percent for consumer durables, +1 percent for noncorporate equity, and +4 percent for corporate equity. The average elderly household would see overall real wealth holdings decline by approximately nine percent in the short run, and this decline in wealth holdings would occur roughly equally among higher- and lower-income seniors. After the initial change in existing wealth, however, older households would receive higher pre-tax rates of return—nearly one percentage point higher—on their financial assets.

Conclusion

Both comprehensive income and consumption tax reforms would have substantial impacts on asset allocation, asset values, and rates of return. Many of the efficiency effects of consumption tax reform can be achieved through greater uniformity in the treatment of capital

within the context of the income tax, without moving to a consumption tax. Both types of reform would also have important effects on older households through changes in asset values and rates of return to different assets.

Switching from the current tax system to an income tax that treats capital income more uniformly would leave older Americans better off in both the short and the long run *on average*. However, there will be both winners and losers, and the modeling results suggest that older households with incomes below $50,000 would experience losses, while those with incomes above $50,000 would experience gains. Older households would experience slight immediate gains (0.2 percent) in asset values from a shift to uniform income taxation, and would realize rates of return about 0.3 percentage points greater in the long run.

On the other hand, switching from the present system to a uniform consumption tax such as a sales tax or value-added tax would cause the assets of older households to decline in the short run by nine percent. However, they would experience increased rates of return in the long run of nearly a full percentage point.

I. Introduction

Fundamental tax reform proposals could significantly impact elderly households through changes to asset values. All tax changes potentially affect asset values, but a shift from the current income-based tax system to a broad-based consumption tax would significantly affect the elderly's accumulated wealth. The transition to a uniform treatment of capital and a switch to a broad-based consumption tax would be the most important feature of any tax reform proposal for the elderly.[1]

This report identifies and discusses the factors that are likely to determine changes in asset values and rates of return under a broad-based consumption tax reform. Factors such as the tax treatment of different assets, transition rules to reduce short-term gains and losses, effects on the budget deficit, changes in interest rates, changes in monetary policy, and long-run savings and investment are examined.

A general equilibrium model of household wealth portfolios is used to illustrate the major forces affecting asset values in a shift from the current U.S. tax system to a broad-based income or consumption taxation. General equilibrium models represent the economy as a set of interconnected markets for inputs and outputs. They can yield useful insights into the effect of policy changes by capturing interactions among behavioral responses of different agents and sectors in the economy. The model employed in this study suggests the importance of interest rate changes and monetary accommodation to the effect on asset values.

Since the elderly have more accumulated wealth than the young, they would be worse off in the short run if a consumption tax were enacted without any transition rules to soften the effects of a consumption tax on the value of existing assets. Households that based consumption, saving, and investment decisions on the current tax rules likely expected to use their accumulated wealth free of tax or tax-induced changes in asset values. The introduction of a broad-based consumption tax means that their accumulated wealth could not be converted into as much consumption as under the existing income tax in the short run, while households would experience increased rates of return on financial assets after the economy adjusts to the new tax system. Many elderly would be adversely affected by a move toward more uniform taxation of capital income, even stopping short of repealing the income tax.

Section II addresses the theoretical issues of taxation and asset values. Section III describes the key issues affecting asset values in the shift from the current income tax to a broad-based consumption tax. In Section IV, the general equilibrium model of household wealth portfolios is used to illustrate the effects of tax reform on household asset values. The report concludes with a summary in Section V.

[1] See Robert Carroll and Thomas S. Neubig (1996).

II. Theoretical Issues Concerning the Effects of Tax Reform on Asset Values

Any change in the taxation of capital income would potentially result in a change in asset values.[2] Without transition rules to reduce undue hardships or unintended windfalls, a tax change to capital income would affect the relative attractiveness of existing capital assets compared to future capital assets. Switching from the current income tax with its differential treatment of income from various capital assets (e.g., housing, corporate equity, non-corporate equity, debt) to a broad-based consumption tax would cause significant changes in asset values.[3]

Because the current income tax is not a pure income tax and because fundamental tax reform could encompass either a broad-based income or consumption tax, it is useful to discuss general tax issues affecting asset values as well as issues unique to enactment of a broad-based consumption tax.

A. General Issues

Any significant change in the taxation of capital income would affect the value of capital assets. For example, eliminating the tax exemption of municipal bonds would be expected to have a significant adverse impact on the value of outstanding municipal bonds. It is because of the potentially large changes in asset values that transition issues are important political issues in any tax legislation. Asset values would be affected as a result of shifting away from the current non-uniform tax treatment of different capital assets (e.g., debt and equity) to uniform treatment under either an income tax or consumption tax. Asset values are also affected by the overall level of macroeconomic activity.

1. Transition Rules

Transition rules are designed to minimize the hardships from asset value declines, and sometimes the windfalls from asset value increases, resulting from changes in the tax and expenditure systems. In an ideal policy prescription, transition rules could be designed to offset changes in asset values with lump-sum taxes or transfers while moving to a future tax system.[4] Politically, transition rules have generally attempted to soften the effect on potential losers through phase-in or grandfathering provisions, without attempting to recapture windfall gains.

Transition rules, thus, can significantly affect the change in asset values resulting from tax legislation. On the other hand, Michael Graetz[5] argues that transition rules are not necessary. Households that hold tax preferred assets should expect future tax changes and are already

[2] For purposes of this report, the focus is on values of capital assets (financial and real assets). Tax changes affecting labor income could affect the value of human capital.

[3] A shift to a wage tax would not tax existing assets the way a consumption tax would. See Auerbach (1996).

[4] On the other hand, transition rules also reduce efficiency gains from tax reform. If tax reform is enacted with transition rules, tax rates will be higher because some revenue is lost due to the transition provisions, and this reduces the overall efficiency of the reform.

[5] See, for example, Graetz (1985).

compensated for the risk of tax changes through higher current rates of return. But even in this case, tax reform could also affect values of assets that are fully taxable before and after the reform by changing the values of other assets.

Analyses of how fundamental tax reform proposals would affect asset values are dependent on the assumptions concerning transition relief. If no transition rules are provided, then asset value changes would be greater than if transition rules mitigate some of the asset value effects.

2. Tax Capitalization Effects

The permanent effect of tax changes on relative asset values depends on the extent to which taxes are capitalized (incorporated) in the asset values. For example, some analysts argue that the current corporate income tax is capitalized in lower share prices of corporate stock. Whether taxes are incorporated into capital asset prices depends on the supply and demand responses of households and firms to changes in relative after-tax prices. There is considerable debate in the economics profession about the extent to which taxes are capitalized in asset values.

Several potential elements of fundamental tax reform can illustrate the uncertainty surrounding tax capitalization:

"Old" vs. "New" Views of Dividend Taxation. One feature of the existing income tax regime is that corporate dividends are taxed twice—once at the individual level and once at the corporate level. The "old" view of the double taxation of corporate dividends is reflected in the Harberger analysis that the double taxation reduces the after-tax rate of return to all capital. Because only incorporated businesses experience the corporate tax, double taxation of dividends shifts capital from the corporate to the non-corporate sector, until the after-tax rates of return equalize, with the corporate pre-tax return increasing and the non-corporate pre-tax return decreasing compared to a world of no taxes.[6] An alternative "new" view argues that dividend taxes are fully capitalized in the lower asset value of corporate shares upon enactment of the dividend tax, and thus do not affect the pre-tax or after-tax rate of return on corporate investment.[7]

The different views of tax capitalization of corporate dividend taxes significantly affect whether corporate integration, i.e., elimination of the double taxation of dividends, would provide a large windfall to existing corporate shareholders ("new" view) or would remove a significant distortion in the allocation of capital and remove a tax burden on all capital owners ("old" view). The Treasury Department's corporate integration study (1992) suggested that most empirical evidence favors the "old" view, or that corporate taxes are not capitalized in asset values. Corporate integration would be part of a move to uniform taxation of capital under either an income or consumption tax.

Repeal of the Mortgage Interest Deduction. A National Association of Homebuilders/DRI study (1996) concluded that repeal of the mortgage interest deduction would reduce owner-occupied home values on average by 15 percent. Their calculation took the present discounted

[6] Harberger (1962).
[7] An exception is made for corporate equity raised by new share issuance.

value of future mortgage interest and property tax deductions as a percentage of current home values. Their calculation assumed that the value of the tax deductions is fully capitalized in the value of existing homes. The study has been criticized for not accounting for the fact that most homeowners do not itemize deductions, for not analyzing supply and demand responses, and for potentially understating interest rate effects. For example, Gravelle (1996a) and Hall (1995) find only a modest impact on housing prices, after accounting for supply responses and changes in the interest rate.

Interest Rate Effects from Lower Tax Rates. Some analysts of the 1986 Tax Reform Act and recent tax reform proposals have argued that significant reductions in interest rates would occur as a result of lowering marginal income tax rates or shifting to a consumption tax. Their argument assumes that income tax rates are capitalized in the level of nominal interest rates. They often cite the lower yield on tax-exempt state and local government bonds as illustrative of how taxes are capitalized in bond values, and thus interest rates. Toder and Neubig (1985) show that taxes are not fully capitalized in tax-exempt bond values, given the supply and demand conditions in the bond markets. This occurs because of clientele effects, i.e., because different investors face different tax rates.

Analysts' view of the effects of tax reform on asset values will depend on how they currently view the extent to which taxes are capitalized in current asset values. Given the debate within the profession about the current capitalization effects, sensitivity analysis of an analyst's assumptions is warranted.

3. Differential Tax Incidence: Revenue Neutral Replacement Taxes

When examining distributional effects of tax changes, including asset value changes, analysts must make some assumption about the financing of the tax changes. If taxes were reduced without an offsetting tax increase or expenditure decrease, then the budget deficit would increase. Analysis of the effect of such a tax reduction would have to factor in the effects of increased deficit financing and coincident monetary policy changes.

Fundamental tax reforms generally call for revenue neutral changes, so that the effects of deficit financing or expenditure changes are kept as separate issues. This is referred to as "differential tax incidence."[8] The 1986 Tax Reform Act was effectively revenue neutral, with marginal tax rate reductions offset by income base broadening and repeal of the investment tax credit. The fundamental tax reform proposals currently being considered[9] also are generally revenue neutral, with consumption tax revenues substituting for repeal of the individual income tax, corporate income tax, payroll taxes, and/or estate tax.

[8] Musgrave (1976), p. 379.
[9] See Carroll and Neubig (1996).

B. Consumption Tax Issues

Shifting from a broad-based income tax to a broad-based consumption tax raises some specific issues with respect to asset value changes. The principal issues are the effects of a lump-sum tax on existing capital, interest rate effects, and monetary policy effects.

1. Lump-Sum Tax on Existing Capital

In analyzing the effects of a broad-based consumption tax, a number of analysts have noted that a broad-based consumption tax is equivalent to a tax on wages plus a lump-sum tax on existing capital.[10] A lump-sum tax on existing capital would fall especially hard on the elderly who have the most accumulated capital assets.

Section III discusses the specific mechanisms by which different types of consumption taxes would fall on existing capital. Depending on the type of consumption tax and the mechanism through which the incidence of the tax is transmitted, the lump-sum tax could have different distributional consequences.

2. Interest Rate Effects

A consumption tax effectively eliminates tax on capital income.[11] As described in the tax capitalization effects section above, some analysts argue that eliminating tax on interest income would reduce interest rates by the amount of the tax rate. Lower interest rates could offset the effects of some other tax changes, such as the repeal of the mortgage interest deduction.

Section III discusses the specific mechanisms by which interest rates might change as a result of switching to a consumption tax. The interest rate effect will depend on the responsiveness of household savings to the after-tax interest rate, the responsiveness of investment, the change in after-tax rates of return on all capital assets, and the importance of international capital flows.

3. Monetary Policy Effects

Discussions of broad-based consumption taxes raise the issue of general price changes and monetary policy. Some proposals for new consumption taxes in the early 1980s were for additional taxes to finance additional government spending or to reduce the government deficit. These additional taxes, especially if they were transaction taxes as opposed to taxes on persons, could result in a one-time increase in product prices if accommodated by a Federal Reserve increase in the money supply[12] or by a recession if not accommodated. Previous analysis of value-added taxes has presumed that the Federal Reserve would need to accommodate a one-time price increase to prevent an economic downturn. If all business costs were increased by the VAT but

[10] See Carroll and Neubig (1996) for the economic equivalency of alternative consumption taxes.
[11] See Carroll and Neubig (1996), Hubbard (1996). Depending on the type of consumption tax, some capital income, such as extraordinary returns, may be subject to tax.
[12] Joint Committee on Taxation (1991).

the money supply remained unchanged, then enactment of the *new* tax could cause an economic downturn. Businesses would face higher costs due to the tax, but would have difficulty passing the tax forward to consumers since their incomes would not have changed. Reduced profitability would result in reduced investment and employment. It should be noted that the enactment of any significant new tax would exert some contractionary pressure on the economy, everything else the same.

Tait (1988) analyzed the effects of enactment of value-added taxes (VAT) in a number of countries on consumer prices and found that a VAT did not permanently increase inflation, but at worst only caused a one-time increase in the price level. Since most value-added taxes were enacted partially as a substitute for other taxes (particularly selective excise taxes), the differential tax incidence described above would apply, and no significant macro-economic effects would be expected.

The tax reform proposals being considered in the U.S. generally call for consumption taxes substituting for income taxes on roughly a revenue neutral basis. Section III discusses some of the issues that may arise with respect to substituting an indirect tax (retail sales tax or VAT) for direct taxes (income or payroll).

III. Key Factors Important to Asset Value Changes Among the Elderly in Switching to a Consumption Tax

The specific tax reforms proposed by members of Congress would have significant impacts on the value of assets held by elderly households in the U.S. The proposals call for broad-based consumption taxes to replace the individual and/or corporate income tax, and some would replace payroll and estate taxes. None of the proposals, except the USA tax proposal by former Senator Nunn (D-GA) and Senator Domenici (R-NM), includes transition rules. Thus, the principal effects on asset values would come from two sources: moving to a uniform taxation of capital income and the lump-sum tax on existing capital from enactment of a new consumption tax.

A. Uniform Taxation of Capital Income

The current income tax is far from a broad-based income tax. The current income tax contains rules that double tax (e.g., corporate dividends), single tax (e.g., regular interest), and exempt (e.g., municipal bonds) different forms of capital income. Tax legislation that would move toward either a broad-based income tax or a broad-based consumption tax would also move toward uniform tax treatment of capital income. Under either general tax approach, assets that are currently tax-favored would lose their relative tax advantage, while assets that are currently subject to high effective tax rates would gain in relative terms. Thus, a move to uniform capital taxation could be expected to permanently affect relative asset prices, to the extent that existing tax rules are capitalized in asset values, and relative after-tax incomes.

Some of the current tax rules that result in differential taxation include:

- Double taxation of corporate shareholder dividends;
- Exemption of state and local government bond interest;
- Deduction of mortgage interest and property tax on owner-occupied homes (in combination with exemption of imputed rental income); and
- Deferral of capital gains until realization and exemption if held until death.

The differential tax treatment of capital income, depending on the type of capital income, has important distributional and allocation effects. The change in asset values from these differential tax rules is not universally agreed on. As discussed in the earlier tax capitalization section, the tax incidence and change in asset values from the existing corporate income are still hotly debated. Depending on the "new" or "old" view of corporate tax, repeal of the corporate income tax as part of tax reform would provide a significant windfall to existing corporate shareholders or a modest increase in value of capital assets for most households, respectively.

The tax capitalization effect is most clearly shown in the case of exemption of state and local government bond interest. Tax-exempt bonds generally have an interest rate approximately 20-30 percent lower than taxable debt of comparable risk and maturity. The tax exemption has been partially capitalized in higher tax-exempt bond prices, thus reflected in lower yields. Because the outstanding supply of tax-exempt bonds is relatively small compared to total household wealth, a

"clientele" effect occurs where only high tax bracket investors bid up the price of tax-exempt bonds. Nonetheless, due to supply and demand conditions, not all of the tax savings accrue to investors. Some of the tax savings accrue to state and local governments and their citizens in the form of lower borrowing costs. Thus, removing the special tax treatment of state and local government debt would cause a decline in the value of tax-exempt bonds in the portfolios of high-income individuals, and also would increase the tax cost or reduce the government services for households in state and local jurisdictions borrowing with tax-exempt debt.

A general equilibrium model of household financial portfolios is presented in Section IV to illustrate the effects of tax reform that move to uniform taxation of capital income.

B. Taxation of Existing Capital

A broad-based consumption tax, such as a retail sales tax or a value-added tax, would, in the absence of transition rules, apply to all consumption purchases after the enactment date, regardless of whether the consumption expenditures come from future earnings or existing wealth. Thus, if a new consumption tax were enacted, households that have accumulated wealth out of after-tax income would be taxed again on that wealth when it is consumed. This potential double taxation of existing assets is a major transitional issue affecting not only the elderly but all households.

The taxation of existing capital is easier to see in the case of a retail sales tax, but would also occur under other broad-based consumption taxes. Although a value-added tax is paid by businesses, most analysts believe that a value-added tax would be passed through to consumers in higher prices. A one-time increase in the general price level would reduce the real value of existing assets. This reasoning only includes the effect of a new retail sales or value-added tax and does not include the potential offsetting effects of repealing other taxes, necessary for differential incidence analysis, described above. Clearly, the adverse effect on existing assets from a new consumption tax could be offset by positive effects on existing asset values from repeal of other taxes, although the combined effects may redistribute wealth.

In both the retail sales and value-added tax cases, the presumed effect occurs through a one-time accommodation of price increases by the Federal Reserve's monetary policy, reducing the real value of existing wealth. A one-time unanticipated price increase would have differential effects on households depending on their wealth portfolio. Households with only Social Security wealth, an inflation-adjusted annuity, would be protected from any decline in real consumption from an unanticipated price increase. Households with real assets (housing, durables, etc.) and equity in businesses might also be unaffected if the general price level increased the price of real assets and the price of the goods or services sold by the businesses. Households with fixed nominal returns (most bonds, bank deposits and certificates of deposit, and defined benefit pension payments) would see the real value of those assets (purchasing power) decline.

Some of the other broad-based consumption taxes could affect accumulated wealth through other mechanisms. For example, the Nunn-Domenici USA household tax imposes a progressive-rate consumed income tax. Distributions from existing assets would be subject to tax when used for

consumption.[13] Pre-tax asset values would not change from a general price effect due to the household USA tax, but the after-tax value of any consumption from those assets (above the transition amount) would be reduced by the direct tax.

The flat tax proposed by Rep. Richard K. Armey (R-TX) imposes a tax on wages and salaries at the household level and a tax on value-added less wages and salaries at the business level. No transition rules have been spelled out yet. The tax on existing capital from the Armey Flat Tax would occur largely through the loss of future depreciation deductions on existing capital by corporate and non-corporate businesses. An estimated $2 trillion of future depreciation deductions could not be deducted if the Flat Tax were enacted without transition rules. The impact on existing capital would fall principally on equity owners, unless the tax change were accommodated by the Federal Reserve in an increased money supply and higher prices.[14] If the tax change were accommodated with higher inflation, the tax burden would be borne principally by holders of fixed-rate debt instruments.

As an example of the adverse effect on the owners of existing capital, consider the case of the owner of a single rental building, and assume that there is no monetary accommodation, i.e. no increase in the general price level. A consumption tax would typically make the proceeds from selling the building fully taxable without any deduction for the remaining basis (i.e., the nominal dollar purchase price adjusted for prior depreciation), hence lowering the after-tax value of the building to the existing owner.[15]

The above discussion suggests that, although different types of consumption taxes are generally economically equivalent, the effects on asset values and on the distribution of tax incidence across households of a lump-sum tax on existing capital could differ depending on the shares of nominal and real assets in their portfolio.

C. Transition Rules

Transition rules address the potential short-term effects of a change in tax policy. Transition rules, to the extent that they only provide transition relief (and do not address windfall gains) reduce tax revenues and thus necessitate higher marginal tax rates to achieve a given revenue level. One of the few tax reform proposals to include transition rules addressing windfall gains was the 1985 tax proposal by President Reagan that denied tax rate reduction to excess depreciation;[16] that particular transition provision was not seriously considered by Congress.

To date, only the Nunn-Domenici USA tax proposal has spelled out transition relief rules. The USA household tax includes a provision allowing households with less than $50,000 of qualified existing assets to deduct some previous savings from income during the first three years. Since

[13] The transition rules provide that households may deduct some previous savings from income during the first three years of the tax, if the aggregate basis in qualified assets is less than $50,000.
[14] Jane Gravelle(1995).
[15] For more detailed examples of how various tax reforms would affect old capital, see Gravelle (1996b).
[16] The President's Tax Proposals to the Congress for Fairness, Growth and Simplicity, May 1985, p. 192-6.

the USA household tax applied the tax and transition relief directly at the household level, no direct effect on asset values would be expected.[17]

The USA business tax would allow businesses to depreciate existing assets, albeit at a slower recovery rate, thus reducing the potential decline in equity asset values. The transition rules do not include any transition relief for existing business assets in the form of unused net operating losses or unused tax credits. The sponsors argue that reductions in marginal tax rates would offset some of the asset decline from other transition effects.

It would be difficult, if not impossible, to hold all taxpayers harmless from a major change in tax policy through lump-sum taxes and transfers. The economic effects of major tax policy changes are not sufficiently certain to permit policymakers to accurately predict the appropriate compensation for distributional changes. Instead, policymakers typically use grandfather and phase-in provisions to mitigate, but not eliminate, transition effects.

D. Interest Rate Effects

One of the principal reasons for switching from the current income tax to a broad-based consumption tax is to increase saving, investment, and productivity. By eliminating the double taxation of saving (once when the income is saved and again when the investment earns a return), proponents believe that saving and investment would increase. Proponents argue that pre-tax interest rates would decline significantly, thus offsetting some of the decline in asset values from the repeal of the mortgage interest deduction or the loss of interest deductibility by businesses.[18]

The potential change in interest rates is important for both the expected change in saving and investment, and the commensurate effect on asset values. First, it should be noted that interest rates are the return to only one type of capital. A consumption tax effectively has a zero tax rate on all capital income, i.e., on interest, dividends, and capital gains. The effect on interest rates would be determined by the change in the supply and demand for all capital as well as the supply and demand for different types of capital.

Substitution of a consumption tax for the income tax would increase the after-tax rate of return to saving and decrease the after-tax cost of capital for business investments. The ultimate effect on pre-tax rates of return to capital would depend on the change in the levels of saving and investment. If both saving and investment increase as a result of tax reform, economic theory can not predict whether the pre-tax rate of return would fall, remain unchanged, or increase. As shown in Figure A, if the increase in investment demand (horizontal distance from ID_1 to ID_2) exceeds the increase in saving (vertical shift from S_1 to S_2), the pre-tax rate of return to capital could increase (shift from r_1 to r_2), while if saving increases more than investment (Figure B) then the pre-tax return to capital could decline.

[17] Because the tax is imposed at the individual level, there is no impact on production costs and therefore no threat of a reduction of output caused by a recession. The Federal Reserve would be unlikely to adjust monetary policy and there would be no direct effect on asset values from a price level change.

[18] See, for example, Bill Archer (1995).

Several factors would influence the extent to which saving and investment would increase as a result of tax reform. In the case of saving, several analysts have noted that most saving in the U.S. currently is already subject to consumption tax treatment. Sabelhaus (1996) estimates that almost 80 percent of current saving is made to tax-favored investments, such as pensions and other retirement accounts, and 36 percent of financial assets are in the form of currently tax-favored saving vehicles. Thus, the change in the total after-tax rate of return to saving may be smaller than many anticipate. In the case of investment demand, depending on its treatment of foreign investment for export sales, tax reform might turn the U.S. into a tax haven country for foreign direct investment, thereby significantly increasing investment demand.

The economics profession does not have a consensus on the possible effects of tax reform on saving and investment. Several important issues affecting the debate include:

Open Economy, International Capital Flows. Tax reform would potentially affect not only domestic saving but also saving from other countries. If the U.S. is viewed as being part of an open economy with a large pool of saving relative to U.S. domestic investment, then the supply curve of saving could be quite flat, indicating a supply of capital that is very responsive to changes in rates of return. Additional saving would flow into the U.S. from small changes in the pre-tax rate of return. The U.S. relied heavily on foreign capital flows during the 1980s when the U.S. savings rate was low and U.S. investment was strong. International capital flows make it less likely that pre-tax rates of return would decline significantly, as shown in Figure C.

Inelastic Saving Supply Response. The responsiveness of household saving to changes in the after-tax rate of return is hotly debated in the U.S. Household saving has been found to be quite responsive to targeted incentives that increase retirement saving (IRAs, 401ks, pensions), but their effect on total saving is less certain. Many economists believe that domestic saving is not responsive to after-tax rates of return. At the other extreme from an international capital flow response, if available saving is not responsive and investment demand increases, then pre-tax rates of return would increase, as shown in Figure D.

Elastic Investment Demand. If domestic investment is highly responsive to the after-tax cost of capital, then the investment demand curve could be quite flat. For any increase in saving from tax reform, pre-tax rates of return in this case would not decline significantly or could increase, as shown in Figure E.

Possible Effects on the Pre-Tax Return to Capital

Figure A: Investment Exceeds Saving, Interest Rate Rises

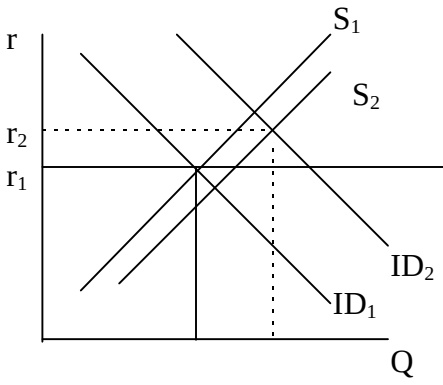


Figure B: Saving Exceeds Investment, Interest Rate Falls

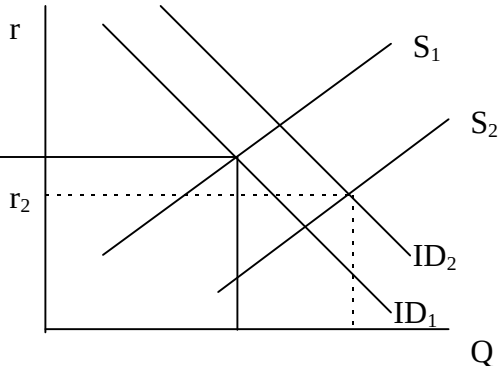


Figure C: International Capital Flows, Interest Rate Unchanged

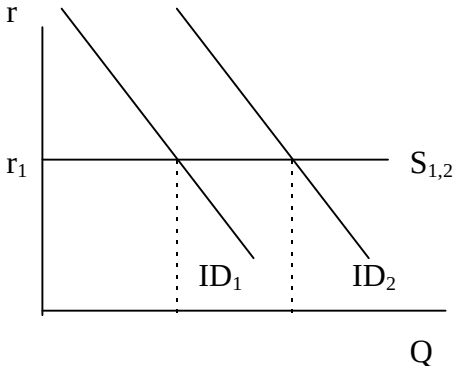


Figure D: Unresponsive Saving, Interest Rate Rises

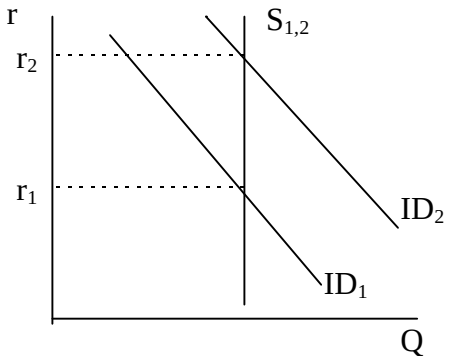
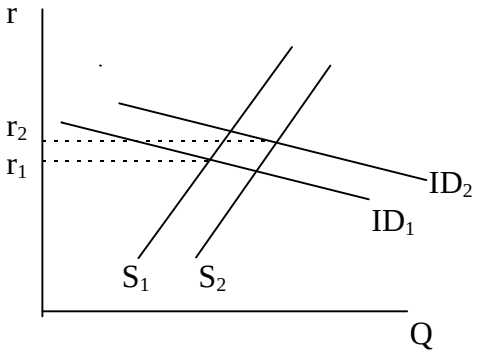


Figure E: Responsive Investment Demand, Interest Rate Rises



Some proponents of tax reform argue that interest rates would decline sharply based on the current relationship between tax-exempt bond yields and comparable taxable yields. The analogy may not be appropriate, since the tax exemption applies to only a small proportion of the U.S. saving while tax reform would extend tax exemption to all capital assets. Tax-exempt bond yields are driven by supply and demand conditions, where a limited supply of tax-exempt bonds is sought by a large potential pool of saving. Investors are willing to accept lower pre-tax returns from municipal bonds because with the tax exemption the after-tax yield is higher than the after-tax yield from comparable taxable bonds. If all domestic capital were tax-exempt, the yield on municipal bonds would be the same as the yield on comparable other investments. Yields on municipal bonds would rise to the equivalent yield of other comparable investments, but what that yield would be depends on the supply and demand for all capital, as described above.

The effect on interest rates may differ somewhat from the effect on the pre-tax rate of return on all capital. Because corporate equity, non-corporate equity, corporate debt, owner-occupied mortgage debt, and bank loans have different risk characteristics, the tradeoff between risk and return may be affected by tax reform, given the different supply and demand conditions for different types of assets. For example, tax reform would change the relative tax treatment of debt and equity, thus the supply of debt could decrease while the supply of equity would increase. The substitution of equity for debt could result in upward pressure on interest rates, everything else the same.

Tax reform could affect interest rates not only through changes in saving and investment but also through portfolio adjustment. For example, a shift to consumption taxation would equalize the tax treatment of debt and equity at the firm level, and hence remove the tax benefit to debt that is present in the current tax code whenever there is inflation. This benefit arises because nominal interest rates, which include an inflation premium, are fully deductible at the corporate tax rate, which is higher than the statutory individual income tax rate at which recipients are taxed for the inflation premium in their interest earnings. Gravelle (1996a) argues that the loss of this benefit could lead to lower interest rates.

The bottom line is that the effect on pre-tax rates of return and interest rates is an empirical issue that is dependent on a number of factors. The general equilibrium model in Section IV provides some illustrative results for the interest rate effect, but they are dependent on the underlying assumptions.

E. Monetary Policy Effects

Changes in asset values from tax reform would be dependent upon any changes in Federal Reserve monetary policy that would occur as a result of tax reform. Typically, tax policy analysis holds Federal Reserve monetary policy constant, i.e., there would be no change in the money supply. A fundamental tax policy change, such as substitution of a consumption tax for the existing income tax, however, would be so important that monetary policymakers would definitely monitor the macroeconomic effects.

Proponents of tax reform note that the tax reform proposals not only enact a new consumption tax but repeal existing taxes, in roughly revenue-neutral fashion. Thus, it is not clear that Federal Reserve monetary policy would need to change to offset a revenue-neutral fiscal policy.

IV. Illustrative Model of Asset Price Changes from Fundamental Tax Reform

Ernst & Young's (E&Y) Tax Policy Economics developed a general equilibrium model of the U.S. financial markets to illustrate the effects of fundamental tax reform on asset price changes. The model captures the major features of the U.S. financial markets and the effects of federal tax policy on households' financial holdings, supplies of financial assets, and asset prices. The model results provide important insights regarding the effects of major tax policy changes on the distribution of wealth and income. The model results should be viewed as illustrative, since the model results are sensitive to a number of assumptions described below.

A. Description of the E&Y General Equilibrium (EYGE) Model of Portfolio Asset Allocation

General equilibrium models represent the entire economy as a set of interconnected markets for inputs and outputs. General equilibrium models can yield useful insights into the effect of policy changes by capturing interactions among behavioral responses of different agents and sectors in the economy. Thus, for example, if the current corporate income tax were repealed, a general equilibrium model can account for changes in prices of outputs, taxes paid, and returns on investment in all sectors of the economy, not just those of the corporate sector.

The EYGE model incorporates financial behavior of households, firms, and governments. Private sector firms finance their operations with financial instruments (debt and equity) and governments finance their operations with taxes and debt. Households, both directly and indirectly through financial institutions, supply capital to firms and governments for the provision of goods and services.

The EYGE model has five capital-using sectors: corporate and non-corporate business sectors, both of which produce marketable goods and services; state and local governments; and two household "sectors" which produce in-kind services from owner-occupied homes and consumer durables (e.g., cars, appliances, etc.). Each sector finances the capital it uses by issuing financial assets: corporate equity, non-corporate equity, taxable bonds (including Treasury securities, bank deposits, and mortgages), and/or tax-exempt bonds.

The EYGE model is calibrated to represent the financial structure of the U.S. economy as of the end of 1994. The main features of the model are summarized below. Some limitations of the model are discussed in Section D.

1. Production and Supply of Financial Assets

Corporations issue corporate equity and taxable bonds. Non-corporate enterprises issue non-corporate shares and taxable bonds. State and local governments issue tax-exempt bonds. In addition, the federal government issues taxable bonds to finance a fixed level of national debt.

Corporate and non-corporate debt-equity ratios are exogenously specified in the model based on 1994 data.

2. Consumption and Demand of Financial Assets

The household sector is disaggregated into 12 groups by age, income, and tax itemization status. Household asset and commodity demands are based on the maximization of a constant risk-aversion utility function subject to wealth and income constraints. Households select their portfolios under uncertainty, allocating their fixed wealth among financial assets and household-sector capital (owner-occupied homes and consumer durables). Demands for financial assets vary directly with their after-tax expected rate of return and inversely with their after-tax variance. Demands for consumer durables and homes vary inversely with their opportunity costs (the after-tax interest rate on a similar-risk financial asset).

Each household holds an exogenous share of its wealth in pensions and life insurance. Pensions and life insurance consist of taxable bonds (68 percent) and corporate equity (32 percent). The dollar amounts of pension and life insurance wealth for each household were based on the data reported in the 1994 Flow of Funds balance sheet for U.S. Economy and in the Survey of Consumer Finances.

Household holdings of wealth through financial institutions (such as banks, insurance companies, mutual funds) are treated generally as if the underlying assets are held directly by the households. The tax status of the underlying assets is assumed to flow through to the individual household when held by financial intermediaries. Two exceptions to the flow-through treatment occur. First, households' pension holdings are treated as a separate asset, the return on which is tax free. Second, some financial intermediaries hold tax-exempt bonds, which are financed by issuing taxable debt to households.

3. The Tax Law

Each household group faces the schedule of average and marginal individual income tax rates. Tax liabilities are computed based on these rates, itemization status, and taxable income flows. Average marginal tax rates are used to determine the after tax return on and demand for taxable financial instruments. The fractions of corporate equity income and non-corporate capital income included in the tax base are fixed and reflect the partial exclusion of capital gains and non-reporting.

The separate corporate-level tax affects the relationship between the before-tax rate of return on corporate equity and the rates of return received by corporate shareholders. The corporate income tax is described by two parameters: the statutory corporate tax rate and the percentage of corporate economic income included in the tax base.

4. Model Equilibrium

In equilibrium, all markets clear in the sense that households' consumption of goods and demand for assets (derived based on the maximization of an expected utility function) equal the goods produced and assets supplied by capital-using sectors, the federal government, and financial intermediaries. The model solves simultaneously for the value of physical capital in each productive sector, the composition of each household's portfolio of financial and physical assets, rates of return on all assets, prices of outputs, and taxes paid by each household.

When the tax laws are changed, the model solves for a new configuration of total capital stocks, household portfolio holdings, and rates of return. In the new equilibrium, financial asset holdings and rates of return are again consistent with a single set of real capital stocks and costs of capital in each capital-using sector. Each household group has a new value of before-tax income, taxes paid, and after-tax income. The model can be used to assess the effect of the tax change on the distribution of income, asset prices, and household portfolio allocation.

The model does not have a separately specified time dimension. However, it is possible to break down the effects of a tax law change into an immediate effect and an equilibrium effect, which would very roughly compare to short- and long-run effects. The immediate effect on asset values can be calculated as the values of the pre-change holdings at the after-change rates of return. This could be thought of as what an individual investor would see as the effect on his portfolio before all portfolios have been adjusted in response to the change. The equilibrium effect is then the full effect, after portfolios have been allowed to adjust.

5. Benchmark Equilibrium

The EYGE model is calibrated to replicate interest rates and capital stocks at the end of 1994. Total capital stocks are those reported by the 1994 Federal Reserve Board's Flow of Funds (FOF). Average portfolios for the 12 household groups are based on tabulations from the 1992 Survey of Consumer Finances (SCF). Household tax characteristics are based on tabulations from the Internal Revenue Services' 1991 Individual Income Tax Public Use File. The parameters of each household group's preference function, including those representing its degree of risk aversion, are chosen to replicate existing portfolio holdings.

B. Household Wealth Portfolios

As described above, households' wealth portfolios were constructed based on aggregate Flow of Funds data on types of financial assets plus average household holdings from the 1992 Survey of Consumer Finances. Total wealth of American households in 1994 was $27.7 trillion, with approximately $17.8 trillion in financial assets and $9.9 in real assets (housing and consumer durables).

Table 1 shows the asset holdings of the 12 household groups and the mix of their assets. The elderly (head of household age 65 or older) are estimated to hold approximately $7.8 trillion of

financial and real assets (not including Social Security wealth). Approximately $2 trillion of the elderly's assets are in housing, with most held by non-itemizers.

Table 2 shows the asset allocation of the 12 household groups. The elderly tend to hold proportionately more taxable and tax-exempt debt and corporate equity, while proportionately less non-corporate equity and pensions and life insurance.

C. Model Results from Switching to Uniform Income Taxation of Capital

Hubbard (1996) points out that a pure income tax and pure consumption tax have many similarities in the tax treatment of capital income. The principal differences are the exemption of the risk-free return on capital and the expensing of business investment under a consumption tax. Many of the gains from switching to a consumption tax could be achieved by more uniform taxation of capital income under an income tax. Three significant changes that would move us toward a more uniform income tax on capital would be:

- Integration of the corporate and individual income tax (elimination of the double taxation of corporate income by taxing the income at only the household level);
- Repeal of the mortgage interest deduction; and
- Repeal of the tax-exemption of income from state and local government bonds.

These changes would eliminate the three largest distinctions across different financial assets. Since any type of financial asset can generally be included in a qualified pension or retirement plan, the distinction between capital funded from taxable non-pension assets and tax-exempt pension assets is not addressed.

The model was used to simulate a revenue neutral switch to a more uniform income tax. The revenue loss from corporate tax integration was offset by revenue from repeal of the mortgage interest deduction and tax-exempt bonds plus an across-the-board percentage change in marginal income tax rates. These policy changes have offsetting effects, which are shown separately to illustrate each of the effects of several important elements of fundamental tax reform proposals. Summary tables of the effects for the different tax changes are presented in Tables 3 and 4. Model results are sensitive to the underlying assumptions of the model which are discussed in Section E. Immediate changes in asset values are presented as average changes; within an asset category the changes can vary depending on the maturity (long-term vs. short-term bonds) and market segment (above and below average priced homes).

1. Corporate Tax Integration

Corporate tax integration would increase the after-corporate (pre-individual) income tax rate of return to corporate equity owners. Initially, the increase in the pre-individual income tax rate of return would be by the full amount of the corporate income tax. This would increase the flow of capital into the corporate sector from the other sectors (corporate sector capital would increase from $8.8 trillion to $9.7 trillion at 1994 levels). The shift in capital to the corporate sector

would increase the output of the corporate sector as a percentage of the economy and lower corporate product prices.

As shown in Table 3, the flow of capital from the other sectors to the corporate sector results in increases in rates of return in the other sectors (approximately 60 basis points for non-corporate equity, 60 basis points for taxable debt, and 20 basis points for tax-exempt debt). The flow of capital into the corporate sector offsets somewhat the increase in the pre-tax rate of return to corporate equity owners for a net increase in the corporate equity rate of return by approximately 40 basis points.

The immediate effect of the interest rate increase would be to lower the value of taxable debt by 7 percent and the value of tax exempt debt by four percent (see Table 4). The value of housing and consumer durables would decline by roughly seven percent due to the reallocation of capital and the resulting increase in mortgage interest rates. On impact, the value of corporate equity is estimated to increase by 22 percent, and the value of non-corporate equity is estimated to increase by 16 percent, before portfolios have adjusted to the new rates of return.

2. Repeal of the Mortgage Interest Deduction

The model estimates that the current mortgage interest deductions are partially capitalized in the value of existing homes. The repeal of the mortgage interest deduction, therefore, would result in the outflow of capital from housing, reducing owner-occupied home values by approximately $300 billion, or four percent of the total value of housing of $7.4 trillion. As a result, the amount of capital supplied to other financial assets would increase while their rates of return would decrease (the largest effect would be approximately a 30 basis point decline in the yield on taxable debt; see Table 3).

As shown in Table 4, the decrease in interest rates would increase the value of taxable and tax-exempt debt by 4 percent and 2 percent, respectively, as an immediate effect. The value of corporate and non-corporate equity would decline by approximately 3 percent due to future lower rates of return.

3. Repeal of Tax Exemption of State and Municipal Bonds

The repeal of the tax exemption of state and municipal bonds would eliminate their current favorable tax treatment, thereby reducing their value and increasing their interest rate. The decrease in demand would cause interest rates on state and local debt to increase approximately 240 basis points (see Table 3). State and local bond rates would be higher than federal government debt due to an additional risk premium. As other financial instruments are substituted for state and municipal bonds, the rates of return on these instruments would decline with approximately a 14 basis point decline in the yield on taxable debt.

The immediate effect of the increase in interest rates on state and municipal bonds is to lower their value by approximately 29 percent, assuming no grandfathering of existing tax-exempt bonds (see Table 4). The value of corporate and non-corporate equity is estimated to decrease by

approximately 0.3 percent and 0.5 percent, respectively, and the value of taxable debt would increase by approximately two percent.

4. Revenue Neutral Change to Uniform Taxation of Capital

A switch from the current income tax to uniform taxation of capital[19] (or a "pure income tax") would include as major elements: corporate tax integration, repeal of mortgage interest deductions, and repeal of tax exemption of state and municipal bonds. To hold as many factors constant as possible, the same amount of tax revenue is collected under the uniform tax proposal by adjusting marginal income tax rates proportionately.

The combined effects of switching to uniform taxation of capital on product prices and rates of return are not evident from theory. Thus, the EYGE model provides quantitative estimates of the effects of the proposed tax change on the different assets' rates of returns, product price changes, household wealth portfolios, and the immediate effect on asset values.

A switch to uniform taxation would result in a reallocation of capital toward the corporate and non-corporate business sectors, and away from state and local government debt, housing, and consumer durables. Interest rates would increase by approximately 20 basis points for taxable debt and over 260 basis points for previously tax-exempt debt (see Table 3).

The immediate effect on asset values would differ across assets, as shown in Table 4. State and local government bond values would decline, on average, by an estimated 31 percent, assuming no grandfathering of existing tax-exempt debt, due to repeal of the tax exemption. House values on average would decline by an estimated 10 percent, due to repeal of the mortgage interest deduction, reduced taxation of alternative financial investments such as corporate equity, and an increase in taxable interest rates, including mortgage debt. Taxable debt and values of durable goods would both decline by approximately two percent, due to the increase in interest rates. On the other hand, the value of corporate and non-corporate equity would increase 21 percent and 15 percent, respectively, due to the more favorable treatment of business investment.

The reallocation of the nation's capital stock from more uniform taxation of capital income would potentially increase the efficiency of the economy, which could offset some of the redistribution in wealth holdings. Since households with assets generally hold several of the different financial and real assets, the impact of these changes will depend on their current asset portfolio holdings. The model results for the elderly groups' immediate change in wealth are shown in Table 5.

Although individual asset values change dramatically, the change in average household total wealth is more modest due to offsetting increases and decreases. A switch to a uniform income tax would increase the elderly's total wealth by approximately 0.2 percent in the short run. High-income elderly would see their wealth portfolios increase by approximately up to two percent,

[19] Under the modeled uniform taxation of capital or "pure income tax" law, the tax on capital income would still not be uniform. For example, income from equity is only partially included in the tax base (because of deferral of capital gain income and non-reporting of income from non-corporate business) whereas income from debt instruments is fully taxed.

depending on itemization status, due to their greater holdings of business equity, while lower-income elderly would experience a decrease of approximately two percent because they hold more taxable debt and housing than high-income elderly, as previously shown in Table 2.

Although low-income elderly would experience an immediate, slight reduction in their existing wealth, they would receive higher pre-tax rates of return in the future. For example, although their existing taxable bonds would decline in value due to the increase in interest rates, interest income from newly purchased bonds would be higher. The average rate of return from financial assets for the elderly would increase approximately 31 basis points due to a switch to uniform taxation of capital income (see Table 6).

D. Model Results from Switching from the Current Income Tax to a Revenue Neutral Uniform Consumption Tax

The effects of switching to a revenue neutral uniform consumption tax from the current income tax system would significantly change the tax treatment of capital, and thus relative product prices and rates of return. Repeal of the existing individual and corporate income tax and replacement with some form of a value-added or sales tax paid by businesses would affect short-term asset values and long-term rates of return.

A uniform consumption tax would eliminate the current tax disadvantage for corporate equity as well as the current tax advantages of mortgage financing of owner-occupied housing and state and local government debt financing. In addition, it would further increase the demand for business capital from expensing of investment.

The current EYGE model of the financial market assumes that total capital in the U.S. is fixed, without international capital flows or changes in net savings. Both, as described previously, could significantly change the estimated effects of a switch to a consumption tax. However, in the short run, the demand for increased business investment is likely to exceed any increase in savings due to the proposal, and thus the predicted increase in interest rates should be expected in the short run. Assuming a fixed capital stock is likely to set an upper bound on the change in the interest rate.

The revenue-neutral consumption tax rate in the model is 16.7 percent, using the broadest private consumption tax base without any exclusions. Exclusions, such as allowing an exempt amount of consumption for all taxpayers, would significantly increase the revenue neutral tax rate.

The model estimates that a switch to a uniform consumption tax would result in an even larger shift of capital to the corporate and non-corporate business sectors, with more substitution away from taxable debt, than a switch to a uniform income tax. The yield on taxable debt would increase by over 75 basis points, and the yield on state and local government debt would increase by 300 basis points (see Table 3).

Table 4 shows the immediate changes in real asset values (purchasing power) from a switch to consumption tax, after adjusting for a one-time increase in the price level. A consumption tax

would likely be accompanied by an increase in the money supply, allowing producers to pass the tax on to consumers.[20] The immediate changes in real asset values would range from -45 percent in state and local government debt, assuming no grandfathering of existing tax-exempt debt, to -20 percent for taxable debt, negative seven percent for housing, positive two percent for consumer durables, positive one percent for non-corporate equity, and positive four percent for corporate equity.

The average elderly household would see its real wealth holdings decline by approximately 9 percent (see Table 5). Low-income and high-income elderly households' real wealth would decline more than average due to their greater holdings of fixed income securities and housing.

Depending on the specific type of consumption tax imposed, the broadness of the tax base, transition rules, and the monetary response, the immediate change in the real value of the elderly's wealth could be a significant reduction. If there is a one-time increase in the price level due to the substitution of an indirect tax on business sales for income taxes paid directly by the income recipients plus a monetary accommodation, the real value of financial assets would decline by the general price increase. In that case, all four of the elderly groups would suffer a significant reduction in the real value of their wealth, as shown in Table 7. (This analysis does not include Social Security wealth, which being indexed by price inflation, would be protected from a decline in its real value.)

After the initial change in existing real wealth, the elderly would receive higher pre-tax rates of return on their financial assets[21], plus they would not be subject to direct taxation on the income. Due to the estimated increase in yields on taxable bonds, the elderly would earn approximately 95 basis points more in pre-tax return.

E. Caveats and Limitations of the Model

The results of any general equilibrium model are generally quite sensitive to the underlying assumptions. The EYGE model includes numerous assumptions in order to model the production, financial, and household sectors of the economy. Some important assumptions include the treatment of labor supply and saving of all households as fixed. Even in the short run, with fundamental tax changes, there could be significant behavioral effects. Changing the assumptions would alter the model results. Thus, the reader should regard the model's results as illustrative rather than definitive, providing insights on how major tax reforms might affect asset values and comprehensively attempting to account for the many interactions in a complex economy.

In considering how different assumptions might affect the results, several aspects/limitations of the EYGE model merit specific discussion.

[20] The consumption tax is modeled as a retail sales tax, for which there is likely to be monetary accommodation.
[21] Rates of return on financial assets would increase under a consumption tax. Non-corporate equity returns fell slightly in the model due to uniform tax compliance assumed under the broad based consumption tax, compared to differential tax compliance assumed under the income tax.

1. Closed Versus Open Economy Model

Since domestically issued taxable bonds and corporate equity can be held by foreign as well as domestic savers, and U.S. savers can hold similar claims issued by foreign governments and corporations, U.S. tax policy would change before-tax yields and values of all assets less than the results of the model suggest. In the extreme case of a small country with an open economy, the taxable interest rate would be determined exogenously in a world capital market and would not be changed at all by domestic tax reform. The change in the taxable interest rate is a major factor in the estimated immediate change in asset values.

2. Risk-Return Trade-Off Specification

The choice of the households' risk-return trade-off specification affects household asset demands. Because the substitution among assets in response to tax policy changes is the major source of difference between the distributional results in the model, the preferences that influence those substitutions are a critical feature of the model. Different specification of elasticities of substitution among assets with respect to changes in expected after-tax returns might result in different distributions and values of financial assets.

3. Static Versus Dynamic Model

The current model does not capture any overall effects on economic growth, because factor supplies of both labor and capital are treated as fixed. In addition, the model does not include saving by households: all labor and capital income is consumed and all wealth endowments are invested. The effects of fundamental tax reform on saving behavior of households is subject to extensive debate among economists. Any dynamic model would need to make either an explicit or implicit assumption about household savings behavior in response to fundamental tax policy changes.

4. Additional Detail Versus Complexity

All general equilibrium models make trade-offs among greater specification of the economy, the tax laws, behavioral effects, etc., and the exponential increase in the complexity. The additional complexity occurs both in the modeling and the presentation of the results. By necessity, such models attempt to capture the major features of the issue being analyzed. Additional policy issues concerning fundamental tax reform may need to be addressed by further refinement of the existing model or by alternative models.

Given the limitations of any model attempting to address the complex issues of fundamental tax reform, general equilibrium models attempt to comprehensively and systematically incorporate the interactions of the key features. Many analyses address single issues, such as the effect on interest rates without specifying all of the underlying assumptions or incorporating their assumptions into a broader model of the entire economy or entire financial markets. The EYGE model results, although not definitive, shed light on the potential magnitude of changes in household wealth due to several types of fundamental tax reform.

V. Summary

Consumption taxes can take different forms ranging from retail sales taxes, to value added taxes, consumed income taxes, and earnings taxes. Although these different tax regimes can be shown to be theoretical economic equivalents under certain conditions, they can have significantly different transitional effects on household asset values.

Tax reform proposals that shift from the current income tax to broad-based consumption taxation would create many winners and losers, not only in terms of the change in the long-term distribution of income, but also in the short-term change in existing wealth. The potentially large change in existing asset values, particularly those of potential losers, will be a major impediment to enactment of fundamental tax reform. To the extent that large asset losses are mitigated by transition relief rules, marginal tax rates will need to be higher, thereby offsetting much of the efficiency gains from the switch to a consumption tax.[22]

Considerable uncertainty exists about the economic effects of moving from the current income tax to a consumption tax. There is even greater uncertainty about the changes in asset values that would occur during the transition period. One of the most important issues for the elderly is the tax treatment of existing assets and potential transition relief.

The Ernst & Young Financial Portfolio General Equilibrium Model illustrates some of the potential effects on household wealth portfolios as a result of fundamental tax reform. Much of the change in asset values occurs as a result of moving toward more uniform tax treatment of capital income. Those changes in asset values would occur under a tax reform moving to a consumption tax or a tax reform moving to a more comprehensive income tax base. It should again be noted that the results of any general equilibrium model are generally quite sensitive to the underlying assumptions. Changing the assumptions would alter the model results. Thus, the reader should regard the model's results as illustrative rather than definitive, providing insights on how major tax reforms might affect asset values and comprehensively attempting to account for the many interactions in a complex economy.

Fundamental tax reforms, including both a shift to uniform taxation of capital income and a shift to a consumption tax, would cause significant changes to financial markets and to households' portfolios, wealth, and future investment returns. The general equilibrium model estimates that both types of fundamental tax reforms would shift capital toward the business sector and away from housing and state and local governments. The model predicts large short-run changes in the value of business equity, a sharp drop in the value of state and local government debt (assuming no transition relief), and a five to ten percent decline in average house values.

An important insight from the general equilibrium simulations is that changes in the values of different financial and physical assets will offset each other in diversified portfolios. There may be significant increases and decreases in the values of particular assets, but on a portfolio basis, the

[22] See Auerbach (1996).

effect from tax reform is more muted. Portfolio composition is thus an important determinant of the overall effect. On average, the elderly will generally fare worse than the non-elderly due to their greater holdings of taxable debt, which is estimated to decline in value. Higher-income elderly will fare better due to their greater holdings of business equity.

If a consumption tax is enacted in combination with an increase in money supply to cause a one-time increase in prices, then the value of fixed-income securities will fall significantly. Due to the elderly's greater reliance on fixed-income securities, they would suffer a greater decline in their wealth than the non-elderly, unless there was some form of transition relief.

In addition to the portfolio level effects, changes in rates of return are another possible source of offsetting effects on asset values. Although a consumption tax (replacing the current income tax) would reduce the value of existing capital assets, the after-tax income of capital owners would be higher in the future.

Table 1. Household Wealth Holdings for 1994 [1]
(billions of dollars)

Household Group [2]	Corporate Equity	Non-corporate Equity	Taxable Debt	Tax-exempt Debt	Housing	Durables	Pensions and Life Insurance	Total [3]
Younger than age 50								
High income itemizers	482	630	895	86	1,959	442	1,776	6,270
High income non-itemizers	269	372	327	15	165	176	424	1,749
Low income itemizers	40	239	169	0	961	233	560	2,201
Low income non-itemizers	36	95	278	1	227	280	595	1,513
Subtotal:	***827***	***1,335***	***1,670***	***102***	***3,313***	***1,131***	***3,354***	***11,732***
Between ages 50 and 64								
High income itemizers	476	361	670	42	1,003	290	856	3,697
High income non-itemizers	272	348	778	60	399	122	541	2,519
Low income itemizers	41	60	111	1	374	90	135	813
Low income non-itemizers	118	72	239	1	349	129	206	1,113
Subtotal:	***906***	***840***	***1,799***	***104***	***2,126***	***630***	***1,738***	***8,142***
Age 65 and older (elderly)								
High income itemizers	108	60	218	25	197	43	66	718
High income non-itemizers	891	155	1,329	116	624	450	176	3,741
Low income itemizers	64	14	100	4	207	35	34	459
Low income non-itemizers	289	101	1,181	29	950	215	129	2,895
Subtotal:	***1,352***	***330***	***2,828***	***174***	***1,979***	***743***	***406***	***7,812***
Total	**3,086**	**2,505**	**6,297**	**380**	**7,417**	**2,504**	**5,498**	**27,687**

1) Asset holdings are imputed based on data from the 1994 Federal Reserve Board's Flow of Funds and 1992 Survey of Consumer Finances. Adjustments have been made to the data to correct for inconsistencies among different sources.

2) High income: income greater than $50,000. Low income: income less than $50,000.

3) Doesn't include Social Security wealth.

Table 2. Distribution of Household Wealth Holdings for 1994[1]
(% of total wealth)

Household Group	Corporate Equity	Non-corporate Equity	Taxable Debt	Tax-exempt Debt	Housing	Durables	Pensions and Life Insurance	Total[3]
Younger than age 50								
High income itemizers	8%	10%	14%	1%	31%	7%	28%	100%
High income non-itemizers	15%	21%	19%	1%	9%	10%	24%	100%
Low income itemizers	2%	11%	8%	0%	44%	11%	25%	100%
Low income non-itemizers	2%	6%	18%	0%	15%	18%	39%	100%
Subtotal:	***7%***	***11%***	***14%***	***1%***	***28%***	***10%***	***29%***	***100%***
Between ages 50 and 64								
High income itemizers	13%	10%	18%	1%	27%	8%	23%	100%
High income non-itemizers	11%	14%	31%	2%	16%	5%	21%	100%
Low income itemizers	5%	7%	14%	0%	46%	11%	17%	100%
Low income non-itemizers	11%	6%	21%	0%	31%	12%	19%	100%
Subtotal:	***11%***	***10%***	***22%***	***1%***	***26%***	***8%***	***21%***	***100%***
Age 65 and older (elderly)								
High income itemizers	15%	8%	30%	3%	27%	6%	9%	100%
High income non-itemizers	24%	4%	36%	3%	17%	12%	5%	100%
Low income itemizers	14%	3%	22%	1%	45%	8%	8%	100%
Low income non-itemizers	10%	3%	41%	1%	33%	7%	4%	100%
Subtotal:	***17%***	***4%***	***36%***	***2%***	***25%***	***10%***	***5%***	***100%***
Total	**11%**	**9%**	**23%**	**1%**	**27%**	**9%**	**20%**	**100%**

1) Asset holdings are imputed based on data from the 1994 Federal Reserve Board's Flow of Funds and 1992 Survey of Consumer Finances. Adjustments have been made to the data to correct for inconsistencies among different sources.

2) High income: income greater than $50,000. Low income: income less than $50,000.

3) Doesn't include Social Security wealth.

Table 3. Change in the Rates of Return From Current Tax Law for Alternative Tax Reforms (basis points)

Tax Regime	Equilibrium Rates of Return			
	Corporate Equity	Non-Corporate Equity	Taxable Debt	Tax-Exempt Debt
1. Corporate Tax Integration	41	59	61	24
2. Repeal of Mortgage Itemized Deductions	-21	-3	-31	-12
3. Repeal of Tax Exemption of State and Municipal Bonds.	-9	-1	-14	241
4. Switching from Income Tax to Uniform Taxation of Capital (revenue neutral analysis)	6	44	19	266
5. Switching from Income Tax to Uniform Consumption Tax (revenue neutral plus monetary accommodations)	53	-24	76	302

Note: Based on illustrative general equilibrium model. See text for description and limitations.

Table 4. Immediate Change in Real Asset Values From Current Tax Law for Alternative Tax Reforms (Percentage Change)

Tax Regime	Real Asset Value Change					
	Corporate Equity	Non-corporate Equity	Taxable Debt	Tax-exempt Debt	Housing	Durables
1. Corporate Tax Integration	21.9%	16.3%	-7.1%	-3.8%	-7.2%	-7.2%
2. Repeal of Mortgage Itemized Deductions	-2.9%	-3.3%	4.0%	2.0%	-4.0%	3.8%
3. Repeal of Tax Exemption of State and Municipal Bonds	-0.3%	-0.5%	1.8%	-28.5%	1.8%	1.8%
4. Switching from Income Tax to Uniform Taxation of Capital (revenue neutral analysis)	20.6%	14.6%	-2.3%	-30.6%	-9.7%	-2.4%
5. Switching from Income Tax to Uniform Consumption Tax (revenue neutral plus monetary accommodation)	4.3%	1.0%	-22.6%	-46.1%	-7.0%	2.0%

Note: Based on illustrative general equilibrium model. See text for description and limitations.

Table 5. Percentage Short-Term Change in Real Wealth From Current Tax Law for Elderly Households

Tax Regime	High-income (more than $50K)		Low-income (less than $50K)		Total
	Itemizers	Non-itemizers	Itemizers	Non-itemizers	
1. Corporate Tax Integration	0.2%	1.3%	-1.7%	-3.0%	-0.6%
2. Repeal of Mortgage Itemized Deductions	-0.1%	0.5%	-1.0%	0.3%	0.3%
3. Repeal of Tax Exemption of State and Municipal Bonds	0.2%	0.2%	1.1%	1.2%	0.6%
4. Switching from Income Tax to Uniform Taxation of Capital (revenue neutral analysis)	0.2%	2.1%	-1.7%	-1.8%	0.2%
5. Switching from Income Tax to Uniform Consumption Tax (revenue neutral plus monetary accommodation)	-8.2%	-7.9%	-6.3%	-10.4%	-8.7%

Note: Based on illustrative general equilibrium model. See text for description and limitations.

Table 6. Equilibrium Change in Weighted Average Rates of Return for Elderly Households for Alternative Tax Reforms (basis points)

Tax Regime	High-income (more than $50K)		Low-income (less than $50K)		Total
	Itemizers	Non-itemizers	Itemizers	Non-itemizers	
1. Corporate Tax Integration	56	57	78	86	54
2. Repeal of Mortgage Itemized Deductions	-19	-25	-23	-27	-20
3. Repeal of Tax Exemption of State and Municipal Bonds	-3	-4	-9	-8	-5
4. Switching from Income Tax to Uniform Taxation of Capital (revenue neutral analysis)	39	31	45	49	31
5. Switching from Income Tax to Uniform Consumption Tax (revenue neutral plus monetary accommodation)	83	77	106	113	95

Note: Based on illustrative general equilibrium model. See text for description and limitations.

Table 7. Changes in Asset Values and Rates of Return for Uniform Taxation of Capital and Uniform Consumption Tax

Household Group [1]	Short-Run Changes in Wealth		Long-Run Changes in Rates of return (basis points)[2]	
	Uniform Taxation of Capital	Uniform Consumption tax	Uniform Taxation of Capital	Uniform Consumption tax
Younger than age 50				
High income itemizers	1%	-4%	27	62
High income non-itemizers	6%	-3%	23	38
Low income itemizers	-1%	-3%	24	70
Low income non-itemizers	1%	-4%	13	86
Between ages 50 and 64				
High income itemizers	2%	-4%	26	61
High income non-itemizers	2%	-7%	28	60
Low income itemizers	-2%	-3%	26	79
Low income non-itemizers	0%	-5%	28	87
Age 65 and older				
High income itemizers	0%	-8%	39	83
High income non-itemizers	2%	-8%	31	77
Low income itemizers	-2%	-6%	45	106
Low income non-itemizers	-2%	-10%	49	113

1) High income: income greater than $50,000 Low income: income less than $50,000.

2) Includes effect of portfolio adjustments

Note: Based on illustrative general equilibrium model. See text for description and limitations

Table 8. Change in Portfolio Allocation Due to Shift to Uniform Consumption Tax
(change in % of total wealth)

Household Group[1]	Corporate Equity	Non-corporate Equity	Taxable Debt	Tax-exempt Debt	Housing	Durables	Pensions and Life Insurance	Total[2]
Younger than age 50								
High income itemizers	-2%	0%	6%	-1%	-4%	0%	0%	0%
High income non-itemizers	-4%	0%	4%	-1%	0%	0%	0%	0%
Low income itemizers	1%	0%	3%	0%	-4%	0%	0%	0%
Low income non-itemizers	8%	-1%	-6%	0%	0%	0%	0%	0%
Subtotal:	***0%***	***0%***	***4%***	***-1%***	***-3%***	***0%***	***0%***	***0%***
Between ages 50 and 64								
High income itemizers	-2%	0%	5%	-1%	-3%	0%	0%	0%
High income non-itemizers	-2%	0%	3%	-2%	0%	0%	0%	0%
Low income itemizers	4%	0%	1%	0%	-5%	0%	0%	0%
Low income non-itemizers	8%	-1%	-6%	0%	-1%	0%	0%	0%
Subtotal:	***0%***	***0%***	***3%***	***-1%***	***-2%***	***0%***	***0%***	***0%***
Age 65 and older (elderly)								
High income itemizers	4%	0%	2%	-3%	-2%	0%	0%	0%
High income non-itemizers	1%	0%	0%	-3%	1%	1%	0%	0%
Low income itemizers	12%	-1%	-6%	-1%	-4%	0%	0%	0%
Low income non-itemizers	15%	-2%	-13%	0%	0%	0%	0%	0%
Subtotal:	***7%***	***-1%***	***-5%***	***-2%***	***0%***	***0%***	***0%***	***0%***
Total	**2%**	**0%**	**1%**	**-1%**	**-2%**	**0%**	**0%**	**0%**

1) High income: income greater than $50,000 Low income: income less than $50,000.

2) Doesn't include Social Security wealth.

Note: Based on illustratve general equilibrium model. See text for description and limitations.

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