WebMemo No. 2263: Methodologies Used

Dynamic Analysis Methodology. The Tax Policy Advisers Model™ is a large-scale overlapping generations dynamic computable general equilibrium model.[1] Consumers in the model have perfect foresight and maximize utility over a 55-year adult life, including 45 working years and 10 years of retirement. Individual lifetime utility is a discounted aggregation of utility in each of the 55 periods, which is in turn a function of leisure and an aggregate consumption good that is a composite of non-housing consumption goods, owner-occupied housing, and rental housing. Bequests and inheritances are introduced into the model by assuming a fixed target bequest, and the model includes a simple characterization of Social Security.

Firms are value or profit maximizers, and firm managers are also characterized by perfect foresight. Following the "q theory" of investment behavior, firm managers calculate explicitly the time path of investment in response to a change in the tax structure, taking into account convex costs of adjusting investment from its steady state level. Firm behavior is modeled for each of the three production sectors—non-housing consumption goods, owner-occupied housing, and rental housing—with owner-occupiers treated as "firms" who produce housing and rent it to themselves, taking into account the tax advantages of home ownership. The debt-capital ratio is assumed to be fixed in each industry.

The government must finance an exogenously specified time path of public services, which are assumed to be separable from the individual lifetime utility function. The government's tax instruments include a corporate income tax and an income tax with a progressive wage income tax structure and constant rate capital income taxes in the initial equilibrium.

The government's budget constraint is satisfied by either a tax offset or spending offset when a reform is introduced. For this analysis, a spending offset was assumed. A tax offset does not significantly change the qualitative direction of the results.

The initial equilibrium was calibrated to the Congressional Budget Office 2009 estimate of Gross Domestic Product and GDP growth. However, current tax rates that include the Bush 2001 and 2003 tax cuts were used rather than assuming, as CBO does, the current sunset laws. The model is sensitive to the choices of parameters, for example, the elasticity of substitution between consumption and leisure and the rate of time preference. The parameter values were chosen to closely resemble the prevailing features of the U.S. economy and are consistent with empirical estimates and those used in other CGE studies.

The baseline was then solved for its equilibrium path, and then the alternate scenario was run by changing the corporate and non-corporate dividend and capital gains tax rates to zero. An exhaustive test of the parameters was not done. The results of the dynamic effects on economic growth are meant to show the direction of the effect rather than a quantitative prediction of the effect.

The model was run as a counterfactual to a world with the taxes in place. The results are silent about the likely adjustments along the transition path the economy would undergo in order to obtain the new steady state.

Microeconomic Analysis. The Heritage Foundation's Center for Data Analysis "Individual Income Tax Model" was used to estimate the change in tax burden for individuals filing as a small business under current law and with repeal of capital gains and dividend taxes. A small business is defined as a business that reported income using a Schedule C or that reported income as a partnership or S-Corporation. The model simulates the effect of tax-law changes on a representative sample of taxpayers. Data for these taxpayers are extrapolated or "aged" to reflect detailed taxpayer characteristics year to year. The data are aged for consistency with the Congressional Budget Office baseline forecast from the Global Insight model.

1. Copyright 1998, Tax Policy Advisers, LLC. The description of the model is from John Diamond and George Zodrow, "Description of the Tax Policy Advisers Model," March 15, 2005.

The number of small businesses with capital gains in each category was found using the tax model and compared with the most recent Statistics of Income data from the Internal Revenue Service. The model may slightly underestimate the number of businesses with capital gains in each category.

The full repeal raises the issue of taking capital loss deductions. For the current year, deductions for losses could be left in place because the decision to take the losses has for the most part already been made. Since capital gains would not be taxed for 2008 but capital losses could still be deducted, this would serve a dual purpose of providing a further timely tax rebate without creating any new distortions. The data presented are for savings for small business in tax year 2008, with full repeal of capital gains and dividends taxes, but maintaining the current loss deduction.

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