

THE JCT REVENUE ESTIMATING PROCESS



**Prepared by the Staff of the Joint Committee on Taxation
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- **Baseline and Proposal Receipts Projections**
- **JCT Models**
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JCT Revenue Estimating Overview

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- ❑ The JCT staff provides estimates relative to baseline receipts projected for future years under present law, not relative to receipts in years prior to the enactment of the proposal.
- ❑ The JCT staff incorporates many types of behavioral responses in revenue estimates.
- ❑ The JCT staff generally assumes a fixed GNP in revenue estimates.
- ❑ The JCT staff began developing a capacity to model the macroeconomic (growth) impacts of tax policy proposals in 1996.



JCT Revenue Estimating Staff (2013)

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- ❑ 19 PhD economists specialize in the budget analysis of tax legislation, with 9 years average experience on staff in this work.
- ❑ These economists work with staff tax attorneys, other PhD economists, and accountants.
- ❑ JCT uses an interdisciplinary approach:
 - Every JCT revenue estimate is a joint product of the insights of the economic, legal, and accounting professions;
 - This approach ensures that estimates accurately reflect proposed legislation and realistically model taxpayer behavioral responses.
- ❑ The JCT revenue estimating staff provided approximately 3,700 revenue responses to requests in 2012.



Revenue Estimate Request Process

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- ❑ Any member of Congress may request a revenue estimate of proposals to modify the Internal Revenue Code by sending a written request to the Chief of Staff of the JCT.
- ❑ **All** requests are treated as confidential and are discussed only with the member's office.
- ❑ Official responses are confidential and are sent only to the requesting office.
- ❑ Members often ask for help in crafting their proposal so that statutory language reflects the policy intent of the proposed legislation.



What is a JCT Revenue Estimate?

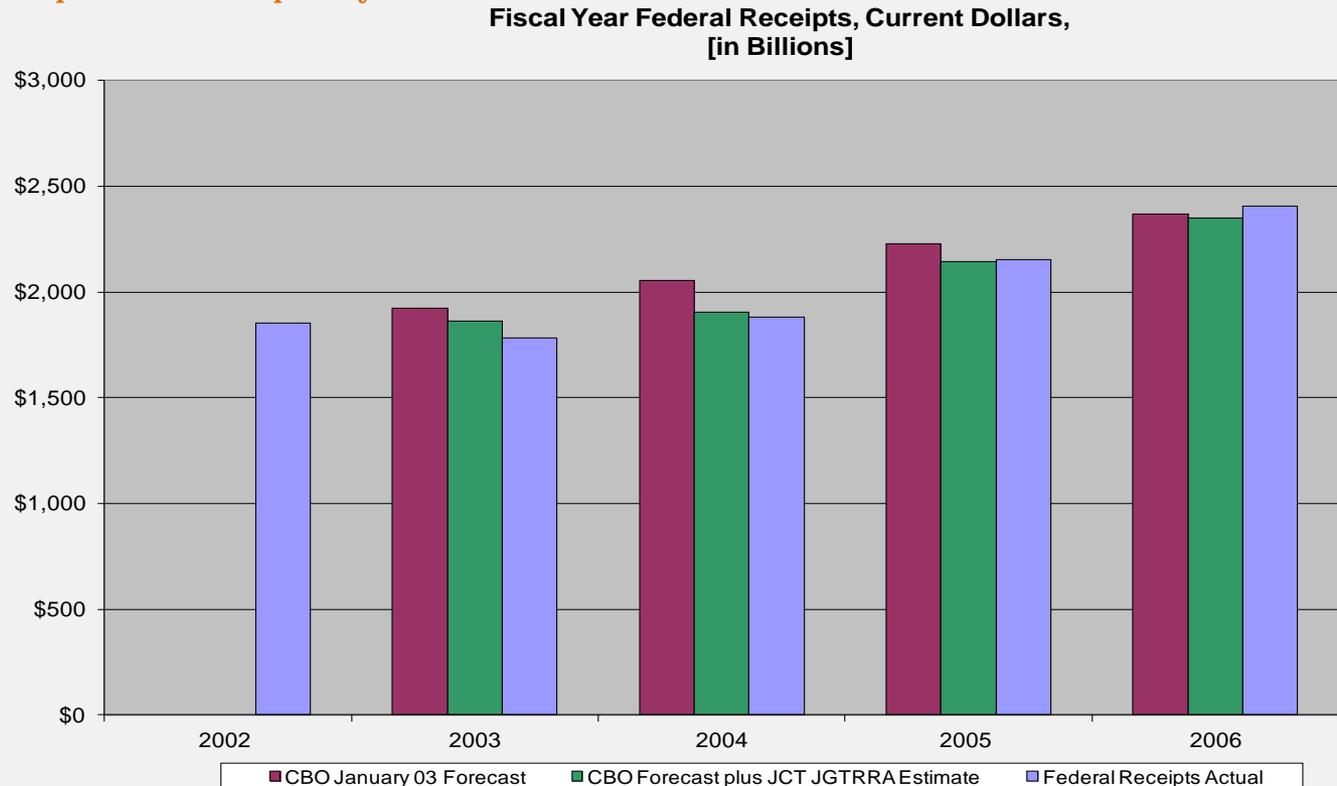
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- ❑ A JCT revenue estimate compares *predicted* Federal revenues under the proposal with predicted revenues under present law. The revenue estimate equals:
 - Predicted future revenues under proposed new law (**proposal revenues**).
 - Less predicted future revenues under present law (**baseline revenues**).
- ❑ A year by year estimate is provided over the 10-year “budget window.”
- ❑ The distinction between current revenues and baseline revenues is important.
 - **JCT estimates** are comparisons with predictions of future revenues under present law, **not** current revenue levels.
 - The receipts under a new proposal in a future year may be higher than at present, but *still lower than the forecasted present law receipts in that year*.
 - JCT would estimate such a proposal as losing revenue (less revenue than the baseline).



Example: Simultaneous Revenue “Losses” and Higher Federal Receipts

- JCT estimated that the “Jobs and Growth Tax Relief and Reconciliation Act” of 2003 would “lose” revenue.
 - These losses were relative to baseline projections of growing receipts.
 - Projections of revenue losses were both consistent with and a good prediction of increases in actual government receipts relative to prior years.



JCT Tax Models

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- ❑ JCT tax models simulate future taxpayer behavior under the present law baseline and under the proposal.
- ❑ JCT uses many different models:
 - An individual tax model to forecast revenues from the individual income tax and from employment taxes;
 - A corporate model for the corporate income tax;
 - An estate and gift model for changes to estate and gift taxes;
 - Many different excise tax models;
 - And many smaller tax, credit, or exclusion specific models.
- ❑ Each model incorporates relevant taxpayer behavior, such as:
 - Changes in the timing of transactions and income recognition;
 - Changes between business sectors and among legal entities;
 - Changes in the types and timing of consumption and investment;
 - Tax planning and tax avoidance (or evasion) strategies.



Example: Individual Tax Model

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- ❑ JCT's Individual Tax Model is a representation of all 168 million U.S. tax filing units (actual and potential).
 - All categories of taxpayers;
 - For each of the 10 years in the budget window;
 - Taking into account projected economic, demographic and social trends.
- ❑ The Individual Tax Model uses a detailed representative sample of more than 330,000 actual income tax returns filed by U.S. taxpayers.
 - Uses Current Population Survey and other data to impute information not reported on tax returns.
 - Uses information returns (W2s, 1099-INTs, etc.) to impute information about tax filing units that did not file tax returns in the sample year.
 - JCT staff extrapolate the data by adjusting the weights and income items to match CBO's 10-year economic forecast.



Tax Return Data in the Individual Tax Model

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- ❑ The Statistics of Income (“SOI”) Division of the IRS provides the JCT with complete data from a sample of individual income tax returns and their associated supplementary forms.
 - Each return in the stratified sample is assigned a “weight,” which indicates how many taxpayer units that return is assumed to represent.
 - The weights are generated to ensure that weighted totals for a large number of demographic, income, deduction, and other items match the totals for the entire universe of taxpayers.



Calibration of the Individual Tax Model

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- ❑ Each year the Congressional Budget Office produces a budget baseline that includes a forecast of present law tax receipts for the 10-year budget period.
- ❑ JCT economists extrapolate – or grow and re-weight – the basic year data to conform to the economic assumptions in the CBO forecast.
 - For example, if the base year data were drawn from a peak in the business cycle, a larger share of taxpayers had wages and capital gains than during a recessionary year.
 - In extrapolating sample year data to match a weaker economy, weights on returns with wages and gains might be reduced, while weights on returns with unemployment insurance or capital losses would be increased.
 - JCT economists use a non-linear programming algorithm to adjust weights such that a number of economic targets are hit simultaneously for each year from 2013 through 2023.



Individual Tax Model Tax Calculator

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- ❑ The core of the Individual Tax Model is a tax calculator that simulates taxpayers filling out tax returns – in some ways like commercial tax preparation software.
- ❑ The calculator incorporates all aspects of the present law individual tax code (i.e., rates, deductions, credits, alternative minimum tax, phaseouts).
- ❑ To estimate a proposal, the calculator is run once assuming a base law (usually present law), and once after the proposed change has been incorporated.
 - If the proposal would change the optimum filing choice for a taxpayer, such as choosing between the standard deduction and itemizing, the calculator takes that into account.
 - Some additional behavioral responses are built into the calculator, while others are incorporated later.
 - The difference between the two simulations is the foundation for the revenue estimate.



Taxpayer Behavior in JCT Tax Models

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- ❑ Every JCT revenue estimate is a “dynamic” estimate; estimates reflect many types of predicted taxpayer reactions to a new law.
- ❑ Predicting behavioral responses requires original research as well as JCT economists’ knowledge of the relevant economics literature.
- ❑ Consistent with economic theory, JCT tax models assume that taxpayers will largely behave rationally, while taking into account other behaviors as implicated by data and recent research.
- ❑ JCT attorneys and accountants help the economists to better understand the law and taxpayer planning or avoidance strategies.



Behavior in Conventional Revenue Estimates

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- ❑ Based on information from economics and legal research and from original research, a revenue estimate reflects a range of behavioral responses, such as:
 - ❑ Changes in the time of transactions and income recognition
 - ✦ Realization of capital gains in response to changes in gains tax rates
 - ✦ Issuance of corporate dividends in response to changes in dividend tax rates
 - ✦ Acceleration of bonuses in anticipation of an individual income tax increase
 - ❑ Changes between business sectors or the legal form of doing business
 - ✦ Organizing as a partnership in response to rising corporate rates or falling individual rates
 - ✦ Shifts in investment from more heavily taxed sectors to more lightly taxed sectors



Behavior in Conventional Revenue Estimates (cont.)

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- ❑ Changes in types of portfolio investments
 - ✦ Shifts from bonds to stocks in response to dividend or capital gains changes
 - ✦ Shifts from taxable to tax-favored savings investments
- ❑ Changes in the amount, types, and timing of consumption
 - ✦ Reduced consumption of items that experience an excise tax increase
 - ✦ Increased consumption of goods that are tax-favored, such as employer-sponsored health insurance and mortgage indebtedness
- ❑ Tax planning and tax avoidance strategies
 - ✦ Use of foreign tax credits and income allocation rules
 - ✦ Reliance on performance-based compensation in response to corporate deduction limitation
 - ✦ Structuring of compensation to obtain capital gains rather than income taxed at ordinary rates



Conventional Analysis – Example 1

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- Estimating the Revenue Effect of a Tobacco Excise Tax Increase
 - JCT starts with the CBO tobacco excise tax baseline.
 - JCT expands that data to encompass the detail required to estimate the proposal.
 - JCT economists research price elasticities of cigarette consumption in the range contemplated by the new tax increase.
 - JCT economists modify the excise tax model to reflect our conclusions on how smokers will respond to these higher prices:
 - ✦ Some potential smokers will never start;
 - ✦ Some smokers will decide to quit;
 - ✦ Some smokers will reduce the amount they smoke.
 - **Results:** JCT estimated that the changes made in 2009 to raise the tobacco excise tax by \$0.61/pack would result in 1.5 billion fewer packs of cigarettes sold annually.
 - ✦ Our revenue estimate reflected this smaller tax base.

Reference: JCX-101-07



Conventional Analysis – Example 2

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- Estimating the revenue effect of the high premium excise tax on employer sponsored health insurance above certain thresholds
 - Employer paid health insurance is currently nontaxable and its value is not reported on individual tax returns.
 - ✦ JCT uses data from a variety of sources to statistically impute insurance coverage and premium values to each taxpayer.
 - ✦ Total amounts of insurance coverage are calibrated to match the CBO health baseline.
 - Because the high premium excise thresholds can vary with the average health costs of an employee's co-workers, JCT imputes average co-worker costs to individuals based on information about industry and age distribution.



Conventional Analysis – Example 2 (cont'd)

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- ❑ Using elasticities (behavioral responses) from economics literature, JCT predicts the effects of the excise tax on:
 - ✦ changes in levels of coverage in employer plans;
 - ✦ changes in prices of health insurance; plans
 - ✦ changes in the mix of employee compensation between health insurance and cash wages.
- ❑ Results: Revenue estimate reflects projected changes in taxable income after taking account of reduced coverage and premiums in response to the excise tax, as well as excise tax amounts.

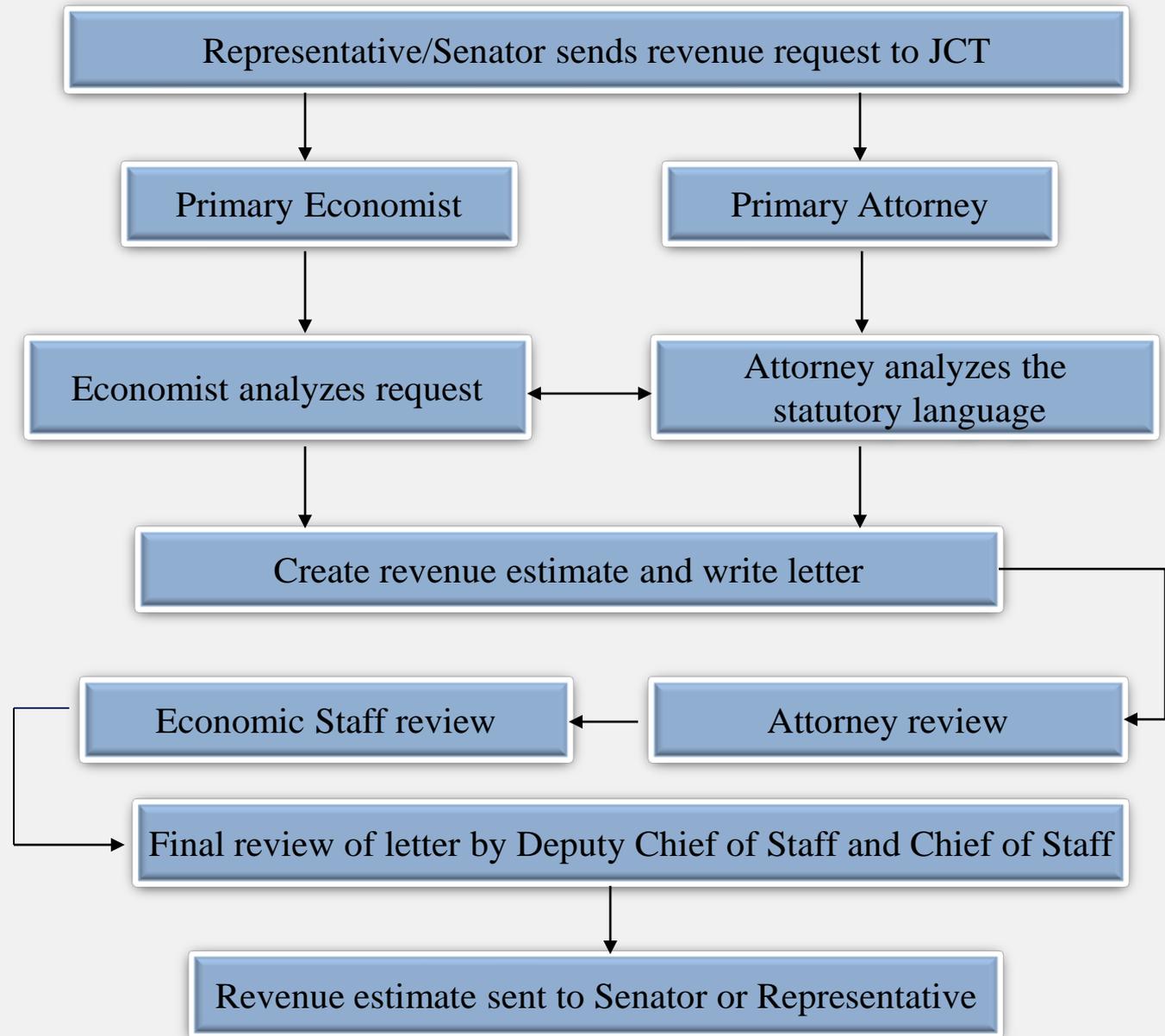


Accounting for Proposal Interactions

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- ❑ Many tax bills make multiple changes to the tax code that interact with each other, such as
 - ❑ Simultaneously changing tax rates and adding or eliminating deductions or
 - ❑ Adding a category of activity that is eligible for an expiring tax credit while extending the credit.
- ❑ A revenue table with separate estimates for each provision in such a bill accounts for interactions either by
 - ❑ Adding a separate line for interaction effects or
 - ❑ Incorporating the interaction effect between two provisions into the estimate of one of the provisions.
 - ✦ Incorporating the interaction effects into the estimate of one of the provisions is referred to as “stacking” the interacted provision after the non-interacted provision.
 - ✦ For example, for a bill that reduces tax rates and changes deductions, the estimate of the tax rate change may be “stacked first” (without the interaction effect) while the deduction estimates (“stacked after the rate change”) would incorporate the interaction effect by being estimated assuming the rate change.

JCT Quality Control and Process



Limits of the Conventional Estimate

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- ❑ A conventional JCT estimate incorporates behavioral responses in projecting tax revenues, but assumes that these tax and behavioral changes do not change the size of the US economy, as measured by the Gross National Product (“GNP”).
- ❑ The fixed GNP Constraint results in the following types of assumptions.
 - ❑ Total labor supply, employment and investment do not change, so that
 - ✦ a surtax on labor income will not cause taxpayers to retire early or work less, but a wage credit in certain industries will result in a shift of employment into the favored industry;
 - ✦ a tax credit for certain types or investment of production will result in shifts in investment to the tax favored activity, but the overall level of investment stays the same.



Macroeconomic Analysis

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- ❑ The JCT staff is required by House Rule XIII(3)(h)(2) to provide a macroeconomic impact analysis of all tax legislation reported by the Ways and Means Committee.
 - ❑ For most tax bills, the expected effects are so small that a brief statement is all that is required.
 - ❑ Legislation that involves large policy changes requires more detailed analysis.
 - ❑ Forecasted macroeconomic impacts are very sensitive to assumptions about taxpayer responsiveness, fiscal and monetary policy, and general modeling frameworks – all sources of substantial uncertainty.
 - ❑ The JCT staff generally tries to provide a range of estimates in our macroeconomic analyses to account for this uncertainty.
 - ❑ Some of these analyses can be found at <http://www.jct.gov/publications.html> under “Macroeconomics.”



JCT Macroeconomic Models

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MACROECONOMIC EQUILIBRIUM GROWTH MODEL (MEG)

OVERLAPPING GENERATIONS MODEL (OLG)

**DYNAMIC STOCHASTIC GENERAL EQUILIBRIUM MODEL
(DSGE)**

Macroeconomic Equilibrium Growth Model (MEG)

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- ❑ In the MEG model, prices adjust so that demand equals supply in the long run, but not necessarily in the short run.
- ❑ MEG models household consumption according to the life-cycle consumption patterns.
- ❑ Labor supply responses to changes in after-tax wages (elasticities) are separately modeled for four different groups:
 - High-income primary earners;
 - High-income secondary earners;
 - Low-income primary earners; and
 - Low-income secondary earners.
- ❑ Household saving and consumption respond to the after-tax return to saving and after-tax income. We refer to this response as the marginal propensity to consume (“MPC”).
- ❑ Business production and housing production are modeled separately. Business investment responds to changes in the user cost of capital (the after-tax return on investment in the taxed sectors).
- ❑ MEG is an open economy model; cross border capital flows and changes in net exports affect domestic economy outcomes.
- ❑ Individuals are myopic. They do not anticipate changes in the economy or government policy.



Overlapping Generations Model (OLG)

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- ❑ Unlike the MEG model, the OLG model assumes that prices adjust to any changes in economic conditions (such as a change in fiscal policy) so that supply equals demand in both the short and long run.
- ❑ Economic decisions are modeled separately for each of 55 adult-age cohorts.
- ❑ OLG model has separate production sectors for business and housing.
- ❑ Key parameters (as in MEG) include:
 - Responsiveness of labor supply to changes in the after-tax wage rate;
 - Responsiveness of saving and consumption to the after-tax return to saving and after-tax income;
 - Responsiveness of investment to the user cost of capital.
- ❑ OLG is a perfect foresight model.
 - Responsiveness of individuals to expected future changes in after-tax rates of return are important.
 - The model cannot allow the Federal government debt to grow faster than GDP for an indeterminate period.



Dynamic Stochastic General Equilibrium Model (DSGE)

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- ❑ In the DSGE model, as in the OLG model, supply equals demand in the short and long run, so there is always full employment.
 - But the model includes sticky prices and adjustment costs, which cause output to be more sensitive to demand.
- ❑ Unlike the MEG and OLG models, the DSGE model accounts for uncertainty - agents look at all possible states of the future economy.
 - For example, an increase in volatility of future asset returns will change the investment decisions of agents in a typical DSGE model.
 - When policy variables are given stochastic or random components the DSGE model will give us implications that OLG and MEG will not.
- ❑ Economic decisions are modeled separately for savers and non-savers.
 - Non-savers do not own capital, have no access to credit markets, and have lower incomes.
 - Non-savers may respond differently from savers to tax policy changes.
- ❑ Key behavioral parameters similar to those in the MEG and OLG models.
- ❑ As in the OLG model, the DSGE model cannot allow the Federal government debt to grow faster than GDP for an indeterminate period.
- ❑ The DSGE model is currently a closed economy that does not model international capital flows.



JCT Macroeconomic Analysis –Example

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- The “Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010,” extended tax cuts from 2001 and 2003 for the years 2011 and 2012.
 - The JCT staff estimated that the bill would increase real GDP between 0.6 and 1.7 percent during 2011-2012 relative to present law, primarily because of extra demand that would be generated by the tax cuts.
 - By the end of the 10-year budget period, these effects are estimated to reverse, with GDP decreasing by 0.2 to 0.5 percent relative to present law during 2016-2020, as increased borrowing by the Federal government crowds out some private investment.
 - Correspondingly, the JCT staff estimated that there could be a 0.2 to 0.3 percent increase in receipts due to the increase in GDP in 2011-12, and a 0.3 to 0.6 percent decrease in receipts due to the decrease in GDP during 2016-2020.

Reference: JCX-48-11



Further References on the JCT Estimating Models and Process

JCX-76-12: Modeling the Federal Revenue Effects of Changes in Estate and Gift Taxation

JCX-60-12: The Federal Revenue Effects of Tax-Exempt and Direct-Pay Tax Credit Bond Provisions

JCX-56-12: New Evidence on the Tax Elasticity of Capital Gains: A Joint Working Paper of the Staff of the Joint Committee on Taxation and The Congressional Budget Office

JCX-59-11: The Income and Payroll Tax Offset to Changes in Excise Tax Revenues

JCX-48-11: Testimony of the Staff of the Joint Committee on Taxation before the House Committee on Ways and Means Regarding Economic Modeling



Further References on the JCT Estimating Models and Process

JCX-46-11: Summary of Economic Models and Estimating Practices of the Staff of the Joint Committee on Taxation

JCX-101-07: Modeling The Federal Revenue Effects of Proposed Changes in Cigarette Excise Taxes

JCX-17-07: Estimating The Revenue Effects of the Administration's Fiscal Year 2008 Proposal Providing a Standard Deduction for Health Insurance: Modeling and Assumptions

JCX-53-06: Macroeconomic Analysis of a Proposal to Broaden the Individual Income Tax Base and Lower Individual Income Tax Rates

JCX-19-06: Exploring Issues in the Development of Macroeconomic Models for Use in Tax Policy Analysis

