

# **THE JOINT COMMITTEE ON TAXATION REVENUE ESTIMATING PROCESS**



**Prepared by the Staff of the Joint Committee on Taxation  
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# Outline

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- ❑ The Staff
- ❑ Baseline and Proposal Receipts Projections
- ❑ JCT Models
- ❑ Dynamic Microeconomic Estimates
- ❑ Quality Control
- ❑ Macroeconomic Analysis

# JCT Revenue Estimating Overview

- ❑ 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 when preparing conventional revenue estimates.
- ❑ The JCT staff began developing a capacity to model the macroeconomic (growth) impacts of tax policy proposals in 1996. Macroeconomic analysis has been provided to the Congress since 2003.

# JCT Revenue Estimating Staff (2017)

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- ❑ 19 PhD economists specialize in the budget analysis of tax legislation, with 10 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 include taxpayer behavioral responses.
- ❑ The JCT revenue estimating staff provided approximately 2,200 revenue responses to requests in 2016.

# Revenue Estimate Request Process

- ❑ 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.
  - See Appendix.
- ❑ **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.

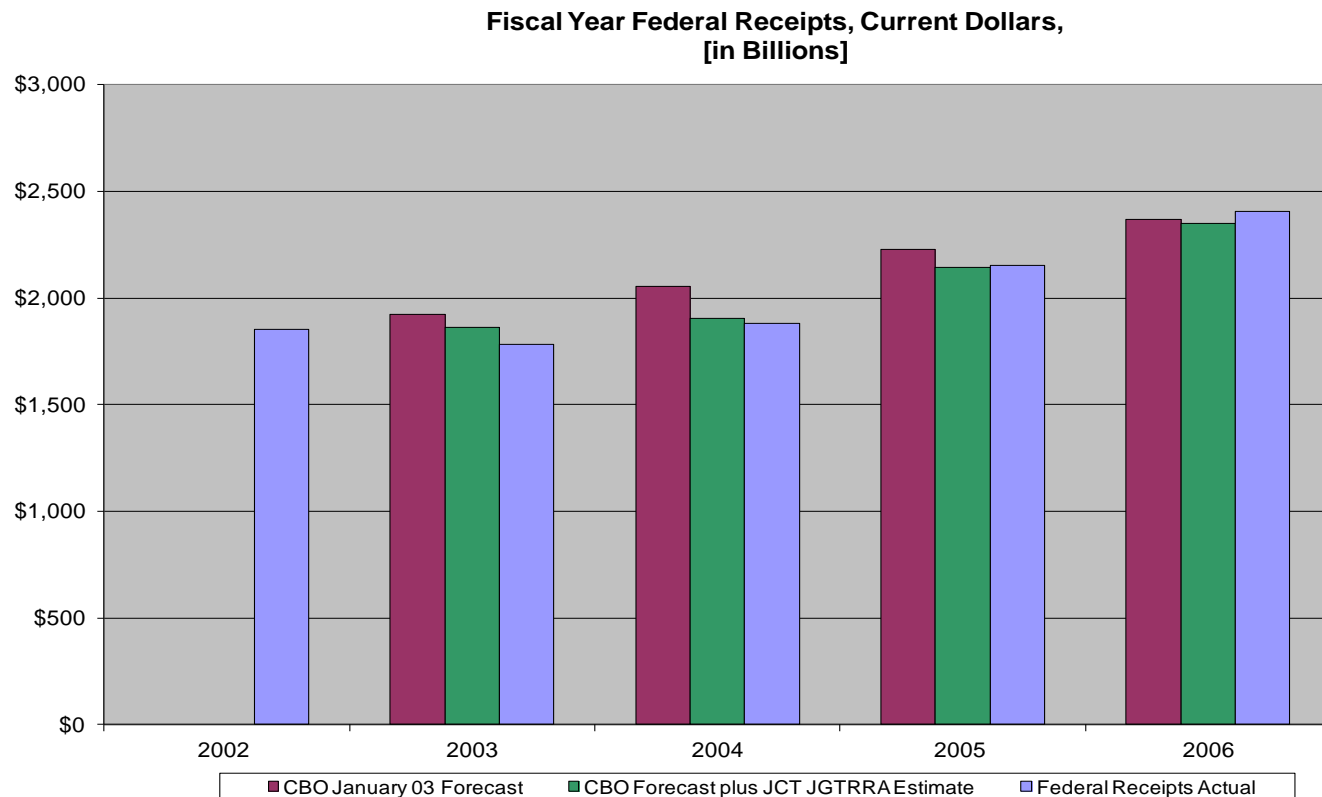
# What is a JCT Revenue Estimate?

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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

- ❑ 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;
  - A foreign model for cross-border business income;
  - 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

- ❑ JCT's Individual Tax Model is a representation of all 178 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 statistics of Income ("SOI") Division of the IRS provides the JCT with 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.

# Example: Individual Tax Model (cont'd)

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- ❑ The Individual Tax Model uses a detailed representative sample of more than 332,000 actual income tax returns filed by U.S. taxpayers.
  - Uses Medical Expenditure Panel 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.

# 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 (constrained optimization) algorithm to adjust weights such that a number of economic targets are hit simultaneously for each year from 2017 through 2027.

# 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

- ❑ 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 indicated 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

- ❑ 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 among 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 limitations.
  - 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 empirical evidence regarding 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.
    - The revenue estimate reflected this smaller tax base.



# Conventional Analysis – Example 2

- ❑ 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.
    - 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.
  - The high premium excise tax thresholds are higher for people with high-risk jobs or in firms with a relative large number of older workers or women. JCT imputes higher thresholds to individuals based on information about industry and age distribution.

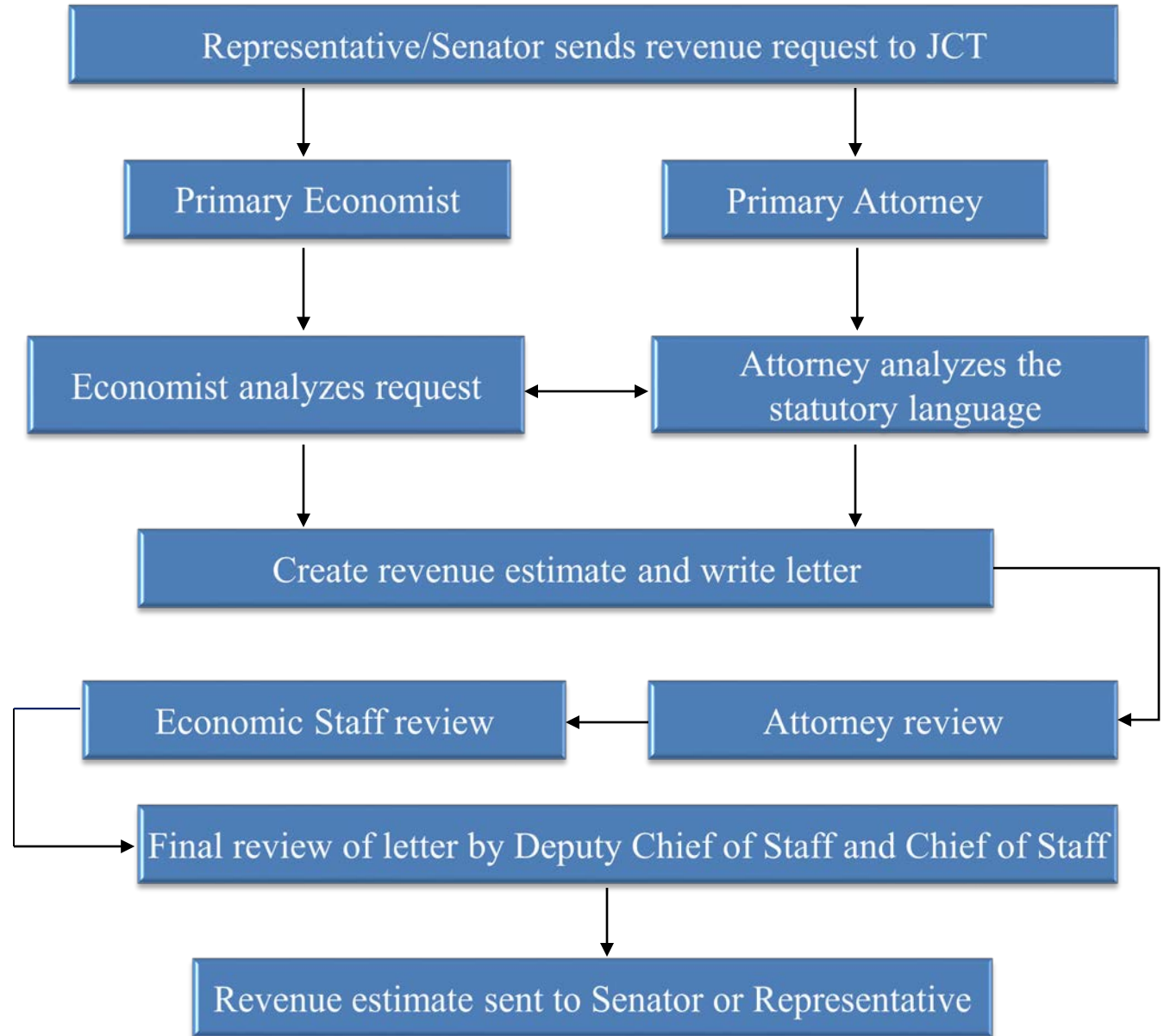
# Conventional Analysis – Example 2 (cont'd)

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

# Accounting for Proposal Interactions

- ❑ 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

- ❑ A conventional JCT estimate incorporates behavioral responses in projecting tax revenues, but generally 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 wage credit in certain industries will result in a shift of employment into the favored industry, but the overall size of the labor force stays the same;
    - 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, 2003 - 2014

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- ❑ From 2003 - 2014, the JCT staff was 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 sensitive to assumptions about taxpayer responsiveness, fiscal and monetary policy, and general modeling frameworks.
  - The JCT staff generally provided a range of estimates in these macroeconomic analyses to account for different assumptions regarding taxpayer responsiveness and modeling frameworks.
  - Some of these analyses can be found at <http://www.jct.gov/publications.html> under “Macroeconomics.”

# Macroeconomic Analysis, 2015 - Present

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- ❑ In 2015, the House adopted a new “dynamic scoring” rule, XIII(8)(b), which was eventually incorporated into a joint Concurrent [House-Senate] Budget Resolution for the 114<sup>th</sup> Congress.
- ❑ The House has affirmed the application of this rule for the 115<sup>th</sup> Congress.
- ❑ The new rule requires a point (single) estimate within the budget window of the deficit effect due to the macroeconomic response to certain proposed legislation.
  - The requirement applies to bills with gross budget effects  $>0.25\%$  of GDP (about \$49 billion in 2017) in any year.
  - It also requires qualitative analysis for 20 years after the budget window.
- ❑ Two of the estimates produced by JCT staff pursuant to this new rule can also be found at <http://www.jct.gov/publications.html> under “Macroeconomic;” several others were produced in collaboration with the Congressional Budget Office and issued as CBO documents.

# JCT Macroeconomic Models

**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 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).
- ❑ 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, similar to in the MEG model, sticky prices and adjustment costs cause output to be sensitive to demand.
- ❑ Unlike the MEG and OLG models, the DSGE model accounts for uncertainty - agents face uncertainty about future states of the economy, which can affect their decision-making.
- ❑ As in the OLG model, the DSGE model cannot allow the Federal government debt to grow faster than GDP for an indeterminate period.
  - Varying anticipation of the length of this adjustment period can provide insight into the effects of this assumption.
  - Varying the length of anticipated fiscal adjustments also allows analysis of announcement effects for policies.
- ❑ 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.
- ❑ 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.

# Further References on the JCT Estimating Models and Process

[JCX-89-16](#): The Income and Payroll Tax Offset to Changes in Payroll Tax Revenues

[JCX-75-15](#): Estimating Changes in the Federal Individual Income Tax: Description of the Individual Tax Model

[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

# Further References on the JCT Estimating Models and Process

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

[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

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# Appendix

# Procedures for Congressional Members

Procedures for Congressional Members requesting revenue estimates from the Joint Committee on Taxation are as follows:

1. Address request to:

Thomas A. Barthold, Chief of Staff  
Joint Committee on Taxation  
502 Ford House Office Building  
Washington, DC 20515

2. Request must be submitted on Member's letterhead and signed by the member.
3. Reference the subject and provide any supporting bills or documentation relating to the proposal for which the request is being submitted. A proposal need not have been introduced as a bill but must include sufficient detail for a revenue estimate to be prepared. Questions concerning whether proposals are sufficiently detailed should be directed to the Joint Committee's main office at Extension 5-3621.
4. List the name and contact information of the person in the Member's Office handling the request.

Requests may also be sent via interoffice mail, hand carried directly to Room 502 of the Ford House Office Building, or faxed to 5-0832 (please follow-up with "hard-copy" originals).