

Dynamic Analysis at the Congressional Budget Office

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Table 1. Conventional Estimate of the Budgetary Costs of Cutting Federal Individual Income Tax Rates by 10 Percent (In Billions of Dollars)		
	2004-2008	2009-2013
10% cut in statutory rates (except gains and dividends)	-452	-761
10% cut in dividend and gains rates	<u>-14</u>	<u>-13</u>
Total Revenue Loss (conventional estimate)	-466	-775
Debt service	<u>56</u>	<u>261</u>
Total Effect on the Budget Surplus	-522	-1035
NOTE: Estimate against January 2003 Baseline, adjusted for the effects of JGTRRA.		

Table 2. Effective Marginal Rates on Labor and Capital									
		Tax on Labor				Tax on Capital			
Calendar	Current			Percent		Current			Percent
Year	Law	Proposal	Change	Change		Law	Proposal	Change	Change
Effective Federal Income Tax Rates (corporate and individual combined)									
2004	18.1%	16.3%	-1.8%	-10%		13.9%	13.4%	-0.4%	-3%
2005	19.0%	17.1%	-1.8%	-10%		13.9%	13.5%	-0.4%	-3%
2006	19.0%	17.2%	-1.8%	-10%		14.0%	13.5%	-0.4%	-3%
2007	19.3%	17.4%	-1.9%	-10%		14.0%	13.6%	-0.4%	-3%
2008	19.5%	17.6%	-1.9%	-10%		13.9%	13.5%	-0.4%	-3%
2009	19.7%	17.8%	-1.9%	-10%		14.9%	14.3%	-0.5%	-4%
2010	20.0%	18.1%	-1.9%	-10%		14.9%	14.3%	-0.5%	-4%
2011	21.8%	19.7%	-2.1%	-10%		15.5%	14.9%	-0.6%	-4%
2012	22.0%	19.8%	-2.2%	-10%		15.5%	14.9%	-0.6%	-4%
2013	22.0%	19.8%	-2.2%	-10%		15.5%	14.9%	-0.6%	-4%
Effective Federal and State Income Tax Rates and Federal Social Insurance Tax Rates									
2004	32.0%	30.3%	-1.7%	-5%		16.8%	16.4%	-0.4%	-3%
2005	32.8%	31.0%	-1.8%	-5%		16.9%	16.4%	-0.4%	-3%
2006	32.9%	31.1%	-1.8%	-5%		16.9%	16.5%	-0.5%	-3%
2007	33.1%	31.3%	-1.9%	-6%		17.0%	16.5%	-0.5%	-3%
2008	33.3%	31.5%	-1.9%	-6%		16.9%	16.5%	-0.4%	-3%
2009	33.6%	31.7%	-1.9%	-6%		17.8%	17.3%	-0.5%	-3%
2010	33.8%	31.9%	-1.9%	-5%		17.8%	17.3%	-0.5%	-3%
2011	35.5%	33.5%	-2.0%	-6%		18.4%	17.8%	-0.6%	-3%
2012	35.8%	33.7%	-2.1%	-6%		18.4%	17.8%	-0.6%	-3%
2013	35.8%	33.6%	-2.2%	-6%		18.4%	17.8%	-0.6%	-3%

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Table 3. Impact on Real GDP of a Deficit-Financed 10 Percent Cut in Federal Income Tax Rates (Average Percent Difference from Baseline)			
Model	2004-2008	2009-2013	Long Run
OLG-Closed Economy Model			
Financed by G after 10 years	0.6	0.3	-0.1
Financed by Income Tax after 10 years	0.6	0.5	-1.5
OLG-Open Economy Model			
Financed by G after 10 years	0.8	0.5	0.5
Financed by Income Tax after 10 years	0.9	0.7	0.2
Ramsey Model			
Financed by G after 10 years	0.7	0.7	0.8
Financed by Income Tax after 10 years	0.8	1.1	-1.2
Global Insight Model			
Taylor Rule	0.4	NA	NA
Unemployment Rate at Baseline	0.2	NA	NA
Macroadvisers' Model			
Taylor Rule	0.6	NA	NA
Unemployment Rate at Baseline	0.3	NA	NA
Memo: Effect on Real GNP			
OLG-Open Economy Model			
Financed by G after 10 years	0.5	0.2	-0.4
Financed by T after 10 years	0.6	0.3	-2.1
NOTE: G=Cuts in government spending			

Table 4. The Cumulative Impact on the Budget Surplus of a 10 Percent Cut in Federal Income Tax Rates (In Billions of Dollars)			
	2004-	2009-	2004-
	2008	2013	2013
Conventional Estimate	-466	-775	-1241
Additional Debt Service on Conventional Estimate	<u>56</u>	<u>261</u>	<u>317</u>
Conventional Estimate plus Debt Service	-522	-1035	-1557
Macroeconomic Feedbacks from Various Models			
OLG-Closed Economy Model			
Financed by G after 10 years	77	107	184
Financed by Income Taxes after 10 years	82	132	214
OLG-Open Economy Model			
Financed by G after 10 years	98	142	240
Financed by Income Taxes after 10 years	104	154	258
Ramsey Model			
Financed by G after 10 years	82	158	240
Financed by Income Taxes after 10 years	100	245	345
Global Insight Model (Taylor Rule)	62	NA	NA
Macroadvisers' Model (Taylor Rule)	67	NA	NA
Macroeconomic Feedbacks (as a Percent of the Conventional Estimate)¹			
OLG-Closed Economy Model			
Financed by G after 10 years	17%	14%	15%
Financed by Income Taxes after 10 years	18%	17%	17%
OLG-Open Economy Model			
Financed by G after 10 years	21%	18%	19%

Financed by Income Taxes after 10 years	22%	20%	21%
Ramsey Model			
Financed by G after 10 years	18%	20%	19%
Financed by Income Taxes after 10 years	21%	32%	28%
Global Insight Model (Taylor Rule)	13%	NA	NA
Macroadvisers' Model (Taylor Rule)	14%	NA	NA
NOTES: Totals may not add due to rounding.			
G=Cuts in government spending			
1. Excludes debt service on the conventional estimate			

Table 5.

Effects of the President's Budgetary Proposals on Real Gross Domestic Product

(Average percentage change from CBO's baseline)

	2004-2008	2009-2013
Supply-Side Model Without Forward-Looking Behavior		
Textbook Growth Model	-0.2	-0.7
Supply-Side Models with Forward-Looking Behavior		
Closed-Economy Life-Cycle Growth Model		
Lower government consumption after 2013	-0.3	-1.5
Higher taxes after 2013	0.5	0.3
Open-Economy Life-Cycle Growth Model		
Lower government consumption after 2013	-0.6	-0.5
Higher taxes after 2013	0.3	0.6
Infinite-Horizon Growth Model		
Lower government consumption after 2013	0.2	-0.6
Higher taxes after 2013	0.9	1.4
Macroeconometric Models, Supply-Side Contribution		
Macroeconomic Advisers	-0.3	n.a.
Global Insight	-0.2	n.a.
Macroeconometric Models, Supply-Side and Cyclical Contributions		

Macroeconomic Advisers	0.2		n.a.
Global Insight	1.4		n.a.
	2004-2008		2009-2013
Memorandum: Effect on Real Gross National Product			
Open-Economy Life-Cycle Growth Model			
Lower government consumption after 2013	-0.8		-2.0
Higher taxes after 2013	0.3		0
Source: Congressional Budget Office.			
Notes: n.a. = not applicable.			

Table 6.				
The Budgetary Implications				
of the Macroeconomic Feedbacks				
(Cumulative change from CBO's conventional estimate of the President's budget, in billions of dollars)				
	2004-2008		2009-2013	
Supply-Side Model Without Forward-Looking Behavior				
Textbook Growth Model	-45		-218	
Supply-Side Models With Forward-Looking Behavior				
Closed-Economy Life-Cycle Growth Model				
Lower government consumption after 2013	-44		-286	
Higher taxes after 2013	57		91	
Open-Economy Life-Cycle Growth Model				
Lower government consumption after 2013	-78		-105	
Higher taxes after 2013	-49		148	
Infinite-Horizon Growth Model				
Lower government consumption after 2013	27		-81	
Higher taxes after 2013	122		321	
Macroeconometric Models, Supply-Side Contribution				
Macroeconomic Advisers	-57		n.a.	
Global Insight	-46		n.a.	
2004-2008				
2009-2013				
Macroeconometric Models, Supply-Side and Cyclical Contributions				
Macroeconomic Advisers	-75		n.a.	
Global Insight	231		n.a.	
Source: Congressional Budget Office.				

Full-employment labor force	0.4	0.5	0.5	0.5	0.5		0.5
Unemployment rate (in percentage points)	0.0	0.0	0.0	0.0	0.0		0.0
CPI inflation (in percentage points)	0.1	0.1	0.1	0.1	0.1		0.1
3-month T-bill rate (in percentage points)	0.9	0.6	0.4	0.4	0.0		0.4
10-year T-note yield (in percentage points)	0.6	0.4	0.3	0.4	0.1		0.4

Table A-1 Continued							
MacroAdvisers' Model (Taylor Rule)							
Nominal GDP	0.6	0.9	0.9	1.0	0.9		0.8
Real GDP	0.7	0.8	0.6	0.6	0.3		0.6
Real Gross Private Domestic Investment	2.2	2.4	0.6	0.5	-1.1		0.9
Real Consumption	0.7	0.9	0.8	0.9	0.7		0.8
Employment	0.4	0.8	0.7	0.6	0.5		0.6
Full-employment labor force	0.4	0.5	0.5	0.5	0.5		0.5
Unemployment rate (in percentage points)	0.0	-0.3	-0.1	-0.1	0.0		-0.1
CPI inflation (in percentage points)	-0.2	0.5	0.2	0.2	0.2		0.2
3-month T-bill rate (in percentage points)	0.0	0.5	0.2	0.3	0.2		0.2
10-year T-note yield (in percentage points)	0.0	0.3	0.2	0.2	0.3		0.2
MacroAdvisers' Model (Unemployment Rate at Baseline)							
Nominal GDP	0.4	0.3	0.4	0.3	0.4		0.3
Real GDP	0.5	0.2	0.4	0.3	0.3		0.3
Real Gross Private Domestic Investment	1.5	-0.6	0.2	-0.3	0.0		0.2
Real Consumption	0.6	0.4	0.5	0.6	0.7		0.6
Employment	0.4	0.5	0.5	0.5	0.5		0.5
Full-employment labor force	0.4	0.5	0.5	0.5	0.5		0.5
Unemployment rate (in percentage points)	0.0	0.0	0.0	0.0	0.0		0.0
CPI inflation (in percentage points)	-0.1	0.2	-0.1	0.0	0.0		0.0
3-month T-bill rate (in percentage points)	0.5	0.3	0.4	0.0	0.1		0.3
10-year T-note yield (in percentage points)	0.2	0.3	0.3	0.2	0.2		0.2

Table A-2. Effects of a 10 Percent Cut in Income Tax Rates on Real GDP:			
Estimates from GE Models (Percent Change from Baseline)			
Source of Financing	2004-2008	2009-2013	Long Run
OLG Model--Closed Economy--Financed by G			
Real GDP	0.6	0.3	-0.1
Labor Input	0.8	0.6	0.3
Capital Stock	0.1	-0.2	-1.1
Consumption	0.9	1.2	1.7
OLG Model--Closed Economy--Financed by Income Taxes			
Real GDP	0.6	0.5	-1.5
Labor Input	0.9	0.7	-0.3
Capital Stock	0.1	0.0	-4.3
Consumption	0.8	1.1	-0.9
OLG Model--Open Economy--Financed by G			
Real GDP	0.8	0.5	0.5
Labor Input	0.8	0.5	0.5
Capital Stock	0.8	0.5	0.5
Consumption	1.1	1.3	1.7
OLG Model--Open Economy--Financed by Income Taxes			
Real GDP	0.9	0.7	0.2
Labor Input	0.9	0.7	0.2
Capital Stock	0.9	0.7	0.2
Consumption	1.1	1.3	-0.9
Ramsey Model--Financed by G			
Real GDP	0.7	0.7	0.8
Labor Input	1.0	1.1	0.3
Capital Stock	0.1	0.0	1.5

Consumption	0.9	1.2	3.4
Ramsey Model--Financed by Income Taxes			
Real GDP	0.8	1.1	-1.2
Labor Input	1.2	1.4	-0.5
Capital Stock	0.2	0.7	-2.3
Consumption	0.7	1.0	-1.1
G = Cuts in Government Spending			

