THE ECONOMIC EFFECTS OF THE ROMNEY TAX PLAN

by

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This work is the result of unpaid expert analysis I provided to the Romney campaign. The views and conclusions, as well as any errors, in this research are solely my own. They do not necessarily reflect the views of the James A. Baker III Institute for Public Policy, Rice University, Tax Policy Advisers, LLC or any other institution with which I have an affiliation.

Executive Summary

There is widespread recognition that the U.S. income tax is a complex, highly inefficient, and costly way of raising revenues to finance government expenditures. In this paper, I analyze a rough sketch of the Romney Tax Plan—a rate-reducing, base-broadening tax reform. The simulations show that such a base-broadening, rate-reducing reform would have significant positive economic effects on the U.S. economy, including increases in investment, the capital stock, employment, and real wages. These gains are in addition to increases in GDP, investment, consumption, and employment that will occur as the U.S. economy continues to recover from the recent recession and as the population grows. Specifically, I find that the reform would, if passed immediately, increase GDP relative to baseline by 5.4 percentage points over the next decade, while creating 6.8 million jobs.

I. Introduction

This paper presents an analysis of the economic effects of a base-broadening, rate-reducing reform, which is similar to rough descriptions of the Romney Tax Plan,[1] which lowers individual and corporate income tax rates while broadening the base of the individual income and corporate tax systems. The paper is organized as follows: Section II provides a short description of the TPA Model[2] that is used for the analysis. Section III describes the calibration of the model. Section IV presents the simulation results, and the final section offers a brief conclusion.

II. Model Overview

The model is an overlapping generations computable general equilibrium model of the U.S. economy that is well-suited for analyzing major individual and business tax reforms. It builds on

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[1] The long-term structural imbalance of the U.S. budget is not modeled, and thus, the economic effects of policy proposals aimed at solving the imbalance are not included in the simulation. I also do not include other deficit reducing budget reforms put forth by the Romney campaign, which to the extent they reduced budget deficits would be associated with additional positive economic effects.

[2] The TPA Model is a model used by Tax Policy Advisers, LLC, a consulting firm specializing in dynamic modeling of the effects of tax reforms; its principals are John W. Diamond, CEO, and George R. Zodrow, President.

several other well-known general equilibrium models, but includes important extensions that facilitate the analysis of the economic effects of tax policy changes. Versions of the model have been used in analyses of tax reforms by the U.S. Department of the Treasury (President's Advisory Panel on Federal Tax Reform 2005), the Congressional Joint Committee on Taxation (Joint Committee on Taxation 2003), and in a number of other recent tax policy studies (Diamond and Zodrow 2007, 2008; Diamond and Viard 2008; Carroll, Cline, Diamond, Neubig, and Zodrow 2010; and Zodrow and Diamond, forthcoming).

The distinguishing feature of the analytical approach used in the basic model is the treatment of both composite non-housing consumption goods and owner-occupied and rental housing markets in the context of an overlapping-generations computable general equilibrium model that explicitly calculates reform-induced changes in all asset values during the transition to a new equilibrium. The model has 55 age cohorts that are followed over their life cycle of 55 years, which represents economic ages ranging from 21 to 76. Each age cohort is assumed to retire in the last 10 years of their life (from age 67 to 76).

The model includes corporate and non-corporate composite good production sectors that produce all non-housing goods and services, and owner-occupied housing and rental housing production sectors. The corporate sector is a composite of a perfectly competitive corporate production sector and an imperfectly competitive sector earning above-normal returns. In addition, the model allows for reform-induced capital inflows from abroad. The model accounts explicitly for a wide variety of business tax expenditures, modeling in detail how their elimination would affect the cost of capital in the corporate and non-corporate sectors. Business tax expenditures are classified into four types with different economic effects: rate-reducing preferences, production incentives, investment incentives, and lump-sum deductions. The classification of tax expenditures and descriptions of their different economic effects are provided in Table 3. The time path of investment demands in all production sectors is modeled explicitly, taking into account capital stock adjustment costs. On the consumption side, consumer demands for all housing and non-housing goods are modeled using an overlapping generations structure in which a representative individual in each generation maximizes lifetime utility.

In addition, the model includes a simple social security system, government purchases of the composite good, non-social security transfer payments, a hump-backed wage profile over the life cycle, a progressive tax on wage income, and constant effective marginal tax rates applied to corporate income, interest income, dividends, and capital gains. The progressive wage tax is modeled using a quadratic wage tax function similar to that of Auerbach and Kotlikoff (1987).

Thus, the model allows for a fairly detailed description of both the transitional (equilibrium) and the long-run effects of implementing a base-broadening, rate-reducing individual and corporate income tax reform. The basic structure of the model combines various features from similar and well-known models constructed by Auerbach and Kotlikoff (1987), Goulder and Summers (1989), Goulder (1989), Keuschnigg (1990), Fullerton and Rogers (1993), and Hayashi (1982). More detailed descriptions of the basic model are provided in Diamond and Zodrow (2007, 2008).

The key components of the reform proposal being analyzed are a significant reduction in individual and corporate income tax rates in the United States, coupled with the elimination of a wide variety of business and personal tax expenditures. The reform is revenue neutral across periods, with individual marginal rate reductions financed by base-broadening under the income tax and corporate rate reductions financed by the elimination of business tax expenditures.

III. Calibration

For this exercise, I calibrate the model by choosing a number of parameter values and economic variables so that the initial income tax steady state in the base year closely resembles certain features of the U.S. economy in 2011. Parameter values are chosen to be consistent with empirical estimates and parameter values used in other computable general equilibrium related studies, especially Altig et al. (2001), Auerbach and Kotlikoff (1987), Auerbach (1996), and Fullerton and Rogers (1993). The values for economic variables are generally chosen to be consistent with estimates from the National Income and Product Accounts.

Table 1 shows the values of the model parameters that represent the current law tax rates (assuming the 2001 and 2003 tax rates are allowed to expire) and the estimated changes in tax rates that would occur as a result of the reform. The total static revenue change—that is, the change before any behavioral changes are allowed—related to the reduction in individual marginal tax rates is a decrease of $3.1 trillion. The Romney campaign has consistently stated that this tax reform will be revenue neutral, so I also assume that the increase in revenue resulting from base-broadening under the individual income tax system will approximately offset the revenue lost from rate reductions.

The Romney campaign has only sketched their base-broadening, and this simulation requires more explicit assumptions than are currently available. I have attempted to craft these assumptions with reference to Romney campaign materials, but the specific assumptions that I model may differ from those that ultimately are proposed. To the extent that these differences are material, then the results reported below would, of course, change. That said, the main tax expenditures are few, and other base-broadening measures would likely have similar economic effects. Hence, the results are probably highly indicative of those that will obtain when more details are available.

For the simulations below, I assume that the base-broadening will raise the required revenue through a reduction in deductions and exclusions, such as the state and local income tax deduction. Thus, in the context of the model, the individual income tax reforms increase total tax revenues slightly, before allowing changes in individual and firm behavior that are discussed in Section IV.

I assume that lowering the corporate tax rate can be financed within the business tax base by a combination of base-broadening, reduced tax avoidance and planning, and revenue feedback from increased economic growth. Flow-through businesses would lose the benefit of business tax expenditures, but benefit from the lower individual tax rates described above. In the model, I assume that the reform would eliminate all business tax expenditures except for $7.8 billion of research and experimentation deductions and credits. Repealing the remaining business tax

expenditures in the model yields $95 billion in revenue annually to finance the corporate rate reduction, which reduces revenue by $107 billion annually before any behavioral effects.

Table 2 shows the values of the model parameters that are important in determining individual and firm behavioral responses. Three parameter values are worth mentioning. The rate of time preference, ρ, is set equal to 0.01.[3] In computable general equilibrium models, like the TPA model, the rate of time preference (or discount rate) is typically chosen in tandem with the intertemporal and intratemporal elasticities of substitution to generate reasonable levels of saving and investment and labor supply in the initial steady-state. The elasticity of intertemporal substitution, σ, determines the willingness of consumers to substitute consumption across periods in response to changes in the relative prices of consumption and therefore plays a critical role in establishing the responsiveness of saving to tax changes. Empirical studies using aggregate consumption data typically find that the EIS is between zero and one.[4] This analysis assumes the EIS is equal to 0.5. In addition, the analysis assumes a "target" bequest motive, which tends to dampen savings responses relative to other potential assumptions regarding bequest motives.

The intratemporal elasticity of substitution ε and the percentage of the endowment devoted to leisure are key parameters that determine the compensated and uncompensated wage elasticities. For a given intratemporal elasticity of substitution, there is a larger percentage increase in labor supply associated with an increase in the wage rate if the share of the initial time endowment devoted to leisure is greater. The intratemporal elasticity of substitution determines consumer willingness to substitute between labor supply and leisure in response to changes in relative prices and therefore plays a key role in determining the labor supply response to a change in the after-tax wage. The intratemporal elasticity of substitution is equal to 0.8 and the share of the

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[3] Using the Euler equation approach, Ziliak and Kneisner (1999) estimate that the rate of time preference is between 0.001 and 0.013. Jorgensen and Yun (2001) estimate a higher value of 0.02.

[4] Gunning, Diamond, and Zodrow (2007) provide a literature survey for a number of important parameter values.

time endowment devoted to leisure is 0.45.[5] I list the values of other important model parameters in Table 2.

IV. Simulation Results: The Economic Effects of a Reform Similar to the Romney Tax Plan

This section presents the economic effects of enacting a base-broadening, rate-reducing reform, which is similar to the reform sketched out by the Romney campaign. The simulation results show the effects of the plan on GDP, investment, the capital stock, consumption, and labor supply.

The plan would reduce individual marginal income tax rates on wages and non-corporate business income by 20 percent, reduce dividend tax rates by 65.7 percent, reduce capital gains tax rates by 25 percent, and reduce the corporate tax rate from 35 to 25 percent.[6]As shown in Table 3, the effects of such a reform on GDP are significant, as GDP increases by 5.0 percent five years after the reform, by 5.4 percent after 10 years, and 6.0 percent in the long-run.[7]

Investment increases by 8.7 percent after 10 years, and by 7.6 percent in the long-run. The U.S. capital stock increases by 5.9 percent in the long-run, with investment and capital increasing in all production sectors. For example, in the long-run, investment and capital in the corporate competitive sector increase by 10.5 percent, while investment and capital in the owner-occupied housing sector increase by 5.6 percent. The larger capital stock increases the productivity of labor the long-run. Consumption increases by 4.3 percent 10 years after reform, and by 6.0 percent in the long-run.

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[5] This value is slightly lower than the values assumed in Altig et al. (2001) and Auerbach and Kotlikoff (1987), but yields an aggregate labor supply elasticity that is consistent with most of the empirical literature. It is, however, inconsistent with the relatively large labor supply elasticities found in the work of Prescott (2005) and Davis and Henrekson (2004).

[6] Note that I do not model the effects of moving to a territorial tax system.

[7] Transfer payments (excluding social security) increase by 6.5 percent in the long-run, which is not part of the proposal, because the government's long-term budget constraint must be satisfied in the model. If these gains were used for debt reduction, the simulation results would show larger positive economic effects.

Labor supply increases by 5.5 to 5.7 percent. The before-tax wage increases by 1.0 percent in the long-run. And, before-tax wage earnings and the after-tax wage increase in every year after reform.

It is worth noting that these results are consistent with those that have been found by others who have examined comparable (but different) reforms, such as Altig et al. (2001) and Carroll and Prante (2012).

The estimates of labor supply generated in the model allow a rough estimation of the effect of tax reform on the number of jobs in the economy. However, the percentage change in labor supply from the initial steady-state cannot be translated into increases in employment opportunities because not all of the growth in labor supply will be related to new worker participation (the extensive margin). Some of the growth in labor supply will result from individual decisions to increase hours of work (the intensive margin).

Fortunately, Blundell, Bozio, and Laroque (2011) recently developed a statistical decomposition that provides bounds on the changes at the extensive and intensive margins for the United States, as well as the United Kingdom and France. They used detailed microdata from 1977-2007 to estimate the importance of the intensive (number of hours worked) and extensive (whether to work at all) margins for explaining changes in total hours worked. In the United States, they found the range for the relative importance of the intensive margin was from 9.1 percent to 10.3 percent. They found that the range for the relative importance of the extensive margin was from 89.7 percent to 90.9 percent.

Using the estimate for the relative importance of the extensive margin, 89.7 percent, it is possible to determine roughly the effect of the tax reform on the number of jobs in the economy. The simulation predicts that labor supply would increase by 5.6 percent 10 years after the reform, which is lower than the model estimates immediately after the reform due to the leveling out of capital stock growth. Applying the conservative estimate, 89.7 percent, from Blundell, Bozio, and Laroque implies that the number of jobs would be 5 percent larger than the initial baseline. To quantify this effect in terms of the current U.S. population and job market, this increase is

applied directly to the state-level, cyclically adjusted, non-farm employment figures from the June 2012 Bureau of Labor Statistics preliminary report. This calibration also abstracts away from unrelated changes in the employment to population ratio.

Doing so suggests that, across the 50 U.S. states and Washington, D.C., enacting such a tax reform would increase the number of non-farm jobs in the U.S. economy after 10 years by the equivalent of 6.8 million jobs today. (These job gains are in addition to increases in the number of jobs that will occur as the U.S. economy continues to recover from the recent recession and from population growth.) This can also be thought of as the number of additional jobs that would exist today if such a tax reform had been enacted 10 years ago. An estimate of the number of jobs added in each state is shown in Table 4.

V. Conclusion

There is widespread recognition that the U.S. income tax is a complex, highly inefficient, and costly way of raising revenues to finance government expenditures.[8] In this paper, I have presented the economic effects of enacting a sketch of the Romney Tax Plan, which is similar in nature to the tax reform plan proposed by the National Commission on Fiscal Responsibility and Reform (2010). This analysis shows that the reform would have significant positive economic effects on the U.S. economy, including increases in investment, the capital stock, employment, and real wages. These results are likely to understate the potential positive economic effects of a lower corporate tax rate due to the incomplete modeling of the global economy and the potential benefits of a more level playing field across different types of assets and industries. In addition, the simulation results may understate the potential gains because it is assumed that increased revenues that are derived from a larger economy are used to increase transfer payments rather than reduce government deficits, which would have a positive impact on consumption and investment in the long-run. Finally, the simulated gains are in addition to increases in GDP, investment, consumption, and employment that will occur as the U.S. economy continues to recover from the recent recession and as the population grows.

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[8] For example, the National Commission on Fiscal Responsibility and Reform (2010) and the President's Advisory Panel on Federal Tax Reform (2005) have highlighted the need to reform the personal and corporate income tax systems.

Table 1

Federal Tax Rate Changes

Description	Initial Steady-State Value	Post-Reform Value
Federal Taxes		
Dividend Tax Rate[1]	0.15	0.0514
Interest Income Tax Rate[1]	0.12	0.096
Corporate Tax Rate	0.35	0.25
Non-Corporate Business Tax Rate	0.22	0.176
Rental Housing Tax Rate	0.22	0.176
Corporate Capital Gains Tax Rate[2]	0.05	0.0375
Non-Corporate Capital Gains Tax Rate[2]	0.05	0.0375
Rental Housing Capital Gains Tax Rate[2]	0.05	0.0375
Owner Housing Capital Gains Tax Rate[2]	0	0
Income-Weighted Marginal Wage Tax Rate	0.26	0.208
Average Wage Tax Rate	0.21	0.195
Social Security Tax Rate	0.11	0.11

1. It is assumed that 40 percent of dividends and bonds are held in tax-deferred accounts.
2. Capital gains rates include effect of deferral.

Table 2

Typical Parameter Values Used in the TPA Model

Symbol	Description	Value
	Consumer Parameters	
ρ	Rate of time preference	0.01
σ	Intertemporal elasticity of substitution	0.5
ε	Intratemporal elasticity of substitution	0.8
	Leisure share of Endowment	0.45
σ_{CH}	Elasticity of substitution for non-housing and housing	0.33
σ_{RO}	Elasticity of substitution for rental and owner housing	1.0
σ^{CN}	Elasticity of substitution for corporate and non-corporate	2.0
σ^{CM}	Elasticity of substitution for domestic and imported non-housing	2.0
σ^{EI}	Elasticity of substitution for domestic and imported non-housing	10.0
	Producer Parameters	
g	Technological growth rate	0.015
α_1	Capital share in composite good production	0.28
α_2	Capital share in housing production	0.98
β_x	Composite good adjustment cost parameter	2
β_{rh}	Rental housing adjustment cost parameter	2
β_{oh}	Owner housing adjustment cost parameter	2
μ_x	Non-housing adjustment cost parameter	0.1102
μ_h	Housing adjustment cost parameter	0.0472
ζ	Dividend payout ratio in the non-housing sector	0.6
b	Debt-to-capital ratio all sectors (owner housing)	0.5(0.35)
δ	Economic depreciation in the corporate good sector	0.083
δ_h	Economic depreciation in the housing sector	0.02

Table 3

Dynamic Macroeconomic Effects of Base-Broadening, Rate-Reducing Individual and Corporate Income Tax Reform

Percentage changes from initial steady states

Years After Reform	5	10	20	50
GDP	5.0%	5.4%	5.8%	6.0%
Capital Stock	2.0%	3.7%	5.3%	5.9%
Labor Supply	5.7%	5.6%	5.5%	5.5%
Consumption	3.3%	4.3%	5.3%	6.0%
Investment	8.9%	8.7%	8.1%	7.6%

Table 4

Projected Effects of Proposed Tax Reform on Job Creation (in thousands)

State	June 2012	New Jobs Created by 2022
Alabama	1867.2	93.8
Alaska	331.3	16.6
Arizona	2456.7	123.4
Arkansas	1167.6	58.7
California	14326.7	719.7
Colorado	2284.4	114.7
Connecticut	1629.6	81.9
Delaware	419.3	21.1
DC	736.6	37.0
Florida	7331.3	368.3
Georgia	3928.9	197.4
Hawaii	595.9	29.9
Idaho	616.1	30.9
Illinois	5694.8	286.1
Indiana	2875.3	144.4
Iowa	1491.4	74.9
Kansas	1343.9	67.5
Kentucky	1825.2	91.7
Louisiana	1947.0	97.8
Maine	591.4	29.7
Maryland	2566.8	128.9
Massachusetts	3244.5	163.0
Michigan	3983.0	200.1
Minnesota	2706.5	136.0
Mississippi	1084.3	54.5
Missouri	2646.6	132.9
Montana	431.4	21.7
Nebraska	958.4	48.1
Nevada	1133.1	56.0
New Hampshire	628.7	31.6
New Jersey	3914.2	196.6
New Mexico	802.3	40.3
New York	8803.4	442.2
North Carolina	3963.1	199.1
North Dakota	419.0	21.0
Ohio	5175.9	260.0
Oklahoma	1586.4	79.7
Oregon	1634.0	82.1
Pennsylvania	5729.7	287.8
Rhode Island	457.1	23.0
South Carolina	1853.7	93.1
South Dakota	411.5	20.7
Tennessee	2683.2	134.8
Texas	10783.7	541.7
Utah	1234.5	62.0
Vermont	302.2	15.2
Virginia	3724.4	187.1
Washington	2867.5	144.0
West Virginia	757.1	38.0
Wisconsin	2722.9	136.8
Wyoming	287.4	14.4

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