Simulating The Republican "Unified Framework" Tax Plan

Seth G. Benzell[1], Laurence J. Kotlikoff[2], Guillermo Lagarda[3]

October 17, 2017

Abstract

This short paper simulates the economic and revenue impacts of the Republican "Unified Framework" (UF) tax plan. As in our prior study of the Republican "Better Way" plan, this study uses the Global Gaidar Model (GGM). The GGM is a global 17-region, 90-period, overlapping-generations model, which is closely calibrated to U.N. demographic and IMF fiscal data. In incorporating the entire world's capital market, the GGM is particularly well suited to studying foreign capital inflows arising from U.S. corporate tax reform. We find that, depending on the year considered, the new Republican tax plan raises GDP by between 3 and 5 percent and real wages by between 4 and 7 percent. This translates into roughly $3,500 annually, on average, per working American household. The source of the increase in U.S. output and real wages is the UF plan's reduction in the U.S. marginal effective corporate tax rate from 34.6 percent to 18.6 percent. This expands the U.S. capital stock by between 12 and 20 percent depending on the year in question. Due, in good part, to the economy's expansion, the UF tax plan is essentially revenue neutral. The GGM's strong supply-side response is not due to a built in bias. Rather, it reflects the mobility of the global capital stock in response to the UF's corporate tax reform and the inefficiency of the current U.S. corporate tax, marked by its very high marginal and very low average tax rates. Indeed, cuts in personal income tax rates in the GGM produce deficits, crowd out capital and lower long-run economic welfare. And reducing the U.S. corporate tax rate in the GGM much further than under UF (e.g., fully eliminating it) necessitates personal tax increases to prevent a rise in the U.S. debt-to-GDP ratio. The main difference between this study and a recent Tax Policy Center (TPC) study, which predicts large deficits from enacting the UF plan, is TPC's assumption of no major economic response to the policy. The TPC also suggests that the UF tax plan is highly regressive. Our model produces roughly similar wage gains for both its low- and high-skilled workers. This said, we share the TPC's concern that the UF plan could disproportionately benefit the top 1 percent. This concern about fairness as well as the country's massive long-term fiscal gap suggests modifying the UF plan to include, for example, the elimination of Social Security's FICA tax ceiling, a tax on

*We thank The Gaidar Institute, The Goodman Institute, Boston University, and Economic Security Planning, Inc.'s Fiscal Analysis Center for research support. The Global Gaidar Model used in this study was co-developed by the authors together with Maria Kazakova, Kristina Nesterova, and Andrey Zubarev of the Gaidar Institute, Victor Ye of Boston University and Marco Solera of the Inter-American Development Bank. This version updated at 6:00pm on October 17, 2017

[1]Boston University and MIT, Initiative on the Digital Economy; sbenzell@mit.edu

[2]Boston University, Fiscal Analysis Center, and National Bureau of Economic Research; kotlikoff@gmail.com

[3]Boston University and Inter-American Development Bank; glagard@bu.edu

lifetime inheritances and gifts received above $5 million, or a progressive cash flow tax on consumption above $100,000.

---

1. Introduction

This short paper presents results from simulating the Republican Unified Framework (UF) tax reform plan in the Global Gaidar Model (GGM).[1] Details of the GGM model are presented in Benzell et al. (2017), which studied the predecessor to the UF plan called the "Better Way Plan." That study and a companion study by Alan Auerbach and Laurence Kotlikoff (Auerbach et al., 2017) suggested that the Better Way plan could produce major economic benefits with no significant reduction in progressivity. Our simulation of the UF plan suggests smaller, but still substantial economic benefits. To be precise, our model predicts the UF tax reform would raise U.S. GDP by between 3 and 5 percent and increase U.S. real wages by between 4 and 7 percent, depending on the year in question. This translates into roughly $3,500 more annual real take-home pay for the average American household. The source of this macroeconomic improvement is a major reduction under the UF plan in the U.S. marginal effective corporate tax rate (METR) from 34.6 percent to 18.6 percent.[2] This induces capital inflows leading to an expansion of the U.S. capital stock by between 12 and 20 percent – again depending on the particular year considered. Thanks to the economy's expansion, our model suggests the tax plan is revenue neutral.

The GGM's strong supply-side response to the UF plan's major reduction in the METR reflects the mobility of the global capital stock and the highly inefficient nature of the U.S. corporate tax,[3] not a rigging of the model to produce supply-side impacts. Indeed, cuts in personal income tax rates in the GGM produce deficits, crowd out capital, reduce wages and lower long-run economic welfare. In short, the model permits no Laffer curve as conventionally described – quite the contrary. Moreover, reducing the U.S. corporate tax rate in the GGM much further than under UF (e.g., fully eliminating it) necessitates personal tax increases to prevent a rise in the U.S. debt-to-GDP ratio.

The main difference between our findings and those in a recent Tax Policy Center Staff (2017) study, which predicts large deficits arising under the UF plan, is the TPC's assumption of no major economic response to the policy. The TPC also suggests that the UF policy is highly regressive. Our model produces roughly similar percentage wage gains for its low- and high-skilled workers. Moreover, according to our model, the U.S. corporate income tax

[1] Moscow's Gaidar Institute, founded by Yegor Gaidar, funded the development of the GGM.

[2] These figures were provided by Jack Mintz, a Canadian economist who has, together with various colleagues, been comparing METRs across countries for decades. Mintz assumes no bonus depreciation in his baseline 34.6 percent METR. His 18.6 percent METR assumes expensing only of equipment and full deductibility of interest. We adopt Mintz's estimates because they are the most comprehensive and facilitate our multi-region analysis. Other economists, including Jane Gravelle of The Congressional Research Service, make different assumptions in estimating METRs and believe the UF would produce a smaller reduction in the U.S. METR than Mintz calculates.

[3] This is marked by its very high marginal and very low average tax rate.

represents a hidden tax on U.S. workers. The reason is that a higher U.S. METR leads to a capital outflow, which lowers labor productivity and real wages. Indeed, the GGM suggests that labor bears 100 percent, if not more, of the corporate income tax.[4] As a result, lowering the corporate METR helps workers who have relatively more labor income than they have wealth.

This said, the TPC's view that the plan disproportionately benefits the top 1 percent appears on target. Unlike the Better Way (BW) plan, which, as explained in (Auerbach et al., 2017), included a subtle, but significant indirect tax on wealth, the UF encompasses only minor implicit wealth taxation. The GGM does not model top percentile inequality. Our high and low-skill groups correspond to the top 30 percentile and bottom 70 percentiles respectively. Hence, while we differ strongly with the TPC's assessment of the UF plan's impact on the economy, wages and revenues, we share its concern about tax fairness at the top of the resource distribution. This concern could be addressed by including, as part of the UF plan, the elimination of Social Security FICA tax ceiling, the taxation of lifetime gifts and inheritances above, say, $5 million, or a progressive tax on those who consume above $100,000 per year.

The next section briefly describes the GGM and why it is particularly well suited for understanding the dynamic economic feedback effects of U.S. corporate tax reform. We then discuss how we model the UF. Section three presents results. We conclude with a summary of findings tempered by caveats concerning the model's limitations.

2. The Global Gaidar Model

The GGM is a direct descendant of the Auerbach-Kotlikoff (AK) dynamic life-cycle simulation model (Auerbach and Kotlikoff (1987)), which was first develop in 1979 by Alan Auerbach, an economist at the University of California at Berkeley, and Laurence Kotlikoff, an economist at Boston University. It is important to note that the AK model not only lies at the heart of GGM, but is also the foundation for models used by the Joint Committee on Taxation and the Congressional Budget Office to do their dynamic scoring. Moreover, when the Tax Policy Center considers dynamic economic responses to tax reform it relies on the Penn Wharton Model, whose core dynamic model is also built on the AK model.

[4]There are two factors at play here that make the corporate tax fall on workers. The first is that the U.S. is far from a closed economy. Hence, increases in the corporate METR lead to an exodus of capital from the U.S. to other regions. Second, as discussed in (Benzell et al., 2017), the U.S. corporate tax is marked by a very high (internationally speaking) marginal effective corporate tax rate, but a remarkably low average corporate tax rate. In the GGM, we treat the low average corporate tax rate as arising from an inframarginal subsidy to U.S. owners of capital. This means that the loss in wages can exceed corporate tax revenues. As an extreme example of this outcome, consider an METR of 99 percent coupled with a policy of rebating back, in a lump sum manner, all corporate tax revenues to U.S. households in proportion to their holdings of wealth. Such a policy would lead to a complete exodus of U.S. capital, zero corporate tax revenues, but major reductions in wages. In economic terms, the incidence on labor would exceed 100 percent.

Consequently, it is fair to say that GGM's forefather – the AK model – is the foundation for much, if not most dynamic scoring of U.S. tax policy by federal agencies and private think tanks.

Given the GGM's full description in Benzell et al. (2017), we restrict ourselves here to a brief summary of the model. The GGM features 90 overlapping generations living in 17 regions, which are listed in table 1 below. The GGM is a life-cycle model in which agents are children for their first 20 years, work between ages 21 and 66 and have children between 23 and 45. Mortality can occur at any age – from birth through age 90, the maximum age of life. The model's year-and age-specific fertility, mortality and net immigration rates are carefully calibrated to the corresponding rates predicted by the United Nations.

Agents in the model make annual decisions about consumption, saving, and labor supply. Production depends on both capital and labor. Labor in a given region is immobile, but capital freely moves across regions to obtain the highest after-tax return. This leads to an equalization of after corporate-tax returns across regions. Each region's fiscal policies – their government expenditures on goods and services and transfer programs as well as their taxation of personal income, wages, consumption, and corporate income – are calibrated to the International Monetary Fund's 2014 measures of these variables. Moreover, each region's national saving and spending preferences, which dictate, in large part, how much it will save and invest through time are calibrated on the basis of its current observed household consumption and saving behavior.

The GGM is particularly well suited to assessing corporate tax reform for the following reasons. First, it explicitly models the global capital market. No other model now being used to assess the economic response to U.S. tax reform formally incorporates any country other than the U.S. As a result, those models are forced to use rules of thumb in assessing how a reduction in marginal U.S. corporate income taxation will impact the inflow of capital to the U.S., not just in the current year, but in all future years.

Second, the world's demographics are changing dramatically. By 2060, the world will add another two Chinas measured by global population. Without explicitly incorporating other regions, including their projected, highly-varied demographic changes, their differential rates of technological change, their very different saving behaviors and their distinct corporate-tax and other fiscal policies, one can not hope to understand the time-path of the global supply of capital, let alone how much of that global supply will, over time, be invested in the U.S.

Third, while a global model appears essential to understanding the impact of U.S. tax reform, particularly corporate tax reform, calibrating the model correctly is equally important. The team that developed the GGM spent close to a half year calibrating the model to demographic (current and projected) data, fiscal data, and macroeconomic aggregates. Of critical importance in this effort was determining a key saving parameter for each region that reproduced that region's household consumption as a share of GDP. Benzell et al. (2017) shows that the model fits current and projected demographic, fiscal and macro data

remarkably well.

Fourth, initial conditions matter. Many dynamic models start their simulations from steady-state positions – where the economy will settle in the long run. The GGM can be run starting at any given set of initial conditions. The most important of these conditions are region- and age-specific holdings of wealth and region- and age-specific population sizes. These initial conditions are derived from 2014 data. These data include each region's endowment of exhaustible fossil fuels, which is of particular importance to highly energy-dependent economies like Russia.

Fifth, technology, like demographics, is changing dramatically and very differently across the 17 regions. This reflects what we call "catch-up" growth whereby successive new generations of young workers get closer to the productivity levels of U.S. workers of the same age. This catch up growth occurs at different assumed rates in different regions and represents another reason why any given static rule of thumb concerning the response of foreign capital inflows to cross region METR differentials, if not far off base initially, will become so over time. Different regions whose populations are expanding at different rates, whose age compositions are differentially changing, whose saving propensities differ, and whose rate of catch-up growth varies will differentially contribute over time to global saving as well as the investment of that saving in the U.S.

Finally, the joint evolution of these very different economies determines the dynamic time paths of region- and skill-specific wages as well as the global interest rate. And the evolution of these factor prices determines, in turn, how much countries save and, thus, will invest, either at home or abroad. Calculating this *dynamic general equilibrium* requires special iterative techniques so that supplies equal demands in each region in each time period for capital, labor and output. This obviously requires fully and explicitly incorporating each region. In short, when it comes to U.S. economic policy, one can't treat the rest of the world as an afterthought.

3. Modeling the Unified Framework Tax Plan

Constructing and calibrating the GGM was a major undertaking. However, evaluating the UF tax plan was straightforward. The UF plan is modeled as reducing the U.S. METR from 34.6 percent to 18.6 percent and also broadening the corporate tax base by the same percentage (46.2). This base broadening is captured by lowering the degree to which corporate taxes are rebated in a lump sum to U.S. households.[5]

The GGM approximates the U.S. progressive personal income tax by making the average personal income tax rate a quadratic function of a household's income. This approximation avoids dealing with the many non-linearities of the actual U.S. personal income tax.

[5]Future research will explore alternative assumptions about the extent of base broadening.

Incorporating such non-linearities would make solving the GGM quite challenging, if not impossible. In simulating the UF tax plan we simply adjust income tax and consumption tax rates up or down through time as needed to maintain the current observed U.S. debt-to-GDP ratio.[6] Thus, if U.S. personal income and consumption tax rates remain roughly equal through time to those under current policy, we know that the reform is roughly revenue neutral. If, on the other hand, the UF plan produced major deficits (as the TPC contends), this would show up in our simulation, which, again, holds debt-to-GDP fixed, as producing hikes in personal income and consumption tax rates.

4. Results

Tables 2 through 6 present our main results. Additional results are provided in the Appendix. Each table considers, four policies – maintenance of current U.S. fiscal policy, the complete elimination of U.S. corporate income taxation,[7] the Better Way plan, and the UF plan. The first column in table 2 provides an index of U.S. GDP under current policy. The baseline entails a near tripling of U.S. GDP over the rest of this Century. This reflects the country's projected population expansion coupled with underlying productivity growth. Table 2's other three columns show percentage changes, relative to the current-policy baseline, in U.S. GDP for selected years. Total elimination of U.S. corporate income taxation has the strongest impact on U.S. GDP. But both the BW and UF plans materially increase U.S. GDP over the next half Century. Toward the end of the Century, the success of the BW plan in raising wages leads to less labor supply and lower long-run level of GDP.

Table 3 presents changes in the U.S. stock of capital. The UF tax plan leads to a major expansion in this key variable. For example, in 2025, there is almost 15 percent more capital at work in the country than without the reform. This figure rises to almost 20 percent by mid Century. Table 4 considers real U.S. wages of both the model's low- and high-skilled workers. Although the UF plan raises wages by much less than the other two policies, the wage increases are significant and sustained. There is an immediate 4 percent rise in low-skilled worker wages and 5 percent rise in high-skilled worker wages. By mid Century, U.S. wages for both skill groups are roughly 7 percent higher than would otherwise be the case.

Table 5 makes the case for the UF plan's revenue neutrality. To see this, compare the first and second-from-last columns and the second and last columns. It is clear that personal income tax rates are essentially identical to those under current policy. Like the UF simulation, the current-policy and other policy simulations all keep debt-to-GDP constant through time at its initial level. Although the consumption-tax rate is higher under the UF plan than under current policy, the difference is very small. While most of the UF's revenue neutrality comes from an increased tax base, a significant percentage comes from closing

[6] We adjust the proportional term of the income tax function. We also assume that additional revenues needed to stabilize debt to GDP are raised half via income and half via consumption taxation.

[7] This would require eliminating state and local as well as federal marginal taxation of corporate investment.

loopholes. Under the UF reform, we assume a 46.2 percent reduction in potential corporate tax revenues lost to loopholes.[8] As the corporate tax raises 2.13 percent of GDP in revenues under the UF reform, a back-of-the-envelope calculation suggests that .6 percent of GDP in revenues are gained from base broadening.

In contrasting our finding of basic revenue neutrality under the UF plan with the TPC's assessment that the UF plan produces massive deficits it is important to note that the TPC scores its deficits as arising from the UF's business tax reforms, not the UF's personal tax reforms. Indeed, Tax Policy Center Staff (2017) estimates that the UF's personal-tax reforms will generate a surplus, not a deficit. Hence, the TPC's projection of large deficits under the UF seems to reflect its failure to incorporate dynamic responses. Were it to do such scoring of the UF, but rely on its dynamic model – the Penn Wharton Model (a closed-economy descendant of the AK model) – and calibrate annual net capital inflows in that model based on the GGM's findings, it would surely arrive at the same answer provide here – the UF tax plan is essentially revenue neutral once one does proper dynamic scoring.

Our last main table of results is table 6, which examines changes in economic welfare, also referenced as remaining lifetime utility. An agent's utility depends on how much she consumes in goods and leisure in each future year. The table determines the percentage increase in each year's levels of both consumption and leisure needed to achieve the same level of utility as the agent would experience under current policy. Thus, the 3.0 percent low-skilled UF value for 2015 tells us that a low-skilled worker born in 2015 will experience an increase in well being under the UF tax reform that is equivalent to maintaining current policy in place, but providing the worker with 3 percent higher consumption and 3 percent more leisure in each year of adulthood.[9] Note that initial retirees do not fare as well as initial and future workers. But their welfare changes are all positive. This is not the case under the Better Way plan.

The Appendix first shows the impact on U.S. labor supply, measured in effective units, of both skill groups under the three policies. The next table, Appendix table 2, shows the transition under current policy for each of the 17 regions. All variables for each region, including the U.S., are measured relative to the U.S. value of that variable in 2014. U.S. 2014 values are thus indexed to 1. The table considers GDP, the capital stock, the supplies of low- and high-skilled labor measured in efficiency units and tax rates on corporate income, personal income, wages (in the case of taxes used to finance state pensions) and consumption. Appendix table 3 repeats appendix table 2, but considers the marginal product of capital, the global interest rate, wage rates, and marginal products of low- and high-skilled labor. Finally, Appendix table 4 repeats Appendix table 2, but assumes adoption of the UF tax reform. It's message is that the gains to the U.S. in GDP are not free. They come at the

[8] This is the same percentage reduction as in the METR.

[9] Note,since agents can die at any age, this compensating differential is calculated based on expected remaining lifetime utility, where the expectation is calculated with respect to the agent's probability of survival to each future specific age.

price of slightly less capital in other regions and, consequently, lower GDP.

5. Conclusion

This paper simulated the Unified Framework tax reform plan using the Global Gaidar Model, developed in Benzell et al. (2017). The business portion of the UF plan reduces corporate tax rates while eliminating loopholes. We model the UF plan as a 46.24 percent cut in the marginal effective corporate tax rate, and a 46.24 percent cut in the percentage of corporate tax revenues rebated.[10]

The UF reform is projected to have significant positive macroeconomic effects. A high corporate tax rate reduces the attractiveness of investment in the US. The UF plan's major reduction in the marginal effective corporate income tax rate – from 34.6 percent to 18.6 percent – induces, in our model, a large inflow of foreign investment. The result is an increase in the U.S. capital stock that ranges from 12 to 20 percent, depending on the year in question.

The inflow of foreign capital increases U.S. output and the productivity of U.S. workers. Depending on the year, it raises GDP by 3 to 5 percent and real wages by 4 to 7 percent.[11] Foreign countries see small decreases –typically 1 percent or less – in these measures due to reduced investment.[12]

According to our simulations, the UF tax reform is approximately revenue neutral. Income and consumption tax rates in the GGM model endogenously adjust to keep debt-to-GDP constant. The UF reform leaves these rates approximately unchanged. Personal income tax rates are essentially identical to their values along the baseline path, while consumption tax rates increase by only .6 or so percentage points. Closing corporate tax loopholes contributes importantly to revenue neutrality. However, the bulk of increased revenues come from an expanded income and consumption tax base.

As a result of the UF reform, the percent of GDP raised by the corporate tax falls from 3.11 to 2.13 percent. But increased GDP raises income and consumption tax bases enough to almost completely make up for this loss. This is due not to some underlying bias in

[10] See Benzell et al. (2017) for a discussion of how corporate tax loopholes are modeled as infra-marginal capital income rebates.

[11] The increase in wages is slightly larger than the increase in GDP due to a small reduction in labor supply as workers take some of their higher wages in the form of more leisure. Modifying our model to make workers supply more labor in response to higher wages (something not supported by the data) would produce larger GDP gains but smaller wage gains under the UF reform.

[12] Despite the seeming attractiveness of lowered corporate taxes for other countries, our results in Benzell et al. (2017) suggest that the US should not fear a 'race to the bottom' scenario. If other countries match U.S. corporate tax cuts, they will retain more of their capital. However, because US citizens own such a large share of world assets, a global shift away from corporate taxation benefits U.S. savers. The rate of return to savers around the world goes up as well, by approximately 5 percent, due to the more efficient distribution of global capital.

the model toward supply-side results. Indeed, simulating simple personal income-tax cuts in the model reduces GDP, real wages and economic wellbeing. Instead, the supply-side response can be traced to a highly elastic global supply of capital, the fact that, when it comes to capital inflows, the U.S. is more like a small open than a large closed economy, and the highly inefficient nature of the current U.S. corporate income tax, with its very high marginal and very low average tax rates.

The UF tax reform delivers small increases in lifetime welfare to current retirees and moderate ones to workers and future generations. All generations benefit from the policy. The old benefit slightly from higher rates of return on their investment, and the young from higher wages.[13]

As with all economic analyses, caveats are in order. First, our model assumes complementarity between high-low skilled workers and capital. If these factors are closer substitutes (e.g. new capital substitutes for low skilled workers), the wage gains to low skilled workers would be smaller. Second, the GGM does not yet include costs to adjusting a country's capital stock. Incorporating such costs would slow the transition, but not alter the UF tax reform's ultimate impacts. Third, the model assumes agents are rational, forward looking, and face no uncertainty. The GGM also models firms as perfectly competitive. It is not clear how deviations from these assumptions would alter the impact of the UF tax plan with one exception. Uncertainty about the UF plan's durability could lead investors to wait and see and, consequently, reduce the predicted short-run impacts of the reform. Finally, although it has hundreds of thousands of equations, which are solved simultaneously, the Global Gaidar Model remains highly stylized. More goods, more skill groups, the inclusion of robots, barriers to trade – these and other factors might have some impact on the model's reaction to the UF tax plan. So too would possible reactions of other regions to U.S. corporate tax reform.

Our bottom line? The UF tax reform, while roughly half as good as the Better Way plan, appears worth enacting. But we are concerned that the UF's personal tax provisions will disproportionately help the top 1 percent. Moreover, revenue neutrality is hardly a desideratum in an economy like ours that has a massive long-term fiscal gap. Hence, we would encourage Congress to modify the Unified Framework tax plan in ways that reduce the apparent redistribution to the rich and that produce addition revenue. One example is eliminating the ceiling on the Social Security FICA tax. Another is enacting a progressive

[13] In Benzell et al. (2017) we considered the impact of complete corporate tax elimination as well as cash flow based corporate taxation (as implemented in the "Better Way" tax plan). The generational distribution of welfare gains as a result of the UF policy is similar to that in the corporate tax elimination scenario, although at a lower level. This is unsurprising, as the UF policy is modeled as an approximate halving of both the marginal corporate tax rate and corporate tax loopholes. Relative to the 'Better Way' plan, the UF policy is moderately better for current retirees, but very significantly worse for future generations. This is because that reform also effectively entails a move towards consumption taxation and wage subsidies. This is more efficient in the long run, but reduces the welfare of current retirees since they do not benefit from the wage subsidy, but are faced with a tax on their consumption.

consumption cash-flow tax that starts at levels of consumption in excess of $100,000. A third is replacing the estate and gift tax with a 20 percent inheritance tax on gifts and inheritances received, over one's lifetime, in excess of $5 million.

6. References

Alan J Auerbach and Laurence J Kotlikoff. *Dynamic Fiscal Policy*, volume 11. Cambridge University Press Cambridge, 1987.

Alan J. Auerbach, Laurence Kotlikoff, and Darryl Koehler. Assessing the House Republican Tax Reform Plan. May 2017. URL http://kotlikoff.net/sites/default/files/Assessing%20the%20House%20Republican%20Tax%20Reform%20Plan%205-7-17.pdf.

Seth Benzell, Laurence Kotlikoff, and Guillermo Lagarda. Simulating Business Cash Flow Taxation: An Illustration Based on the "Better Way" Corporate Tax Reform. Technical report, National Bureau of Economic Research, 2017. URL https://kotlikoff.net/sites/default/files/Simulating%20the%20%2522Better%20Way%2522%20House%20Tax%20Reform.pdf.

TPC Tax Policy Center Staff. A Preliminary Analysis of the Unified Framework. Technical report, The Tax Policy Center, 2017. URL http://www.taxpolicycenter.org/sites/default/files/publication/144971/a_preliminary_analysis_of_the_unified_framework_0.pdf.

Principal Tables

Table 1: Regions in the Model and their Acronyms

Acronym	Region (Excludes Countries Modeled Independently)
USA	U.S.
WEU	Western Europe
JKSH	Japan, South Korea, and Hong Kong
CHI	China
IND	India
RUS	Russian Federation
BRA	Brazil
GBR	The U.K.
CAN	Developed Commonwealth Countries (Canada, Australia and New Zealand)
MENA	Middle East and North Africa
MEX	Mexico
SAF	South Africa
SAP	South Asia Pacific
SLA	Latin America excluding Mexico and Brazil
SOV	Former Soviet Central Asia
SSA	Sub-Saharan Africa
EEU	Eastern Europe

Table 2: U.S. Baseline GDP and Percentage Changes above Baseline from Reforms

Years		Reform Scenarios		
	Current Policy	Corporate Tax Elimination	BW Tax Plan	UF Tax Plan
2014	1.00	6.80	7.90	3.40
2020	1.12	7.35	7.17	3.68
2025	1.19	7.91	6.65	3.96
2030	1.22	8.66	6.70	4.33
2035	1.24	9.49	6.67	4.74
2040	1.27	10.36	6.44	5.10
2045	1.32	10.76	5.76	5.23
2050	1.38	10.69	4.62	5.13
2055	1.46	10.49	3.56	4.93
2060	1.53	9.99	2.61	4.70
2080	2.02	9.13	-1.39	4.17
2100	2.91	9.36	-1.10	4.41

Table 3: U.S. Baseline Capital Stock and Percentage Changes Above Baseline From Reforms

Years		Reform Scenarios		
	Current Policy	Corporate Tax Elimination	BW Tax Plan	UF Tax Plan
2014	1.00	24.40	17.90	12.00
2020	1.08	27.11	19.50	13.46
2025	1.09	29.69	20.68	14.80
2030	1.05	32.70	22.31	16.21
2035	0.99	35.95	23.87	17.82
2040	0.94	39.24	24.92	19.19
2045	0.94	40.89	24.58	19.81
2050	0.99	41.28	23.33	19.98
2055	1.06	40.78	21.67	19.58
2060	1.14	39.70	20.07	19.10
2080	1.62	36.76	13.85	17.73
2100	2.44	36.13	13.60	17.57

Table 4: U.S. Baseline Wages and Percentage Changes Above Baseline From Reforms

	Current Policy		Elimination of Corporate Tax		Better Way Tax Plan		United Framework Tax Plan	
	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
2014	1.00	2.46	7.8	9.5	4.8	4.9	4.0	4.8
2020	0.99	2.37	8.9	10.3	5.7	6.5	4.6	5.4
2025	0.97	2.27	9.8	11.1	6.4	7.7	5.2	5.9
2030	0.95	2.15	10.9	12.0	7.0	8.9	5.7	6.4
2035	0.92	2.05	12.0	12.8	7.5	10.0	6.3	6.8
2040	0.89	1.94	13.0	13.6	7.9	11.1	6.8	7.2
2060	0.92	1.85	13.9	13.3	7.3	12.2	7.2	7.1
2080	0.96	1.91	13.2	12.4	6.6	11.6	6.9	6.7
2100	0.98	1.94	12.6	12.4	6.2	11.2	6.5	6.7

Table 5: Consumption and Income Tax Rates

Year	Current Policy		Elimination of Corporate Tax		Better Way Tax Plan		United Framework Tax Plan	
	Consumption	Income	Consumption	Income	Consumption	Income	Consumption	Income
2014	18.1	13.7	20.4	14.5	33.1	11.5	18.7	13.7
2015	18.4	13.8	20.7	14.7	33.1	11.9	18.9	13.9
2020	19.3	14.7	21.7	15.6	33.1	12.9	19.9	14.8
2025	19.7	15.1	22.1	16.1	33.1	13.0	20.3	15.2
2030	19.4	15.1	21.9	16.3	33.1	12.1	20.0	15.3
2035	19.3	15.3	21.9	16.5	33.1	11.4	20.0	15.5
2040	18.9	14.6	21.7	15.9	33.1	9.7	19.6	14.8
2060	18.5	14.6	21.0	15.9	33.1	6.2	19.0	14.8
2080	21.5	17.6	23.8	18.8	33.1	8.1	21.8	17.7
2100	25.6	19.1	28.5	20.5	33.1	13.6	25.9	19.3

Table 6: U.S. Welfare Changes

Birth Year	Elimination of Corporate Tax		Better Way Tax Plan		United Framework Tax Plan	
	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
1935	0.4	0.2	-2.3	-1.2	0.3	0.2
1940	0.2	0.1	-2.0	-1.1	0.2	0.1
1945	0.3	0.2	-2.1	-1.1	0.3	0.2
1950	0.6	0.4	-2.3	-1.3	0.5	0.3
1955	0.5	0.3	-2.2	-1.4	0.5	0.3
1960	0.9	0.6	-1.1	-0.8	0.7	0.5
1965	1.0	0.6	-0.6	-0.4	0.8	0.5
1970	1.7	1.1	1.3	1.2	1.3	0.9
1975	1.9	1.3	2.2	2.0	1.5	1.0
1980	2.2	1.4	3.0	2.9	1.6	1.1
1985	2.6	1.6	4.3	4.1	1.9	1.3
1990	2.8	1.8	5.2	5.0	2.1	1.5
2000	3.4	2.1	7.1	6.9	2.5	1.7
2005	3.7	2.3	8.1	8.0	2.7	1.9
2010	4.1	2.6	9.2	9.2	2.9	2.1
2015	4.2	2.6	9.9	9.8	3.0	2.1
2020	4.4	2.8	10.8	10.9	3.1	2.2
2025	4.5	2.8	11.5	11.6	3.2	2.3
2030	4.4	2.7	12.0	12.1	3.2	2.2
2035	4.7	2.9	13.4	13.9	3.4	2.4
2040	4.9	3.0	14.6	15.6	3.6	2.6
2045	4.5	2.7	14.1	14.7	3.4	2.4
2050	4.2	2.5	13.5	13.9	3.2	2.3
2055	4.2	2.6	13.8	14.3	3.3	2.4
2060	3.7	2.3	12.3	12.5	3.0	2.2
2070	3.7	2.3	12.1	12.5	3.0	2.3
2080	3.6	2.2	11.3	11.8	3.0	2.2
2100	3.4	2.0	10.3	10.9	2.9	2.2

Appendix Tables

Appendix Table 1: U.S. Baseline Labor Supply and Percentage Changes Above Baseline From Reforms

Year	Current Policy		Elimination of Corporate Tax		Better Way Tax Plan		United Framework Tax Plan	
	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
2015	1.00	1.00	-0.80	-2.30	3.20	3.10	-0.50	-1.30
2020	1.13	1.16	-1.15	-2.58	1.51	0.69	-0.80	-1.55
2025	1.23	1.29	-1.63	-2.78	0.16	-1.00	-1.06	-1.70
2030	1.30	1.40	-1.92	-2.85	-0.38	-2.14	-1.31	-1.85
2035	1.36	1.50	-2.13	-2.86	-0.96	-3.26	-1.40	-1.93
2040	1.44	1.62	-2.16	-2.71	-1.53	-4.44	-1.46	-1.97
2060	1.68	2.04	-3.28	-2.84	-4.95	-9.11	-2.32	-2.25
2080	2.13	2.62	-3.58	-2.86	-8.24	-12.32	-2.54	-2.33
2100	3.03	3.76	-2.84	-2.66	-7.43	-11.60	-2.01	-2.13

Appendix Table 2: Baseline Macro Aggregates and Tax Rates

Baseline Simulation Results (capital and labor supplies are relative to 2014 U.S. levels									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
USA	2014	1.00	1.00	1.00	1.00	34.60	13.67	5.45	18.13
	2020	1.12	1.08	1.13	1.16	34.60	14.67	6.70	19.33
	2025	1.19	1.09	1.23	1.29	34.60	15.05	7.94	19.68
	2030	1.22	1.05	1.30	1.40	34.60	15.12	9.47	19.40
	2035	1.24	0.99	1.36	1.50	34.60	15.28	10.57	19.33
	2040	1.27	0.94	1.44	1.62	34.60	14.57	11.54	18.92
	2060	1.53	1.14	1.68	2.04	34.60	14.58	14.44	18.52
	2080	2.02	1.62	2.13	2.62	34.60	17.59	12.29	21.47
	2100	2.91	2.44	3.03	3.76	34.60	19.10	11.64	25.57
WEU	2014	0.93	1.00	0.86	1.01	25.40	16.15	10.95	32.64
	2020	0.98	1.01	0.91	1.09	25.40	16.64	12.96	32.19
	2040	1.45	1.16	1.53	1.83	25.40	17.02	11.24	35.84
	2060	2.56	2.05	2.75	3.12	25.40	15.86	6.50	35.85
	2080	3.41	2.92	3.48	4.04	25.40	13.72	9.36	28.45
	2100	3.53	3.10	3.40	4.31	25.40	13.37	15.18	22.91
JKSH	2014	0.41	0.41	0.35	0.53	35.50	12.70	2.08	18.01
	2020	0.40	0.39	0.35	0.53	35.50	13.12	2.71	16.57
	2040	0.35	0.25	0.35	0.51	35.50	12.37	5.07	12.33
	2060	0.43	0.29	0.42	0.58	35.50	10.14	3.90	9.12
	2080	0.54	0.39	0.49	0.68	35.50	8.41	2.75	8.19
	2100	0.65	0.48	0.58	0.80	35.50	8.83	3.08	8.14
CHI	2014	1.05	1.13	0.96	1.17	26.00	1.76	1.45	47.48
	2020	1.16	1.20	1.08	1.30	26.00	1.73	1.94	44.13
	2040	2.15	1.75	2.38	2.67	26.00	1.40	2.38	33.07
	2060	3.34	2.75	3.93	3.88	26.00	1.25	2.00	28.98
	2080	3.82	3.40	4.48	4.07	26.00	1.18	3.61	23.21
	2100	5.26	4.84	6.10	5.50	26.00	1.28	3.73	21.98
IND	2014	0.43	0.43	0.36	0.58	33.99	4.34	1.88	27.06
	2020	0.50	0.49	0.43	0.70	33.99	4.29	2.41	28.65
	2040	1.32	1.00	1.31	2.11	33.99	4.64	1.77	32.61
	2060	3.50	2.66	3.53	5.54	33.99	5.49	0.98	38.87
	2080	6.92	5.66	6.74	10.40	33.99	5.18	1.60	39.19
	2100	9.54	8.08	9.14	14.11	33.99	5.92	2.91	47.76
RUS	2014	0.22	0.20	0.18	0.20	27.90	7.05	7.44	22.51
	2020	0.22	0.20	0.19	0.21	27.90	8.48	10.62	28.64
	2040	0.29	0.20	0.28	0.32	27.90	11.73	13.09	43.61
	2060	0.49	0.37	0.51	0.59	27.90	15.52	7.51	73.47
	2080	0.76	0.64	0.78	0.90	27.90	16.24	8.23	91.62
	2100	0.96	0.86	1.00	1.19	27.90	18.81	11.68	126.94
BRA	2014	0.19	0.17	0.17	0.26	47.30	4.57	5.90	33.23
	2020	0.22	0.19	0.20	0.31	47.30	4.82	7.69	39.42
	2040	0.44	0.29	0.48	0.73	47.30	5.80	7.53	55.08
	2060	1.00	0.65	1.11	1.65	47.30	6.42	4.74	58.76
	2080	1.61	1.15	1.72	2.55	47.30	6.10	9.26	66.80
	2100	1.69	1.25	1.77	2.63	47.30	7.43	19.75	86.91

Table 2 Continued: Baseline Policy Macro Aggregates and Tax Rates

Baseline Simulation Results (capital and labor supplies are relative to 2014 U.S. levels									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
GBR	2014	0.2	0.2	0.1	0.2	25.0	5.6	7.7	38.7
	2020	0.2	0.2	0.1	0.2	25.0	6.0	9.9	40.7
	2040	0.2	0.1	0.2	0.2	25.0	6.8	12.8	47.9
	2060	0.3	0.2	0.3	0.4	25.0	8.2	7.0	68.8
	2080	0.5	0.4	0.5	0.6	25.0	7.0	5.1	63.8
	2100	0.6	0.5	0.6	0.7	25.0	7.0	6.6	60.8
CAN	2014	0.2	0.2	0.1	0.2	23.9	16.3	1.5	23.7
	2020	0.2	0.2	0.2	0.2	23.9	18.3	2.0	25.5
	2040	0.2	0.2	0.2	0.3	23.9	22.6	4.2	27.2
	2060	0.3	0.2	0.3	0.4	23.9	23.7	4.6	28.7
	2080	0.4	0.3	0.4	0.5	23.9	26.3	3.3	33.7
	2100	0.6	0.6	0.6	0.8	23.9	26.8	2.8	39.2
MENA	2014	0.4	0.3	0.2	0.4	17.5	2.0	0.9	14.9
	2020	0.5	0.4	0.3	0.5	17.5	3.0	1.2	25.5
	2040	1.0	0.8	0.9	1.4	17.5	5.4	1.7	53.0
	2060	2.4	2.0	2.2	3.4	17.5	6.6	1.7	70.3
	2080	4.7	4.3	4.2	6.5	17.5	6.9	2.6	80.7
	2100	7.4	7.1	6.7	10.3	17.5	7.5	3.8	92.6
MEX	2014	0.1	0.1	0.1	0.1	19.7	3.9	2.9	12.9
	2020	0.2	0.2	0.1	0.2	19.7	4.0	3.4	14.7
	2040	0.3	0.3	0.4	0.4	19.7	4.7	4.2	19.2
	2060	0.7	0.6	0.7	0.7	19.7	5.0	4.2	20.1
	2080	1.0	0.9	1.0	1.0	19.7	5.0	7.5	21.1
	2100	1.0	1.0	1.1	1.1	19.7	5.7	12.8	23.8
SAF	2014	0.1	0.1	0.0	0.1	14.3	13.7	4.0	17.2
	2020	0.1	0.1	0.1	0.1	14.3	13.0	5.5	17.7
	2040	0.1	0.1	0.1	0.1	14.3	12.2	13.0	17.2
	2060	0.1	0.1	0.1	0.1	14.3	12.0	17.6	15.8
	2080	0.2	0.2	0.2	0.2	14.3	14.1	17.2	17.6
	2100	0.3	0.3	0.3	0.4	14.3	15.0	15.4	20.0
SAP	2014	0.4	0.4	0.3	0.4	25.3	2.8	0.6	20.1
	2020	0.5	0.5	0.4	0.5	25.3	2.7	0.6	18.6
	2040	1.6	1.3	1.7	1.9	25.3	3.1	0.5	18.4
	2060	3.4	2.8	3.9	4.0	25.3	3.1	0.6	21.4
	2080	4.3	3.8	4.8	4.7	25.3	3.3	1.7	22.5
	2100	4.7	4.3	5.2	5.1	25.3	3.9	2.6	22.5
SLA	2014	0.2	0.2	0.2	0.2	27.5	1.5	3.6	25.3
	2020	0.3	0.3	0.2	0.3	27.5	1.7	4.4	30.9
	2040	0.4	0.3	0.5	0.5	27.5	2.2	4.6	40.5
	2060	0.9	0.7	1.0	1.1	27.5	2.3	4.0	42.1
	2080	1.6	1.4	1.7	1.8	27.5	1.9	4.9	42.3
	2100	2.2	1.9	2.3	2.5	27.5	2.0	7.5	51.0

Table 2 Continued: Baseline Policy Macro Aggregates and Tax Rates

Baseline Simulation Results (capital and labor supplies are relative to 2014 U.S. levels)									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
SOV	2014	0.1	0.1	0.0	0.1	17.5	7.0	2.1	33.0
	2020	0.1	0.1	0.0	0.1	17.5	8.3	3.1	41.5
	2040	0.1	0.1	0.1	0.1	17.5	9.0	3.5	47.7
	2060	0.2	0.2	0.2	0.3	17.5	8.0	1.1	40.4
	2080	0.5	0.4	0.5	0.5	17.5	6.6	1.2	33.8
	2100	0.7	0.6	0.7	0.7	17.5	7.9	2.6	40.8
SSA	2014	0.1	0.1	0.1	0.1	30.5	3.6	0.1	21.5
	2020	0.2	0.2	0.2	0.2	30.5	3.9	0.1	26.5
	2040	0.7	0.6	0.8	1.0	30.5	4.6	0.1	37.6
	2060	2.8	2.2	3.1	3.6	30.5	4.6	0.1	38.1
	2080	7.8	6.6	8.5	9.5	30.5	4.4	0.1	33.8
	2100	15.9	13.9	17.3	18.3	30.5	4.0	0.2	28.9
EEU	2014	0.0	0.0	0.0	0.0	15.1	7.5	10.3	31.8
	2020	0.0	0.0	0.0	0.0	15.1	8.1	12.9	34.3
	2040	0.1	0.1	0.1	0.1	15.1	8.4	9.4	42.9
	2060	0.2	0.1	0.2	0.2	15.1	8.2	7.0	44.3
	2080	0.2	0.2	0.2	0.2	15.1	10.8	16.3	48.2
	2100	0.4	0.3	0.4	0.4	15.1	12.3	14.9	62.1

Appendix Table 3: Baseline Projected Factor Prices and Marginal Products

Baseline Simulation Results - Marginal Products and Factor Payments							
	Year	Marginal Product of Capital	Global Interest Rate	Wage Rate		Marginal Product of Labor	
				Low Skilled	High Skilled	Low Skilled	High Skilled
USA	2014	14.64	4.67	1.00	2.46	1.00	2.46
	2020	15.20	5.04	0.99	2.37	0.99	2.37
	2025	16.04	5.59	0.97	2.27	0.97	2.27
	2030	17.15	6.31	0.95	2.15	0.95	2.15
	2035	18.40	7.13	0.92	2.05	0.92	2.05
	2040	19.83	8.06	0.89	1.94	0.89	1.94
	2060	19.81	8.05	0.92	1.85	0.92	1.85
	2080	18.37	7.11	0.96	1.91	0.96	1.91
	2100	17.77	6.72	0.98	1.94	0.98	1.94
WEU	2014	13.77	4.67	0.37	0.76	1.10	2.30
	2020	14.26	5.04	0.48	0.99	1.09	2.23
	2040	18.30	8.06	0.77	1.57	0.95	1.95
	2060	18.29	8.05	0.93	2.02	0.93	2.02
	2080	17.03	7.11	1.02	2.20	0.98	2.07
	2100	16.51	6.72	1.07	2.11	1.03	1.99
JKSH	2014	14.75	4.67	0.58	0.94	1.16	1.91
	2020	15.32	5.04	0.71	1.16	1.14	1.87
	2040	19.99	8.06	1.02	1.70	0.98	1.64
	2060	19.98	8.05	0.97	1.69	0.97	1.69
	2080	18.52	7.11	1.06	1.91	1.00	1.78
	2100	17.92	6.72	1.07	1.96	1.01	1.83
CHI	2014	13.82	4.67	0.08	0.12	1.21	1.83
	2020	14.31	5.04	0.13	0.20	1.19	1.79
	2040	18.39	8.06	0.27	0.41	1.02	1.57
	2060	18.38	8.05	0.49	0.77	1.01	1.59
	2080	17.11	7.11	0.74	1.17	1.05	1.67
	2100	16.58	6.72	0.96	1.52	1.07	1.70
IND	2014	14.58	4.67	0.08	0.12	1.21	1.83
	2020	15.14	5.04	0.13	0.20	1.19	1.79
	2040	19.71	8.06	0.27	0.41	1.02	1.57
	2060	19.70	8.05	0.49	0.77	1.01	1.59
	2080	18.27	7.11	0.74	1.17	1.05	1.67
	2100	17.68	6.72	0.96	1.52	1.07	1.70
RUS	2014	13.98	4.67	0.30	0.68	1.06	2.39
	2020	14.49	5.04	0.38	0.84	1.05	2.31
	2040	18.68	8.06	0.58	1.24	0.92	1.98
	2060	18.67	8.05	0.93	1.98	0.93	1.98
	2080	17.36	7.11	1.04	2.21	0.97	2.05
	2100	16.82	6.72	1.06	2.21	0.99	2.06
BRA	2014	16.37	4.67	0.22	0.35	1.11	1.78
	2020	17.07	5.04	0.36	0.57	1.09	1.73
	2040	22.79	8.06	0.71	1.14	0.93	1.50
	2060	22.78	8.05	0.92	1.52	0.92	1.52
	2080	20.99	7.11	1.07	1.79	0.96	1.59
	2100	20.25	6.72	1.10	1.81	0.98	1.62

Table 3 Continued: Baseline Projected Factor Prices and Marginal Products

Baseline Simulation Results - Marginal Products and Factor Payments							
	Year	Marginal Product	Global	Wage Rate		Marginal Product of Labor	
		of Capital	Interest Rate	Low Skilled	High Skilled	Low Skilled	High Skilled
GBR	2014	13.73	4.67	0.83	1.43	1.19	2.04
	2020	14.22	5.04	0.84	1.44	1.16	2.01
	2040	18.24	8.06	0.80	1.41	1.01	1.78
	2060	18.23	8.05	0.84	1.51	1.00	1.81
	2080	16.98	7.11	0.98	1.81	1.03	1.91
	2100	16.46	6.72	1.04	2.00	1.03	1.98
CAN	2014	13.64	4.67	0.71	1.24	1.18	2.07
	2020	14.13	5.04	0.82	1.42	1.16	2.03
	2040	18.09	8.06	1.06	1.85	1.02	1.78
	2060	18.08	8.05	1.01	1.80	1.01	1.80
	2080	16.84	7.11	1.09	1.91	1.06	1.85
	2100	16.33	6.72	1.12	1.92	1.08	1.86
MENA	2014	13.17	4.67	0.10	0.15	1.27	1.94
	2020	13.61	5.04	0.15	0.23	1.25	1.90
	2040	17.27	8.06	0.30	0.46	1.10	1.69
	2060	17.26	8.05	0.54	0.84	1.09	1.71
	2080	16.12	7.11	0.79	1.27	1.12	1.79
	2100	15.64	6.72	1.01	1.65	1.14	1.83
MEX	2014	13.32	4.67	0.25	0.55	1.09	2.43
	2020	13.78	5.04	0.38	0.84	1.08	2.38
	2040	17.53	8.06	0.72	1.63	0.93	2.14
	2060	17.53	8.05	0.91	2.22	0.91	2.22
	2080	16.35	7.11	0.95	2.30	0.94	2.34
	2100	15.87	6.72	0.96	2.34	0.95	2.39
SAF	2014	12.95	4.67	0.21	0.45	1.13	2.40
	2020	13.38	5.04	0.25	0.54	1.11	2.36
	2040	16.90	8.06	0.35	0.76	0.97	2.12
	2060	16.89	8.05	0.53	1.20	0.95	2.17
	2080	15.80	7.11	0.71	1.62	0.98	2.27
	2100	15.34	6.72	0.87	2.02	0.99	2.33
SAP	2014	13.76	4.67	0.12	0.24	1.11	2.26
	2020	14.25	5.04	0.28	0.57	1.09	2.24
	2040	18.29	8.06	0.67	1.49	0.92	2.07
	2060	18.28	8.05	0.90	2.15	0.90	2.15
	2080	17.02	7.11	0.96	2.37	0.92	2.28
	2100	16.50	6.72	0.97	2.42	0.93	2.32
SLA	2014	13.95	4.67	0.17	0.37	1.08	2.33
	2020	14.46	5.04	0.21	0.45	1.06	2.27
	2040	18.62	8.06	0.32	0.67	0.93	1.98
	2060	18.61	8.05	0.49	1.09	0.92	2.03
	2080	17.31	7.11	0.69	1.58	0.94	2.15
	2100	16.77	6.72	0.87	2.01	0.95	2.21

Table 3 Continued: Projected Factor Prices and Marginal Products, continued

Baseline Simulation Results - Marginal Products and Factor Payments							
	Year	Marginal Product of Capital	Global Interest Rate	Wage Rates		Marginal Product of Labor	
				Low Skilled	High Skilled	Low Skilled	High Skilled
SOV	2014	13.17	4.67	0.12	0.25	1.14	2.33
	2020	13.61	5.04	0.17	0.35	1.12	2.28
	2040	17.27	8.06	0.29	0.60	0.98	2.03
	2060	17.26	8.05	0.49	1.07	0.96	2.10
	2080	16.12	7.11	0.71	1.65	0.97	2.25
	2100	15.64	6.72	0.89	2.10	0.97	2.34
SSA	2014	14.23	4.67	0.05	0.10	1.11	2.16
	2020	14.76	5.04	0.10	0.20	1.09	2.12
	2040	19.10	8.06	0.23	0.46	0.94	1.89
	2060	19.09	8.05	0.44	0.92	0.92	1.93
	2080	17.73	7.11	0.65	1.45	0.94	2.08
	2100	17.17	6.72	0.83	1.95	0.94	2.18
EEU	2014	13.01	4.67	0.09	0.19	1.14	2.34
	2020	13.44	5.04	0.21	0.42	1.12	2.30
	2040	17.00	8.06	0.50	1.05	0.97	2.09
	2060	16.99	8.05	0.95	2.18	0.95	2.18
	2080	15.88	7.11	1.00	2.44	0.95	2.38
	2100	15.42	6.72	1.03	2.41	0.99	2.34

Appendix Table 4: United Framework Tax Reform Macro Aggregates and Tax Rates

GDP, Capital Stocks and Labor Supply are % Change from Contemporaneous Baseline. Tax Rates in %									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
USA	2014	3.4	12.0	-0.5	-1.3	18.6	13.7	5.5	18.7
	2020	3.7	13.5	-0.8	-1.6	18.6	14.8	6.7	19.9
	2025	4.0	14.8	-1.1	-1.7	18.6	15.2	7.9	20.3
	2030	4.3	16.2	-1.3	-1.9	18.6	15.3	9.4	20.0
	2035	4.7	17.8	-1.4	-1.9	18.6	15.5	10.5	20.0
	2040	5.1	19.2	-1.5	-2.0	18.6	14.8	11.4	19.6
	2060	4.7	19.1	-2.3	-2.3	18.6	14.8	14.4	19.0
	2080	4.2	17.7	-2.5	-2.3	18.6	17.7	12.3	21.8
	2100	4.4	17.6	-2.0	-2.1	18.6	19.3	11.6	25.9
WEU	2014	-1.0	-3.4	0.2	0.4	25.4	16.1	11.0	33.0
	2020	-0.6	-2.3	0.2	0.3	25.4	16.6	12.9	32.6
	2040	-0.1	-0.7	0.1	0.2	25.4	17.1	11.2	36.3
	2060	0.2	0.0	0.3	0.3	25.4	16.0	6.5	36.5
	2080	0.3	0.1	0.3	0.5	25.4	13.9	9.3	29.0
	2100	0.3	0.0	0.3	0.5	25.4	13.5	15.2	23.3
JKSH	2014	-1.0	-3.4	0.3	0.4	35.5	12.6	2.1	18.0
	2020	-0.7	-2.3	0.3	0.4	35.5	13.0	2.7	16.6
	2040	-0.3	-0.8	0.3	0.4	35.5	12.3	5.0	12.4
	2060	0.0	0.0	0.0	0.3	35.5	10.2	3.9	9.2
	2080	0.0	-0.3	0.2	0.1	35.5	8.5	2.8	8.3
	2100	0.2	-0.2	0.0	0.3	35.5	8.9	3.1	8.2
CHI	2014	-1.0	-3.4	0.1	0.3	26.0	1.8	1.5	48.0
	2020	-0.7	-2.3	0.2	0.2	26.0	1.7	1.9	44.8
	2040	-0.1	-0.6	0.2	0.3	26.0	1.4	2.4	33.7
	2060	0.3	0.1	0.3	0.5	26.0	1.3	2.0	29.6
	2080	0.2	0.1	0.2	0.4	26.0	1.2	3.6	23.6
	2100	0.1	-0.1	0.2	0.4	26.0	1.3	3.7	22.3
IND	2014	-1.2	-3.7	0.3	0.2	34.0	4.4	1.9	27.5
	2020	-1.0	-2.4	0.0	0.1	34.0	4.4	2.4	29.1
	2040	-0.2	-0.8	0.1	0.1	34.0	4.7	1.8	33.2
	2060	0.0	-0.2	0.1	0.1	34.0	5.6	1.0	39.6
	2080	0.0	-0.2	0.1	0.1	34.0	5.2	1.6	39.9
	2100	0.0	-0.2	0.1	0.1	34.0	6.0	2.9	48.5
RUS	2014	-0.9	-3.5	0.6	0.5	27.9	7.1	7.4	22.7
	2020	-0.4	-2.5	0.5	0.5	27.9	8.5	10.6	29.0
	2040	-0.3	-0.5	0.0	0.3	27.9	11.9	13.0	44.2
	2060	0.2	-0.3	0.0	0.2	27.9	15.7	7.5	74.8
	2080	0.0	-0.2	0.1	0.2	27.9	16.4	8.2	93.4
	2100	0.1	-0.1	0.2	0.3	27.9	19.0	11.7	129.5
BRA	2014	-1.1	-4.2	0.6	0.4	47.3	4.6	5.9	33.9
	2020	-0.5	-2.7	0.0	0.3	47.3	4.9	7.7	40.2
	2040	-0.2	-1.0	0.2	0.3	47.3	5.9	7.5	56.2
	2060	0.1	0.0	0.2	0.2	47.3	6.5	4.7	59.9
	2080	0.1	-0.2	0.2	0.2	47.3	6.2	9.3	68.1
	2100	0.1	-0.2	0.1	0.2	47.3	7.5	19.8	88.5

Table 4 Continued: United Framework Tax Reform Macro Aggregates and Tax Rates

GDP, Capital Stocks and Labor Supply are % Change from Contemporaneous Baseline. Tax Rates in %									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
GBR	2014	-0.6	-2.9	0.7	0.5	25.0	5.5	7.7	38.9
	2020	-0.6	-2.4	0.7	0.5	25.0	6.0	9.9	40.9
	2040	0.0	-0.7	0.0	0.4	25.0	6.8	12.7	48.2
	2060	0.3	0.0	0.0	0.3	25.0	8.2	6.9	69.6
	2080	0.0	-0.2	0.0	0.2	25.0	7.1	5.1	64.7
	2100	0.0	0.0	0.2	0.3	25.0	7.0	6.6	61.7
CAN	2014	-0.6	-2.9	0.7	0.5	23.9	16.1	1.5	23.8
	2020	-0.5	-2.1	0.6	0.5	23.9	18.2	2.0	25.6
	2040	0.0	-0.6	0.0	0.4	23.9	22.5	4.2	27.3
	2060	0.4	-0.5	0.0	0.3	23.9	23.6	4.6	28.9
	2080	0.0	-0.3	0.3	0.0	23.9	26.4	3.3	34.0
	2100	0.2	-0.2	0.2	0.2	23.9	26.9	2.8	39.7
MENA	2014	-0.8	-3.5	0.5	0.3	17.5	2.0	0.9	15.1
	2020	-0.4	-2.3	0.0	0.2	17.5	3.1	1.2	26.0
	2040	-0.2	-0.6	0.1	0.1	17.5	5.5	1.7	54.0
	2060	0.1	0.0	0.1	0.2	17.5	6.7	1.7	71.7
	2080	0.1	-0.1	0.2	0.2	17.5	7.0	2.6	82.4
	2100	0.1	-0.1	0.2	0.2	17.5	7.6	3.8	94.4
MEX	2014	-0.8	-3.6	0.9	0.0	19.7	3.9	2.9	13.1
	2020	-0.6	-1.8	0.7	0.0	19.7	4.1	3.4	14.9
	2040	-0.3	-0.7	0.0	0.3	19.7	4.7	4.2	19.4
	2060	0.0	-0.2	0.0	0.0	19.7	5.0	4.2	20.4
	2080	0.0	-0.2	0.0	0.0	19.7	5.0	7.5	21.3
	2100	-0.1	-0.3	0.0	0.0	19.7	5.8	12.8	24.0
SAF	2014	-2.0	-3.5	2.3	0.0	14.3	13.7	4.0	17.4
	2020	0.0	-1.4	0.0	0.0	14.3	13.0	5.5	17.9
	2040	0.0	-1.2	0.0	0.9	14.3	12.3	13.0	17.4
	2060	0.0	-0.9	0.0	0.0	14.3	12.1	17.6	16.0
	2080	0.0	-0.6	0.0	0.0	14.3	14.2	17.2	17.8
	2100	0.0	-0.3	0.0	0.0	14.3	15.1	15.4	20.3
SAP	2014	-1.1	-3.4	0.0	0.3	25.3	2.8	0.6	20.3
	2020	-0.6	-2.2	0.2	0.2	25.3	2.7	0.6	18.9
	2040	-0.1	-0.7	0.1	0.2	25.3	3.1	0.5	18.7
	2060	0.0	-0.1	0.1	0.1	25.3	3.1	0.6	21.8
	2080	0.0	-0.2	0.1	0.1	25.3	3.4	1.7	22.8
	2100	0.0	-0.3	0.1	0.1	25.3	3.9	2.6	22.7
SLA	2014	-1.3	-3.5	0.5	0.4	27.5	1.5	3.6	25.5
	2020	-0.4	-2.3	0.0	0.4	27.5	1.8	4.4	31.3
	2040	-0.2	-0.9	0.0	0.0	27.5	2.2	4.5	41.0
	2060	0.0	-0.1	0.1	0.1	27.5	2.3	4.0	42.7
	2080	-0.1	-0.2	0.1	0.1	27.5	2.0	4.9	42.9
	2100	0.0	-0.3	0.1	0.1	27.5	2.0	7.5	51.6

Table 4 Continued: United Framework Tax Reform Macro Aggregates and Tax Rates

GDP, Capital Stocks and Labor Supply are % Change from Contemporaneous Baseline. Tax Rates in %									
	Year	GDP	Capital Stock	Labor Supply		Corporate Tax	Income Tax	Pension Tax	Consumption Tax
				Low Skilled	High Skilled				
SOV	2014	-2.0	-1.8	0.0	0.0	17.5	7.0	2.1	33.3
	2020	0.0	-1.7	0.0	0.0	17.5	8.4	3.1	41.9
	2040	0.0	0.0	0.0	0.0	17.5	9.0	3.5	48.2
	2060	0.0	0.0	0.0	0.4	17.5	8.1	1.1	41.1
	2080	0.0	-0.2	0.0	0.2	17.5	6.7	1.2	34.3
	2100	0.0	-0.2	0.1	0.3	17.5	8.0	2.6	41.3
SSA	2014	-0.8	-3.4	0.0	0.0	30.5	3.6	0.1	21.7
	2020	-1.1	-3.0	0.0	0.0	30.5	3.9	0.1	26.9
	2040	-0.1	-0.9	0.0	0.2	30.5	4.7	0.1	38.4
	2060	0.1	-0.1	0.1	0.2	30.5	4.7	0.1	39.0
	2080	0.1	-0.1	0.2	0.2	30.5	4.4	0.1	34.5
	2100	0.1	-0.2	0.1	0.2	30.5	4.0	0.2	29.4
EEU	2014	-2.4	-2.4	0.0	0.0	15.1	7.5	10.3	32.1
	2020	-2.2	0.0	0.0	0.0	15.1	8.1	12.9	34.6
	2040	0.0	0.0	0.0	0.0	15.1	8.4	9.3	43.5
	2060	0.0	-0.7	0.0	0.5	15.1	8.3	7.0	45.0
	2080	0.0	0.0	0.0	0.0	15.1	10.9	16.3	48.9
	2100	0.3	0.0	0.3	0.3	15.1	12.4	14.9	63.2