Model Review: Personal Income Tax

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Model Purpose	Estimate the revenue impacts of a personal income tax, including the following: • Tax rates needed to achieve selected revenue targets. • Tax due for each household.
Data Sources	The primary data source is tax year 2017 microdata for Washington federal individual income tax returns. We use additional data sources for supplementary analyses. See *About the Data*.
Requirements Model Used to Fulfill	Per ESHB 1109 (2019) Sec. 137:[1] (B) By December 1, 2020, the department and technical advisory group must prepare a summary report of their preliminary findings and alternatives described in (c)(vii) of this subsection;…. (c)(vii)(A) With respect to the final report of findings and alternatives submitted by the Washington state tax structure study committee to the legislature under section 138, chapter 7, Laws of 2001 2nd sp. sess.[2]: (I) Update the data and research that informed the recommendations and other analysis contained in the final report; (II) Estimate how much revenue all the revenue replacement alternatives recommended in the final report would have generated for the 2017-2019 fiscal biennium if the state had implemented the alternatives on January 1, 2003; (III) Estimate the tax rates necessary to implement all recommended revenue replacement alternatives in order to achieve the revenues generated during the

[1] Washington State Legislature (2019). *HB 1109: Making 2019-2021 biennium operating appropriations.* (https://app.leg.wa.gov/billsummary?BillNumber=1109&Year=2019&Initiative=false).
[2] Gates, W.H. (2002). *Tax alternatives for Washington State.* Washington State Tax Structure Study Committee. (https://dor.wa.gov/about/statistics-reports/tax-structure-final-report)

2017-2019 fiscal biennium as reported by the economic and revenue forecast council;

Questions for Technical Advisory Group	1. We have two questions relating to out-of-state income and individuals (*See Nonresidents and the Out-of-state Credit*, below.): a. How can we account for the income of persons who do not reside in Washington, but receive income from Washington sources? b. Related to this, should we model an out-of-state credit for Washington residents? 2. For years 2020 and beyond, we need to find or develop a reference forecast to use for the Chained Consumer Price Index for All Urban Consumers (C-CPI-U). What sources should we consider? 3. For the graduated rate model, we need to decide on a relationship between tax rates across income brackets. What would you suggest? See *Estimate tax rates*. 4. In the Main Analysis, we take the major steps needed to estimate the tax (e.g. compute deductions, taxable, credits, and tax due). Optionally, we may also carry out analyses to support adjustments to the model (see *Possible Model Adjustments*). Which adjustments would you view as most important to consider, and why? 5. For all analyses, we welcome suggestions relating to data sources, background reading, and methods.
Questions from Technical Advisory Group	*We will capture at meeting and record here*

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Overview

In this section, we provide a brief overview of how we will estimate tax due under each proposal.

Before calculating the tax due, we will perform preliminary analyses. These include producing summary statistics, modeling conversions of pass-through entities to corporate forms, and forming assumptions about which taxpayers qualify as disabled.

For each proposal modeled, we will use 2017 individual returns data from the IRS as the primary dataset for analysis. This dataset includes all original and amended returns filed by August 2019. We will perform all calculations at the taxpayer level.

To calculate the tax due, we will begin with the adjusted gross income (AGI), which is the tax base (Table 1).

Table 1. Steps for calculating tax due for each taxpayer in the IRS returns dataset.

Item	Description	Method
Income	Adjusted gross income (AGI)	Obtain from IRS Individual returns
Deductions & Exemptions		
Standard deduction	Ranges from $5,000 to $10,000.	Calculated based on filing status and amount of earned income.
Elderly deduction	$1,000 for each filer and spouse age 65 or older	Calculated based on filer and spouse ages.
Disabled deduction	$1,000 for each filer and spouse qualifying as disabled	We will estimate which filers qualify as disabled.
Personal exemptions	$2,900 per person	Calculated based on count of filer, spouse, and dependents.
Taxable	*NA*	Subtract total deductions and exemptions from *Income*.
Tax due before credits	*NA*	Multiply tax rate times *Taxable*.
Credits		
Out of state credit	Amount of income tax imposed by another jurisdiction	We will decide if and how to estimate this amount.
Business and Occupation (B&O) tax credit	Amount of B&O tax paid, subject to certain limitations	Estimated for each taxpayer, based on amount and type of pass-through income.
Final tax due		Subtract total credits from *Tax due before credits*.
Collections	We assume 90% of taxpayers comply in the first year and 95% thereafter.	Multiply compliance rate times final tax due

Next, we will subtract deductions and personal exemptions. The amount of the standard deduction depends upon each taxpayer's filing status, and for joint filers, it also depends on the amount of earned income. For filers and spouses age 65 or older, we deduct an additional $1,000 each. For disabled filers, we do the same. Therefore, for joint filers, if both are at least 65 years old and both are disabled, an additional $4,000

deduction is allowed. Finally, we subtract personal exemptions, which amount to $1,000 for each filer, spouse, and dependent.

To calculate the *taxable* amount, we subtract the deductions and exemptions from the AGI. We calculate *tax due before credits* by multiplying the tax rate times *taxable.*

Two credits are allowed. The out-of-state credit is the amount of income tax paid to a different jurisdiction on the taxable income. The B&O credit is the amount of B&O tax paid on the taxable amount.

To estimate the *final tax due* for each taxpayer, we will subtract total credits from *tax due before credits*.

To estimate the *collections* amount, we will multiply the assumed compliance rate times the *final tax due.*

Background

Objectives

We will estimate revenues and tax rates for certain personal income tax (PIT) proposals for the 2017-2019 fiscal biennium. We will model the proposals presented in the Gates (2002) study.

Objective 1: Model a flat rate personal income tax. Estimate the tax rates necessary to maintain revenue neutrality under proposals A through D (Table 2).

Table 2. Features of Proposals A through F.

Proposal	State Sales/Use Tax		State Property Tax		Corporate Income Tax		B&O Tax		Personal Income Tax
	Reduce rate to 3.5%	*Eliminate*	*Current Law*	*Eliminate*	*None*	*PIT rate*	*Current Law*	*Eliminate*	
Proposal A	✓		✓		✓		✓		*Find revenue neutral rate or rates for each proposal.*
Proposal B	✓			✓	✓		✓		
Proposal C		✓	✓		✓		✓		
Proposal D		✓		✓	✓		✓		
Proposal E	✓			✓		✓		✓	
Proposal F	✓		✓			✓		✓	

Objective 2: Model a graduated rate personal income tax. Estimate the tax rates necessary to maintain revenue neutrality under proposals A through D.

Objective 3: Model a flat rate personal income tax coupled with a corporate income tax with the same rate. Estimate the tax rates necessary to maintain revenue neutrality under Proposals E and F.

While the December 2020 report requires only an estimate of revenues during the 2017-2019 fiscal biennium, we anticipate fiscal note requests for a personal income tax during the 2021 legislative session. These requests would require estimated revenues through tax year 2030. Therefore, as we develop growth rates and forecasted values, we must consider the years beyond 2019.[3]

[3] See *Forecast Income Components* and *Inflation Adjustments.*

Assumptions

In cases where we need to form an assumption about what to model, we use the most recent personal income tax bill, SB 6559 of 2016, as a guide.

Exemptions, deductions, and tax bracket cut points listed in Gates (2002) were applicable for tax year 2005. We will adjust them for inflation.

For computing the standard deduction, "earned income" has the same meaning as that provided by the IRS for the purpose of taxable earned income. It includes:

- Wages and salaries
- Union strike benefits
- Certain disability payments
- Net self-employment earnings
- Nontaxable combat pay.[4]

For computing the standard deduction, all joint filers are allowed at minimum a $7,000 deduction. See *Calculate Taxable* for more on this assumption.

The Department of Revenue would require 18 months to implement a personal income tax. For instance, if a personal income tax bill is enacted during the 2021 legislative session, the tax would take effect on January 1, 2023. The first payment would be due in April 2024, although withholdings and estimated payments would be due during 2023.

About the Data

IRS Individual Income Tax Data

The primary data sets used represent individual federal income tax returns and related information for Washington state residents.

Tax Returns: The IRS provides two data sets. The first, the IMF-IRTF table, represents individuals' returns. It contains over 200 variables, presenting most information found in Form 1040, along with key fields from Schedules A through F. It also includes certain fields from other forms, along with taxpayer information, such as birthdates, addresses, and dependent information.

Every August, to produce the IMF-IRTF table, the IRS extracts tax records posted during the previous twelve months. Each November they send us records for taxpayers who filed with a Washington address.

This dataset, as received from the IRS, consists of records from two tax years: the most recent year and the prior year. For instance, most records in Extract Year 2019 file were for tax year 2018, for "timely filers" –

[4] See https://www.irs.gov/credits-deductions/individuals/earned-income-tax-credit/earned-income.

those who met the April 15, 2019 deadline or filed an extension return by August 2019. However, a small number of records in this file was for tax year 2017, from "late filers" - those who filed by the October extension deadline or filed an amended return.

While the majority of returns are from timely filers, and thus we receive them relatively quickly, late filers report a significant portion of taxable income. This is because, on average, late filers have higher incomes than timely filers. For instance, for tax year 2017, late filers reported 16 percent of total AGI for Washington, and their average AGI was over twice that of timely filers (**Table 3**).

Table 3. Tax year 2017 records, individuals' returns (IMF-IRTF), by extract year. Analysis by author.

Extract Year	Number of Filers	Percent	Mean AGI	Total AGI	Percent
2018[5]	3,293,586	93%	75,000	245,839,000,000	84%
2019[6]	240,161	7%	198,000	47,654,000,000	16%
TOTAL	3,533,747	100%		293,493,000,000	100%

Because we use two separate extract years to form our datasets, summary statistics from our data may differ noticeably from statistics produced with a different data extraction method. Importantly, the IRS Statistics of Income division uses other methods to form single-tax year datasets. For instance, in the TY2017 Historic Table 2, records filed during the 2018 calendar year are summarized, regardless of the tax year they represent.

W-2s and other forms (IRMF): The second IRS dataset presents a variety of forms used by third parties to report on income received by taxpayers. Known as the IRMF table, it includes W-2s (wages and salaries), 1099s (various income types), and K-1s (income for partners and shareholders).

Each fall, the IRS provides us with IRMF records for the prior tax year, for all Washington taxpayers.

IRS Disclosure Rules: With the goal of holding individuals' information confidential, the I.R.S imposes strict requirements regarding the release of information obtained from these datasets. IRS guidance states that "tabulations that would pertain to specifically identified taxpayers or that would tend to identify a particular taxpayer, either directly or indirectly, may not be released."[7] . To comply with this requirement, we do the following:

- Release only tables with cell counts that exceed IRS minimums (Figure 1).
- Avoid disclosure of summary statistics that pertain to a single taxpayer (e.g. median, minimum, and maximum).
- Avoid releasing table cells displaying a sum or other statistic in which a single taxpayer's share of the total is 80 percent or more.

[5] Amended returns and returns filed by the October 2018 extension deadline.
[6] Returns filed by the April 2019 deadline, and returns with amendments or extensions received by August 2019.
[7] Internal Revenue Service (2016). *Publication 1075: Tax information security guidelines for federal, state and local agencies*. (https://www.irs.gov/pub/irs-pdf/p1075.pdf)

The PIT model will use the most recent IRS data, from TY 2017, as a starting point. We also have the same data on file for years 2011 through 2016. We have tested the 2017 data's validity and we feel confident it serves as a reliable basis for analysis.

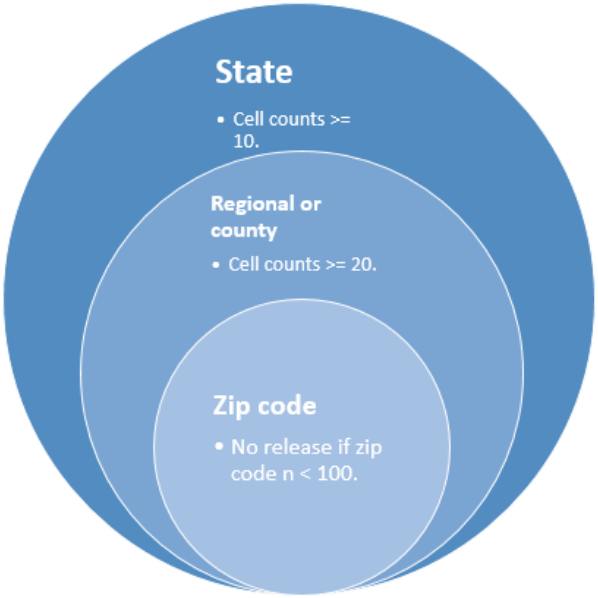

Figure 1. IRS disclosure requirements. Disclosed summary statistics based on IRS data must have cell counts great enough to prevent identification of a single taxpayer. Table cells for smaller geographic areas must have larger cell counts.

Department of Revenue data

Department of Revenue excise tax data represents tax payments by businesses and others. Major taxes represented include the B&O tax, sales and use tax, and the public utility tax. Tables with payment information list reporting line, and the amounts of gross receipts, taxable income, and tax due. Other tables list deductions and credits. Finally, detailed taxpayer information, such as federal employer identification number (FEIN), NAICS, and account opening dates, is presented in other tables. The Research and Fiscal Analysis Division produces these datasets and regularly tests their validity.

We plan to use Revenue data in one or more supplemental analyses (e.g. the B&O credit and a model for corporate conversions). We will provide more details about these datasets in our plans for these models.

See Appendix B for a detailed description of data tables and variables.

Methodology

Preliminary Analyses

Literature Search

Review research literature and web articles to gather information on these topics:

- Trends in state revenue collections
- Federal Tax Reform (Tax Cuts and Jobs Act of 2017)
    - List major provisions affecting federal individual income taxes
    - Summarize state impacts of TCJA
        - Changes in conformity
        - Estimated revenue impacts for states
    - Draw conclusions about which elements of TCJA could impact Washington PIT revenues

Descriptive Analyses

Summary using SOI Statistics

The IRS Statistics of Income division has published a summary of Washington's individual returns for TY2017. Review *Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2017* (link).

Using Table 2, produce graphic summaries depicting income sources – first for all taxpayers, and second breaking the summaries on AGI class. The analyst, in consultation with the study team, will determine which graphics would be most appropriate.

Summary using IRS Data

Produce frequencies tables for the following variables:

- Elderly (Y/N) – Filer
- Elderly (Y/N) – Spouse
- Filing Status (e.g. Single, Joint, Head of Household)
- Number of dependents

For joint filers, report on earned income by producing the following table:

Has Earned Income	Number of Filers	Mean AGI
Yes		
No		

Only filers reporting pass-through income may take the B&O tax credit. Produce the following table:

Pass-through Type	Number of Filers Reporting	Mean Pass-through Income	Mean AGI
All Pass-throughs		*Mean pass-through income*	
Partnership		*Mean partnership income*	
S-Corporation		*Mean S-corp income*	
Sole Proprietorship		*Etc.*	

Conformity

Use SB 6559 (2016) as a guide to form an assumption about when Washington would conform to federal tax provisions.

Corporate Conversions

Certain observers believe a significant amount of pass-through business activity converting to a corporate form in response to federal tax reform. If this is occurring, it constitutes a long-term change in the tax bases for both the PIT and the CIT.

We plan to obtain evidence for whether this has been occurring for businesses in Washington's tax base. We will discuss this topic with the Advisory Group at the March meeting.

Disabled Individuals

The proposal allows an additional $1,000 deduction for disabled individuals.[8] We assume "disabled" has the same meaning as that used for the purpose of the federal Elderly and Disabled Credit.[9]

Identifying which taxpayers would qualify as disabled under the federal definition presents challenges. We will discuss this topic with the Advisory Group at a future meeting.

Nonresidents and the Out-of-state Credit

Nonresidents with Washington income: For individuals who do not reside in Washington, we assume the tax is imposed upon all income derived from Washington sources.[10]

How can we account for:

- Wages and salaries paid to nonresidents by Washington employers?
- Partnership income allocated to nonresidents by Washington partnerships?
- S-corporation distributions to nonresidents, by Washington S-corps?
- Rental income received by nonresidents for Washington properties?
- Capital gains from sales of Washington property?
- Other income components, as appropriate?

Out-of-State Credit: The proposal allows a credit for "the amount of any income tax imposed by another state or foreign country, or political subdivision of the state or foreign country" on income taxed.[11]

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[8] SB 6559 (2016), Sec. 407
[9] See IRS (2019). *Credit for the elderly or the disabled at a glance.* (https://www.irs.gov/credits-deductions/individuals/credit-for-the-elderly-or-the-disabled)
[10] SB 6559 (2016), Sec. 301
[11] SB 6559 (2016), Sec. 302

For the purpose of fiscal note 6559-1 (2016), we assumed that "Income sourced from a different state and earned by Washington residents is roughly equal to income earned by non-residents and sourced to Washington." Therefore, we did not adjust the estimate for nonresidents or for an out-of-state credit.

Should we continue making this assumption?

If we estimate an out-of-state credit using the out-of-state tax amount shown in the IRS returns data, one challenge for making the estimate is that only itemizers report this value. Therefore, we cannot assume the data shows the full universe of out-of-state tax payments.

Timing of Payments

During FY2019, for states with a personal income tax, about 28 percent of revenues for were received in the months of February through April.[12] Revenues received in other months consisted mainly of withholdings and estimated payments by high-income taxpayers.

In our 2016 estimate for a personal income tax, we assumed that collections of all tax due for a given tax year occur from January through April of the following year.

For the new model, we will adjust this assumption, to account for withholdings and estimated payments. This will mean that some collections for tax year 2019 income will occur during FY2019.

Withholdings

We will develop a plan to estimate withholdings by employers. Collections will occur on a monthly basis.

Possible information to use include:

- Typical ratio of withholdings to wages / salaries - W-2 data would help.
- From Urban Institute data – withholdings from other states as compared with total revenues.

Estimated Payments (quarterly?)

We will develop a plan to estimate Estimated Payments. Collections would occur quarterly.

Possible information to use include:

- Typical ratio of estimated payments to other things. Possible sources include:
    - High-income taxpayers – total income or income from certain sources
    - From Urban Institute data – estimated payments from other states as compared with total payments.

[12] Author's calculation, based on *Monthly State Government Personal Income Tax* data from the Urban Institute Tax Policy Center.

Forecast income components

We maintain a *Personal Income Forecast*, where we select forecasted growth factors for each component of personal income. We obtain these growth factors from published forecasts relevant to each component. The following table lists income components and corresponding reference forecasts.

We typically update this forecast in September and November each year, to align with new forecasts from the Economic and Revenue Forecast Council (ERFC). For the use in the PIT model, we will update the forecast to align with the June ERFC forecast.

Income Component	Reference Forecast
Capital Gains	Congressional Budget Office (CBO): Capital Gains Projection
Dividends	I.H.S. Markit, Personal Dividend Income
Interest	I.H.S. Markit, Personal Interest Income
Pensions and Social Security	I.H.S. Markit, Transfer Payments
Schedule C (Sole Proprietors) and Schedule E (Partnerships, S-Corporations, Rental, Royalties)	Washington Economic and Revenue Forecast Council, Total B&O Taxable Activity
Schedule F (Sole Proprietors - Farms)	I.H.S. Markit, Proprietors' Income - Farm
Wages and Salaries	Washington Economic and Revenue Forecast Council, Real Wage and Salary Disbursement (Washington) and Seattle Consumer Price Index

To compute adjusted gross income (AGI), total adjustments are subtracted from total income. We forecast adjustments by using the forecast with the median cumulative growth rate over the forecast period; currently this is the Schedule C and Schedule E forecast. Then, for each forecasted year, we compute AGI.

To forecast the number of individual returns filed each year, we use the IRS forecast for Washington filers, found in the IRS Statistics of Income (SOI) Publication 6149.

We may decide to use the out-of-state credit amounts found in the IRS data to forecast values for an out-of-state credit. If we do this, we will need to develop a method to forecast the out-of-state credit.

Inflation Adjustments

To adjust the amounts of exemptions, deduction, and tax bracket cut points, we will use the consumer price indices (CPI) used by the IRS, as follows:

- 2005 through 2017: Consumer Price Index for All Urban Consumers (CPI-U)

- 2018 forward: Chained Consumer Price Index for All Urban Consumers (C-CPI-U)

For years 2020 and beyond, we would like to find a reference forecast to use for the C-CPI-U.

As an alternative to identifying a reference forecast, we will also consider:

- Reviewing the historic difference between the chained CPI and the unchained CPI, and
- Determining whether we could use a forecast for the unchained CPI as a proxy for a chained CPI forecast.

The study team members will coordinate our selection of inflation indices, to ensure consistency across analyses.

Obtain revenue targets

For the 2017-19 biennium, obtain total revenues received from (a) the state sales/use tax, (b) the state property tax, and (c) the B&O tax.

Main Analysis

Unless otherwise specified, we will perform all analysis at the taxpayer level, using IRS individual income tax returns data for tax year 2017. The tax base is each filer's AGI. Analysis for tax years 2018 and later is done using inflated values based on our reference forecasts. See *Forecast income components*, above, for a description of our methods for inflating values to future years.

We use SAS statistical software for all analysis, unless otherwise specified.

Calculate Taxable

Beginning with a taxpayer's adjusted gross income (AGI), we subtract the standard deduction and the personal exemptions to arrive at the taxable amount. Calculation of these adjustments is explained below.

Standard Deductions

SB 6559 (2016), Section 407 states:

(1) The standard deduction for an individual is:

(a) In the case of a joint return or a surviving spouse, seven thousand dollars if only one spouse has earned income and seven thousand dollars plus the earned income of the spouse with the lesser income, not to exceed ten thousand dollars in total, if both spouses have earned income;

(b) In the case of the head of a household, seven thousand dollars;

(c) In the case of an individual who is not married and who is not a surviving spouse or head of a household and in the case of a married individual filing a separate return, five thousand dollars.

Joint Filers and Surviving Spouses

Under SB 6559 (2016), the base standard deduction for joint filers and surviving spouses depends on whether filers were employed. For each married couple, if one spouse has earned income, the deduction is $7,000. If both spouses have earned income, the amount may be as high as $10,000. If neither spouse has earned income, the deduction amount is zero.

This means that joint filers with no earned income would have a deduction amount of zero.

However, for the purpose of this model, we assume that all joint filers receive a minimum deduction amount of $7,000.

Other Filers

The base standard deduction for other filers, for tax year 2005, was:

- Single filers, including married filing separate: $5,000
- Head of household filers: $7,000

Deduction for the Elderly

In addition to the base deductions already described, each filer who is age 65 years by the close of the tax year receives a $1,000 deduction (TY2005 amount). In the case of joint filers, if both spouses meet the age requirement, the amount is $2,000 (TY2005 amount).[13]

Deduction for the Disabled

Each filer who qualifies as disabled receives a $1,000 deduction. In the case of joint filers, if both spouses qualify as disabled, the amount is $2,000.[14]

A single filer who is both elderly and disabled receives a $1,000 deduction for each condition, to total $2,000 (which we will inflate to current values).

Personal Exemption

A personal exemption of $2,900 (TY2005 amount) for each primary filer, each spouse filer, and each dependent is allowed.[15]

Calculate Tax Due Before Credits

Multiply tax rate times the taxable amount.

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[13] SB 6559 (2016), Sec. 407(3)
[14] SB 6559 (2016), Sec. 407(4)
[15] SB 6559 (2016), Sec. 407(2)

Calculate Credits

Out-of-State Credit[16]

We need to decide if and how we will estimate this.

Business and Occupation (B&O) Credit[17]

We will describe our method for the B&O credit in a separate Model Review document, and make this available for an upcoming Advisory Group meeting.

Final Tax Due and Collections Amount

We will compute final tax due by subtracting all credits from Tax Due before Credit, setting a floor of zero.

To compute the collections amount, we will assume taxpayers comply at high rates: 90 percent in the first year and 95 percent thereafter.

We will estimate tax collections for each taxpayer by multiplying the compliance rate times the final tax due.

Estimate tax rates

We will obtain target revenue amounts (see *Obtain revenue targets*). Then we will estimate the tax rates needed to achieve revenue neutrality to the nearest one-tenth of one percent.

Flat Rate Tax (Objective 1)

Adjust the SAS program to run as a macro program that may take as an input a list of possible tax rates. The program will run over each tax rate and estimate revenues for each rate. For each proposal modeled (see *Objectives*, above), select the tax rate that most closely approximates the target revenues amount.

Graduated Rate Tax (Objective 2)

Tax brackets: The three brackets listed in the Gates report (2002) on page 60 will be inflated using IRS inflation factors. See *IRS Inflation Index* above for details.

For any given target revenue amount, since three tax rates may be selected, many combinations of rates could achieve revenue neutrality. For each revenue proposal modeled, we need to form an assumption about the relationship between tax rates in each bracket. For instance, in Table 4, tax rates differ by one percent as we compare adjacent brackets.

[16] SB 6559 (2016), Sec. 302
[17] SB 6559 (2016), Sec. 304

Table 4. Tax rates for hypothetical proposals for a graduated rate tax.

Proposal	Bracket 1	Bracket 2	Bracket 3
X	1.0%	2.0%	3.0%
Y	2.2%	3.2%	4.2%
Z	2.7%	3.7%	4.7%

However, if we compare the tax rates shown in the Gates (2002) report, page 60, no discernable pattern is evident.

We will consult with the Technical Advisory Group for suggestions on the relationship between tax rates.

Once we have formed an assumption, we will use the same method as that used for the flat rate proposals to find the array of rates that achieves revenue neutrality.

Flat Rate Tax with Corporate Income Tax (Objective 3)

Repeat the method used for a flat rate tax, but there is no fixed target revenues amount, since total revenues are the sum of those from the PIT and the CIT. Run the program over possible rates to arrive at total revenues. The CIT analyst will do the same with the CIT model. For each possible rate, total up revenues from both models and determine which rate comes closest to revenue neutrality.

Report Results

Summarize total revenues: For each proposal, produce a table with the following form, for all years estimated (Table 5).

Table 5. Dummy table showing summary statistics we will report for each year modeled.

Year	Type	Count	AGI	Taxable	Tax Due before Credit	B&O Credit	Tax Due Final	Mean AGI
2017	No tax due							
2017	Tax Due							

For years 2018 and later, inflate all values to reflect both forecasted growth in returns counts and per capita growth in income components.

Household Tax Burden: Produce two SAS datasets for use in the tax burden model. The first table provides the tax due for each taxpayer, under each proposal modeled (Table 6).

Table 6. Dummy table depicting taxpayer-level results, for use in the household tax burden model.

SSN	Proposal[1]	Tax Due
999	1A	
999	1B	
999	1C	
999	1D	
999	2A	
999	2B	
999	2C	
999	3E	
999	3F	

1. Proposal codes reference those shown in the *Objectives* section.

The second table lists the tax rates for each proposal. Three columns for rates are needed, since the graduated tax model has three rates (Table 7).

Table 7. Dummy table depicting proposals with revenue-neutral tax rates.

Proposal	Rate 1	Rate 2	Rate 3
1A			
1B			
Etc.			

Model Adjustments for Consideration

We will consider making these additional adjustments to the model.

Federal tax reform (2017 Tax Cuts and Jobs Act)

SALT Deduction Cap: Under federal tax reform, taxpayers faced a new $10,000 limit on the amount of state or local income taxes (SALT) they could deduct. High-income taxpayers in other states responded by shifting significant amounts of income from 2018 into 2017. While this phenomenon may be of lesser magnitude for Washington taxpayers, since we lack a PIT, we still may want to consider if an adjustment is appropriate.

Acceleration of Bonus Payments: Firms may have shifted bonus payments from 2018 into 2017 in order to claim a deduction at the higher tax rate in place for 2017. Therefore, wage income for tax year 2017 may show a one-time increase, particularly among higher-income filers.

Erosion of revenues in response to new tax

A California study found that high-income taxpayers responded to a tax rate increase by moving to other states or reducing taxable income. The state of California failed to realize 45 percent of expected revenues from the increase. (Rauh & Shyu 2019). Other research reports on this topic are available also. We may consider whether should adjust our model for this type of phenomenon.

Cross-validate assumed growth rates

We will base our model on 2017 tax data and forecast income amounts forward using published forecasts. We may want to cross-validate our projected growth with an external source. For instance, we have monthly data on collections from all states with a PIT. A comparison of projected revenues growth predicted by our model with actual trends could help inform an assessment of the accuracy of our forecast.

What other adjustments should we consider?

Appendix A: References

Dadayan, L. (2019). *Windfall "April surprises" made up for earlier shortfalls; State taxes returned to normal levels in the third quarter*. Urban Institute, Tax Policy Center. (https://www.taxpolicycenter.org/publications/state-tax-and-economic-review-2019-quarter-2/full)

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Appendix B: Data Tables

This appendix lists variables we plan to use in the analysis. See *About the Data* (above) for more on the data.

IRS - Individual Income Tax Returns

Dataset Name: Individual Master File (IMF) and Individual Return Transaction File (IRTF)

Filer Information

Description	Comment
Filer's Taxpayer Identification Number	
Filer's birthdate	
Spouse's birthdate	
Dependent birthdate	Up to four dependents may be listed
Filing Status	e.g. Single, Joint, Head of Household

Income Information

Description	Form 1040 Line
Wages and Salaries	Line 7
Interest (taxable)	Line 8a
Dividends	Line 9a
Taxable refunds, credits, or offsets of state and local income taxes	Line 10
Alimony	Line 11
Sole Proprietors (Sch. C)	Line 12
Capital gains (net, Sch. D)	Schedule D, sum of Lines 16 & 21.
Other Gains	Line 14
IRA distributions - Taxable	Line 15a
Pensions & Annuities	Line 16b
Sch. E (S-Corps, Partnerships, Rent, Royalties)	Line 17
Sole Proprietors (Sch. F)	Line 18
Unemployment compensation	Line 19
Social Security	Line 20b
Other Income	Line 21

Adjustments

Description	2017 Form 1040 Line
Educator expenses	Line 23
Certain business expenses	Line 24
Health savings account deduction	Line 25
Moving expenses	Line 26
Deductible part of self-employment tax	Line 27
Self-employed SEP, SIMPLE, and qualified plans	Line 28
Self-employed health insurance deduction	Line 29
Penalty on early withdrawal of savings	Line 30
Alimony paid	Line 31
IRA deduction	Line 32
Student loan interest deduction	Line 33
Tuition and fees	Line 34
Domestic production activities deduction	Line 35
Archer MSA Deduction	Line 36

Other variables

Description	2017 Form 1040 Line
Adjusted Gross Income (AGI)	Line 37
Self-employment tax	Line 57

W-2 Forms

Dataset Name: Information Returns Master File (IRMF)

We will use the W-2 forms to get information on wages/salaries and nontaxable combat pay, for the purpose of computing earned income.

Description	Comment
Filer's SSN	
Document Code	Indicates if this is a 1065, W-2, etc.
Payer's TIN	Taxpayer Identification Number
Amount Indicators 1 to 13	Code indicates what sort of income is shown in Amounts 1 to 13 (e.g. wages, nontax combat pay, etc.)
Amounts 1 to 13	

Other Forms

The IRMF dataset contains selected fields from the following forms:

Form Number	Name
1099-B	Broker and Barter Exchange Transactions
W-2	Wage and Tax Statement
1099-INT	Interest Income
5498	IRA Contributions
1099-MISC	Miscellaneous Income
1099-R	Pensions, Annuities, Retirement or Profit-Sharing Plans, IRAs, Insurance Contracts, etc.
1099-DIV	Dividends and Distributions
1098	Mortgage Interest
SSA-1099 or RRB-1099	Social Security Benefits or Railroad Retirement Board payments
1065 K-1	Partner's Share of Income, Deductions, Credits, etc.
1098-E	Student Loan Interest Statement
1098-T	Tuition Statement
1099-G	Certain Government Payments
W-2G	Certain Gambling Winnings
1099-K	Payment Card and Third Party Network Transactions
1120S K-1	Shareholder’s Share of Income, Deductions, Credits, etc.
1099-S	Proceeds from Real Estate Transactions
1099-OID	Original Issue Discount
1041 K-1	Beneficiary's Share of Income, Deductions, Credits, etc.
1099-C	Cancellation of Debt
1099-PATR	Distributions Received From Cooperatives
5498-ESA	Coverdell ESA Contribution Information
1099-A	Acquisition or Abandonment of Secured Property

Form Number	Name
8300	Cash Payments Over $10,000 Received In a Trade or Business
1099-H	Health Coverage Tax Credit (HCTC) Advance Payments
1099-CAP	Changes in Corporate Control and Capital Structure